The Metropolitan Water District of Southern California

Agenda

The mission of the Metropolitan Water District of Southern California is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

EOT Committee
D. Erdman, Chair
M. Petersen, Vice Chair
M. Camacho
A. Chacon
B. Dennstedt
S. Faessel
L. Fong-Sakai
L. Lefevre
C. Miller
J. Morris
G. Peterson
T. Quinn
T. Smith

Engineering, Operations, and Technology Committee

Meeting with Board of Directors *

January 9, 2023

9:30 a.m.

Monday, January 9, 2023 Meeting Schedule

09:00 a.m. Sp BOD
09:30 a.m. EOT
11:30 a.m. Break
12:00 p.m. OWS

Agendas, live streaming, meeting schedules, and other board materials are available here: https://mwdh2o.legistar.com/Calendar.aspx. A listen only phone line is available at 1-877-853-5257; enter meeting ID: 831 5177 2466. Members of the public may present their comments to the Board or a Committee on matters within their jurisdiction as listed on the agenda via in-person or teleconference. To participate via teleconference (833) 548-0276 and enter meeting ID: 815 2066 4276.

MWD Headquarters Building • 700 N. Alameda Street • Los Angeles, CA 90012

* The Metropolitan Water District's meeting of this Committee is noticed as a joint committee meeting with the Board of Directors for the purpose of compliance with the Brown Act. Members of the Board who are not assigned to this Committee may participate as members of the Board, whether or not a quorum of the Board is present. In order to preserve the function of the committee as advisory to the Board, members of the Board who are not assigned to this Committee will not vote on matters before this Committee.

1. Opportunity for members of the public to address the committee on matters within the committee's jurisdiction (As required by Gov. Code Section 54954.3(a))

**** CONSENT CALENDAR ITEMS -- ACTION ****

2. CONSENT CALENDAR OTHER ITEMS - ACTION

NONE

3. CONSENT CALENDAR ITEMS - ACTION

Zoom Online and Boardroom

7-1 Award a $14,820,500 contract to Steve P. Rados, Inc. to construct a bypass pipeline at the Wadsworth Pumping Plant as part of the water supply reliability improvements in the Rialto Pipeline service area; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (This action is part of a series of projects that are being undertaken to improve the supply reliability for State Water Project dependent member agencies) **21-1795**

Attachments: 01102023 EOT 7-1 B-L
01102023 EOT 7-1 Presentation

7-2 Review and consider Addendum No. 5 to the certified 2017 Programmatic Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program; award a $68,847,000 contract to J.F. Shea Construction, Inc. to rehabilitate Reach 3B of the Second Lower Feeder; and authorize an access and permitting agreement with City of Lomita in an amount not to exceed $310,000 **21-1796**

Attachments: 01102023 EOT 7-2 B-L and Attachments 1-5
01102023 EOT 7-2 Attachment 6
01102023 EOT 7-2 Attachment 7
01102023 EOT 7-2 Attachment 8
01102023 EOT 7-2 Presentation

7-3 Review and consider Addendum No. 3 to the certified 2005 Environmental Impact Report; award a $59,489,720 contract to James W. Fowler Company for construction of the Interstate 215 freeway tunnel crossing for the Perris Valley Pipeline; and authorize agreements with Parsons Environment & Infrastructure Group, Inc. for $1 million to provide technical support during construction, Mott McDonald Group for $3.5 million to provide construction management support, and Rincon Consultants, Inc. for $250,000 to provide specialized environmental support **21-1797**

Attachments: 01102023 EOT 7-3 B-L
01102023 EOT 7-3 Presentation

7-4 Authorize an agreement with Arcadis U.S., Inc. in an amount not to exceed $2 million for preliminary design to rehabilitate the finished water reservoirs at Henry J. Mills and Joseph Jensen Water Treatment Plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-1798**

Attachments: 01102023 EOT 7-4 B-L
01102023 EOT 7-4 Presentation

7-5 Authorize an agreement with the joint venture of AECOM Technical Services, Inc. and Brown and Caldwell in an amount not to exceed $25 million for program management services to support the Pure Water Southern California program; and authorize an increase of $950,000 to an existing agreement with CDM Smith, Inc. for a not-to-exceed total of $3.7 million to support the program's ongoing process demonstration effort; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-1799**

Attachments: 01102023 EOT 7-5 B-L
01102023 EOT 7-5 Presentation

7-6 Amend the Capital Investment Plan for fiscal years 2022/2023 and 2023/2024 to include the Foothill Feeder Valve Replacement project; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA **21-1800**

Attachments: 01102023 EOT 7-6 B-L
01102023 EOT 7-6 Presentation

7-7 Authorize an agreement with SpearMC Management Consulting, Inc. in an amount not-to-exceed $1,300,000 for the implementation of the following PeopleSoft Modules from the Oracle Cloud Human Capital Management Software Application Suite: Time & Labor and Absence Management for Payroll and Timekeeping System Improvements, including Maximo interface; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-1803**

Attachments: 01102023 EOT 7-7 B-L
01102023 EOT 7-7 Presentation

7-8 Authorize an agreement with Digital Scepter Corporation in an amount not to exceed $1,469,000 for procurement of equipment to replace network switches at Metropolitan's Headquarters Building at Union Station; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-1804**

Attachments: 01102023 EOT 7-8 B-L
01102023 EOT 7-8 Presentation

**** END OF CONSENT CALENDAR ITEMS ****

4. OTHER BOARD ITEMS - ACTION

NONE

5. BOARD INFORMATION ITEMS

NONE

6. COMMITTEE ITEMS

a. Metropolitan's Dam Safety Initiatives Program **21-1801**

Attachments: 01092023 EOT 6a Presentation

b. 2022 System Operations: A Year in Review **21-1802**

Attachments: 01092023 EOT 6b Presentation

7. MANAGEMENT REPORTS

a. Water System Operations Manager's Report **21-1805**

Attachments: 01092023 EOT 7a Presentation

b. Engineering Services Manager's Report **21-1806**

Attachments: 01092023 EOT 7b Presentation

c. Information Technology Manager's Report **21-1823**

8. FOLLOW-UP ITEMS

NONE

9. FUTURE AGENDA ITEMS

10. ADJOURNMENT

NOTE: This committee reviews items and makes a recommendation for final action to the full Board of Directors. Final action will be taken by the Board of Directors. Agendas for the meeting of the Board of Directors may be obtained from the Board Executive Secretary. This committee will not take any final action that is binding on the Board, even when a quorum of the Board is present.

Writings relating to open session agenda items distributed to Directors less than 72 hours prior to a regular meeting are available for public inspection at Metropolitan's Headquarters Building and on Metropolitan's Web site http://www.mwdh2o.com.

Requests for a disability related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Board Executive Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

- **Board of Directors**
  Engineering, Operations and Technology Committee

1/10/2023 Board Meeting

7-1

Subject

Award a $14,820,500 contract to Steve P. Rados, Inc. to construct a bypass pipeline at the Wadsworth Pumping Plant as part of the water supply reliability improvements in the Rialto Pipeline service area; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (This action is part of a series of projects that are being undertaken to improve the supply reliability for State Water Project dependent member agencies)

Executive Summary

The current state-wide drought and resulting low allocation of State Water Project (SWP) supplies by the California Department of Water Resources (DWR) have directly impacted Metropolitan's ability to deliver water to the Rialto Pipeline service area. Construction of infrastructure improvements to enable the delivery of water from Diamond Valley Lake (DVL), and possibly the Colorado River Aqueduct, would benefit this area and preserve limited SWP supplies for the West Branch SWP member agencies. This action awards a construction contract to construct a pipeline interconnecting the Wadsworth pump discharge pipeline to the Inland Feeder at the Wadsworth Pumping Plant. This project is one of four associated projects which are currently underway to enable the direct delivery of water from DVL to the Rialto Pipeline through the Inland Feeder. This contract will be conducted under the terms of Metropolitan's project labor agreement (PLA).

Details

Background

The Rialto Pipeline, constructed in 1972, is approximately 30 miles long with a diameter ranging from 96 inches to 144 inches. It conveys untreated water from DWR's Lake Silverwood to Metropolitan's Live Oak Reservoir and ultimately into the F.E. Weymouth Water Treatment Plant in La Verne. Member agencies with service connections on the Rialto Pipeline include the Inland Empire Utilities Agency, Three Valleys Municipal Water District, and the Upper San Gabriel Valley Municipal Water District. These agencies use the untreated water for groundwater replenishment or as the source water to their water treatment plants.

Metropolitan's DVL provides emergency storage in the event of a major earthquake, carryover storage as a reserve for drought conditions, and seasonal storage to meet annual member agency demands. DVL is Metropolitan's largest reservoir, with a maximum storage capacity of 810,000 acre-feet. At this time, the Rialto Pipeline is unable to access the water stored in DVL due to infrastructure and operational constraints and hydraulic limitations.

In December 2021, the Board authorized amending the Capital Investment Plan (CIP) to include water supply reliability improvements in the Rialto Pipeline service area. The improvements are being implemented in stages. Stage 1 includes the Wadsworth Pumping Plant Bypass Pipeline, the Inland Feeder/Rialto Pipeline Intertie, and the Inland Feeder Badlands Tunnel Surge Protection Facility. These infrastructure modifications will allow for the delivery of up to 60 cubic feet per second (cfs) from DVL to the Rialto Pipeline service area. Stage 2 of the improvements program includes making connections between the Inland Feeder and San Bernardino Valley Municipal Water District's (SBVMWD) Foothill Pump Station near the city of Highland. When both stages of the Rialto Pipeline Water Supply Reliability Improvements are completed, up to 120 cfs of DVL water can be delivered to the Rialto Pipeline. These incremental infrastructure improvements, coupled with existing facilities,

would significantly increase operational flexibility and enhance the water supply availability to member agencies with service connections on the Rialto Pipeline. This alternative supply delivery approach will directly benefit West Branch SWP member agencies by allowing limited SWP supplies to be reallocated to the West Branch of the SWP.

Construction of the bypass pipeline will improve Metropolitan's ability to deliver flows north of the Wadsworth Pumping Plant. Currently, water is conveyed from DVL by gravity to the Henry J. Mills Water Treatment Plant through the Inland Feeder. The Wadsworth Pumping Plant could also be used to pump water from the DVL forebay into the Inland Feeder toward the Rialto Feeder area, which is at a much higher elevation than the Mills plant. Currently, once the forebay is emptied, pumping to Inland Feeder must stop so that the forebay can be refilled with DVL water. The recommended bypass pipeline will allow the forebay to be filled continuously from DVL without disrupting the pumping operation.

Design activities for the Wadsworth Pumping Plant Bypass Pipeline are complete, and staff recommends proceeding with construction at this time. Design activities are underway for the two remaining Stage 1 projects and are scheduled to be completed by early 2023. Design of Stage 2 work (SBVMWD Foothill Pump Station Intertie) is anticipated to be completed by mid-2023.

In accordance with the April 2022 action on the biennial budget for fiscal years 2022/23 and 2023/24, the General Manager will authorize staff to proceed with construction of the Wadsworth Pumping Plant Bypass Pipeline, pending board award of the construction contract described below. Based on the current CIP expenditure forecast, funds for the work to be performed pursuant to the subject contracts during the current biennium are available within the CIP Appropriation for fiscal years 2022/23 and 2023/24 (Appropriation No. 15525). This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP evaluation team to be included in the Supply Reliability Program.

Wadsworth Pumping Plant Bypass Pipeline – Construction

The scope of the construction contract consists of constructing an approximately 600-foot-long, 96-inch-diameter steel pipeline interconnecting the Wadsworth Pumping Plant discharge pipeline and the Inland Feeder at the Wadsworth Pumping Plant, including concrete encasement of the pipeline, construction of a partially buried isolation valve structure, relocation of utilities, and asphalt removal and replacement. Metropolitan forces will dewater the pipelines, establish clearances, and return the system to service. The interconnection work will be conducted during a single upcoming twenty-day shutdown scheduled for April 2024.

A total of $19.6 million is allocated for this work. In addition to the contract amount, allocated funds for work by Metropolitan staff include: $1,928,000 for construction management and inspection; $430,000 for Metropolitan force shutdown activities; $429,000 for submittals review, responding to requests for information, and preparation of record drawings; $482,000 for contract administration, environmental monitoring support, PLA administration, and project management; and $1,510,500 for remaining budget. **Attachment 1** provides the allocation of the required funds. The total estimated cost to complete construction of the Wadsworth Pumping Plant Bypass Pipeline, including the amount appropriated to date and funds allocated for the work described in this action, is $22.8 million.

Award of Construction Contract (Steve P. Rados, Inc.)

Specifications No. 2020 for the construction of the Wadsworth Pumping Plant Bypass Pipeline were advertised on September 30, 2022. As shown in **Attachment 2**, three bids were received and opened on December 13, 2022. The low bid from Steve P. Rados, Inc. in the amount of $14,820,500 complies with the requirements of the specifications. The engineer's estimate for this project was $18.2 million. For this contract, Metropolitan established a Small Business Enterprise (SBE) participation level of at least 20 percent of the bid amount. Steve P. Rados, Inc. has committed to meeting this participation level. The subcontractors for this contract are listed in **Attachment 3**. This contract will be conducted under the terms of Metropolitan's PLA.

As described above, Metropolitan staff will perform construction management and inspection. The total cost of construction for this project is $17,238,500, which includes the amount of the contract ($14,820,500), a Metropolitan-furnished 84-inch diameter butterfly valve and other previously procured materials ($1,988,000), and Metropolitan force activities ($430,000). Engineering Services' performance metric goal for inspection of

projects with construction greater than $3 million is 9 to 12 percent. For this project, the performance metric for inspection is 11.2 percent of the total construction cost.

Alternatives Considered

Staff considered several alternatives for the alignment and construction of the Wadsworth Pumping Plant Bypass Pipeline. Initially, staff considered a conventional buried pipeline; however, the site's underlying soil consists of extremely hard rock which makes excavation difficult and expensive without the use of blasting techniques. In addition, several large pipelines and numerous conduits are located in the immediate vicinity, and blasting of the rock could risk damaging these existing facilities. Additionally, deep excavations or relocations of the existing pipelines would have been required to avoid these existing pipelines. With the selected alignment configuration, the pipeline is partially buried and encased in concrete; this approach minimizes hard rock excavation and avoids relocating other major pipelines.

Summary

This action awards a $14,820,500 contract to Steve P. Rados, Inc. to construct the Wadsworth Pumping Plant Bypass Pipeline. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, **Attachment 3** for the Listing of Subcontractors for the Low Bidder, and **Attachment 4** for the Location Map.

Project Milestone

May 2024 – Completion of construction

Policy

Metropolitan Water District Administrative Code Section 8121: Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of $600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/2023 and 2023/2024.

By Minute Item 52626, dated December 14, 2021, the Board amended the current CIP to include projects to improve water supply reliability in the Rialto Pipeline service area.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of the installation of a new pipeline or the maintenance, repair, replacement, removal, or demolition of an existing pipeline of less than one mile in length within a public right-of-way. Accordingly, the proposed actions qualify under a statutory exemption (Section 21080.21 of the California Public Resources Code and Section 15282(k) of the State CEQA Guidelines). Additionally, the proposed actions are categorically exempt under the provisions of CEQA and the State CEQA Guidelines. In particular, the proposed action consists of the funding, design, minor alterations, and reconstruction or replacement of existing public facilities with negligible or no expansion of use and no possibility of significantly impacting the physical environment. Further, the proposed action consists of basic data collection, research, experimental management, and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed action qualifies under Class 1, Class 2, and Class 6 Categorical Exemptions (Sections 15301, 15302, and 15306 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Award a $14,820,500 contract to Steve P. Rados, Inc. to construct a bypass pipeline at the Wadsworth Pumping Plant as part of water supply reliability improvements in the Rialto Pipeline service area.

Fiscal Impact: Expenditure of $19.6 million in capital funds. All costs will be incurred in the current biennium and have been previously authorized.

Business Analysis: This option will improve the operational reliability of water deliveries to member agencies with connections to the Rialto Pipeline.

Option #2

Do not proceed with the project at this time.

Fiscal Impact: None

Business Analysis: This option would forego improving the reliability of service to those member agencies with connections to the Rialto Pipeline.

Staff Recommendation

Option #1

12/21/2022
John V. Bednarski *Date*
Chief Engineer/Manager
Engineering Services

for 12/22/2022
Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Subcontractors for Low Bidder

Attachment 4 – Location Map

Ref# es12686085

Allocation of Funds for Wadsworth Pumping Plant Bypass Pipeline

	Current Board Action (Jan. 2023)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	482,000
Submittals Review & Record Drwgs.	429,000
Construction Inspection & Support	1,928,000
Metropolitan Force Construction	336,000
Materials & Supplies	94,000
Incidental Expenses	-
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	-
Steve P. Rados. Inc.	14,820,500
Remaining Budget	1,510,500
Total	**$ 19,600,000**

The total amount expended to date for the Wadsworth Pumping Plant Bypass Pipeline is $3.2 million. The total estimated cost to complete construction, including the amount appropriated to date, and funds allocated for the work described in this action, is $22.8 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on December 13, 2022, at 2:00 P.M.

Specifications No. 2020
Wadsworth Pump Plant Bypass Pipeline

The work includes installation of approximately 600 linear feet of a 96-inch-diameter pipeline, construction of a valve structure, and relocation of a transformer and switchgear.

Engineer's estimate: $18,200,000

Bidder and Location	Total	SBE $	SBE %	Met SBE[1]
Steve P. Rados, Inc. Santa Ana, CA	**$14,820,500**	**$5,776,588**	**39**	**Yes**
CCL Conracting, Inc. Escondido, CA	$16,225,000	-	-	-
Shimmick Construction Co., Inc. Irvine, CA	$18,299,000	-	-	-

[1] Small Business Enterprise (SBE) participation level established at 20% for this contract.

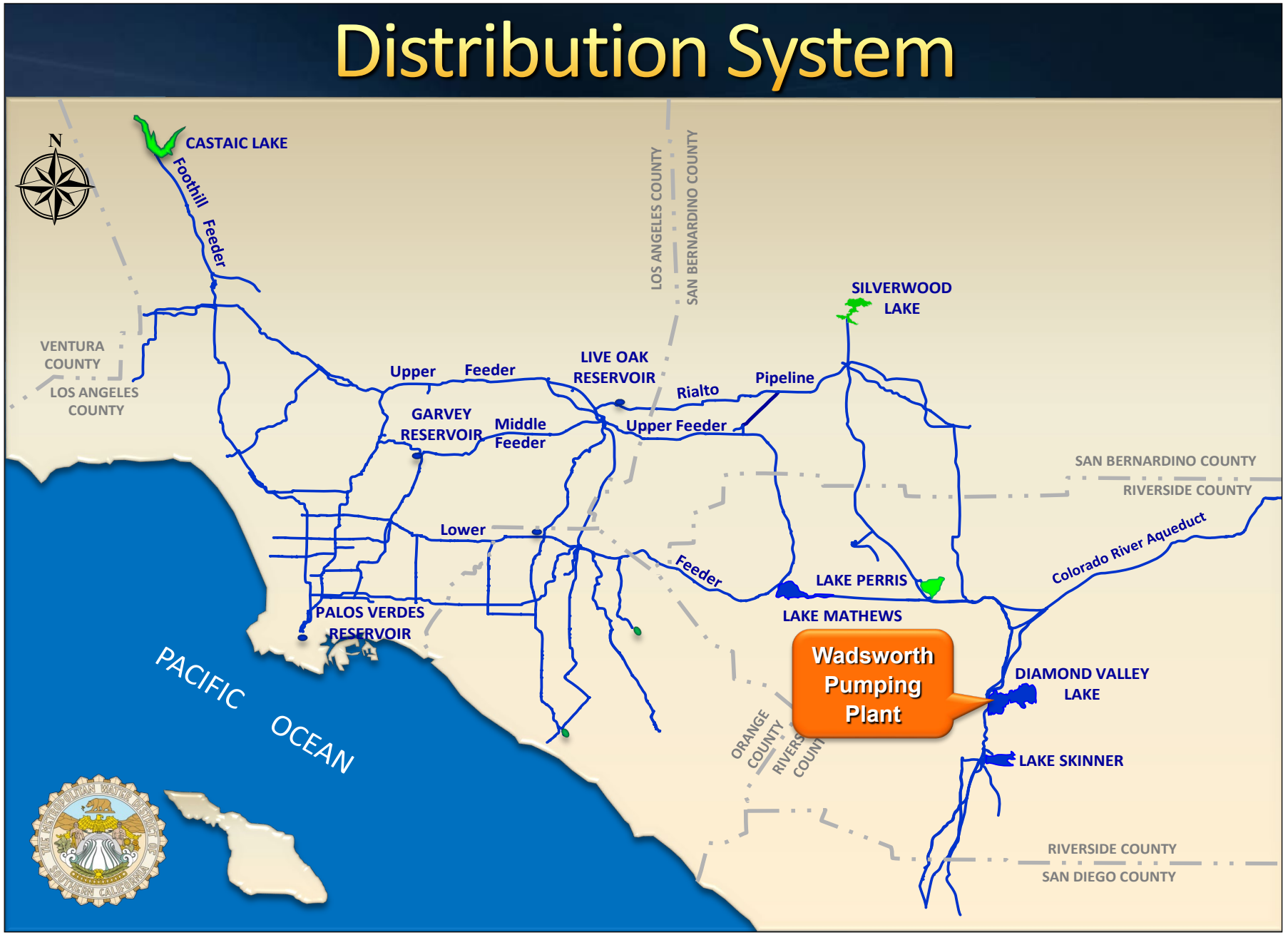
The Metropolitan Water District of Southern California

Subcontractors for Low Bidder

Specifications No. 2020
Wadsworth Pumping Plant Bypass Pipeline

Low bidder: Steve P. Rados, Inc.

Subcontractor and Location
Amber Steel Company Rialto, CA
Dean's Certified Welding, Inc. Temecula, CA
Farwest Corrosion Control Company Downey, CA
Leed Electric, Inc. Santa Fe Springs, CA
Techno Coatings, Inc. Anaheim, CA
Dirdy Deedz Dumping Los Angeles, CA
Landmark Surveying Highland, CA
Nickolas Steel Ontario, CA
ZILA Los Angeles, CA
USC Supply Auburn, CA


Distribution System
N
CASTAIC LAKE
Foothill Feeder
VENTURA COUNTY
LOS ANGELES COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
Upper Feeder
LIVE OAK RESERVOIR
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Lower Feeder
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
Wadsworth Pumping Plant
DIAMOND VALLEY LAKE
PACIFIC OCEAN
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY

Engineering, Operations, & Technology Committee

Wadsworth Pumping Plant Bypass Pipeline

Item 7-1

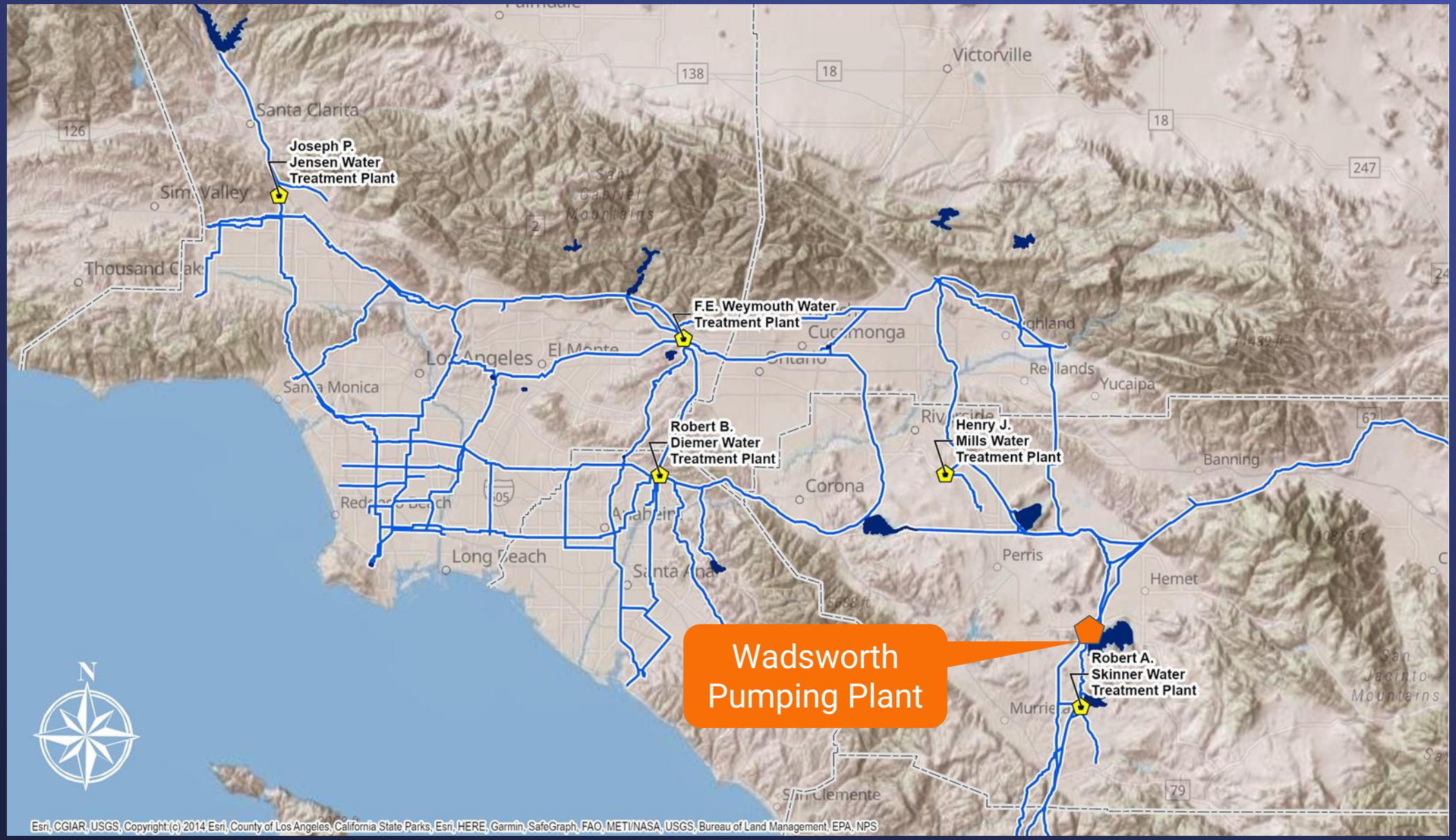
January 9, 2023

Wadsworth Bypass Pipeline

Current Action

- Award a $14,820,500 contract to Steve P. Rados, Inc. to construct a bypass pipeline at the Wadsworth Pumping Plant as part of the water supply reliability improvements in the Rialto Pipeline service area
  - Part of series of projects to improve supply reliability for SWP dependent member agencies

Distribution System



Wadsworth Bypass Pipeline

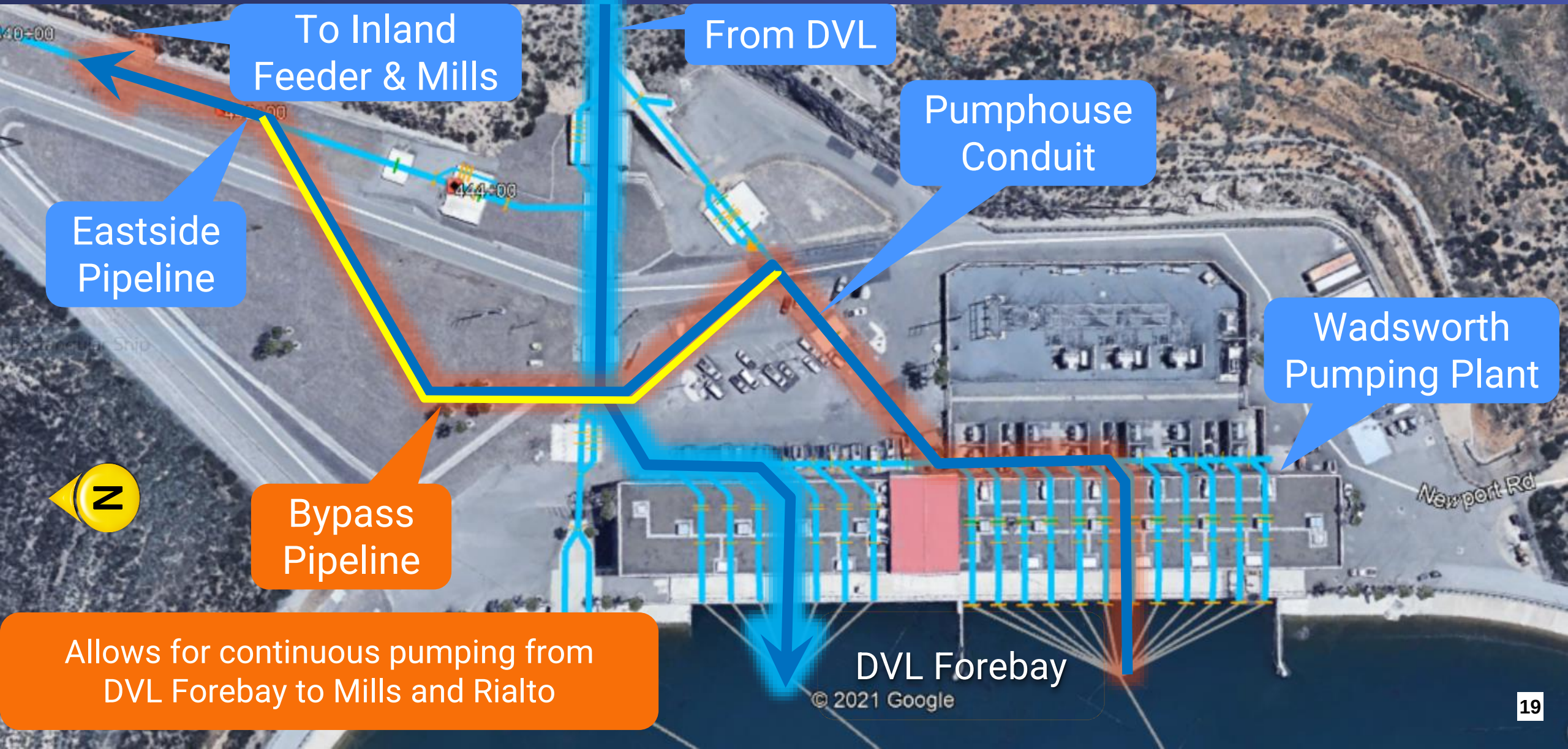
Background

- Rialto Pipeline conveys SWP supplies to Inland Empire Utilities Agency, Three Valleys MWD & Upper San Gabriel Valley MWD
- DVL is Metropolitan's largest reservoir
  - DVL helps meet member agency demands under normal, drought, & emergency conditions
- Rialto Pipeline unable to access water stored in DVL or from CRA due to infrastructure & operational constraints

Background – On-going Water Supply Reliability Improvements

- Four projects initiated to improve supply reliability of State Water Project dependent areas
- Wadsworth bypass is first project to go into construction
- Final design ongoing for remaining three projects

Wadsworth Pumping Plant With Bypass Pipeline



Wadsworth Bypass Pipeline

Alternatives Considered

- Buried pipeline
  - Underlying soil is extremely hard rock
  - Blasting of rock could damage nearby facilities
  - Interfering utilities in the area
- Partially buried pipeline encased in concrete (selected option)
  - Minimizes excavation in extremely hard rock
  - Avoids relocating other major pipelines

Contractor Scope of Work

- Install approx. 600 feet 96-inch pipe
- Encase pipeline in concrete
- Construct valve structure
- Protect or relocate utilities
- Perform traffic control & restore access rods and parking area, as required

Project Site: Looking East From Location of New Valve Structure Towards Pumphouse Conduit

Metropolitan Scope of Work

- Force Construction
  - Remove & replace valves & blind flanges for pipe access
  - Coordinate shutdown & dewatering of pipeline
- Field inspection & construction management
- Submittal review & technical support
- Administer Project Labor Agreement
- Respond to requests for information
- Environmental monitoring, project management, & contract administration

Project Site: Looking East Towards DVL Entrance Gate

Bid Results

Specifications No. 2020 **

Bids Received	December 13, 2022
No. of Bidders	3
Lowest Responsible Bidder	Steve P. Rados, Inc.
Low Bid	$14,820,500
Range of Other Bids	$16.2 M to $18.3 M
Engineer's estimate	$18.2 M
SBE Participation*	39%

*SBE (Small Business Enterprise) participation level set at 20

**This contract will be conducted under the terms of Metropolitan's project labor agreement

Allocation of Funds

Wadsworth Pumping Plant Bypass Pipeline

Metropolitan Labor	
Owners Costs (Proj. Mgmt., Contract Admin., Envir. Support)	$ 482,000
Construction Inspection & Support	1,928,000
Force Construction	336,000
Submittals Review, Tech. Support, Record Dwgs.	429,000
Materials & Incidentals	94,000
Contracts	
Steve P. Rados, Inc.	14,820,500
Remaining Budget	1,510,500
Total	$ 19,600,000

Project Schedule

Board Options

- Option #1

  Award a $14,820,500 contract to Steve P. Rados, Inc. to construct a bypass pipeline at the Wadsworth Pumping Plant as part of water supply reliability improvements in the Rialto Pipeline service area.
- Option #2

  Do not proceed with the project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

- **Board of Directors**
  Engineering, Operations and Technology Committee

1/10/2023 Board Meeting

7-2

Subject

Review and consider Addendum No. 5 to the certified 2017 Programmatic Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program; award a $68,847,000 contract to J.F. Shea Construction, Inc. to rehabilitate Reach 3B of the Second Lower Feeder; and authorize an access and permitting agreement with city of Lomita in an amount not to exceed $310,000

Executive Summary

The Second Lower Feeder is the initial pipeline to be addressed under Metropolitan's Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program. This pipeline has been in continuous service for over 50 years and has required several urgent repairs to its PCCP segments. Due to the shorter-than-expected service life of PCCP, all PCCP within the Second Lower Feeder will be lined with new steel liner pipe or replaced. This action represents the fifth major contract to reline the PCCP sections within the Second Lower Feeder under this program. This action awards a construction contract to install approximately 19,500 feet of welded steel liner pipe and replaces three sectionalizing valves within the Second Lower Feeder in the cities of Lomita, Los Angeles, and Torrance. This action also authorizes a $310,000 access and permitting agreement with the city of Lomita. This contract will be conducted under the terms of Metropolitan's project labor agreement (PLA).

Details

Background

In September 2011, Metropolitan's Board authorized the initiation of the PCCP Rehabilitation Program to develop a comprehensive, long-term plan for the replacement or relining of Metropolitan's at-risk PCCP lines. Metropolitan's strategy for maintaining PCCP reliability consists of four coordinated elements: (1) continued assessment and monitoring of PCCP lines; (2) monitoring of stray currents and installation of cathodic protection; (3) near-term repair of distressed PCCP segments; and (4) long-term rehabilitation.

Assessments of Metropolitan's 27 PCCP feeders led to five lines being identified as priority lines to be addressed under the PCCP Rehabilitation Program. These priority lines include: (1) the Allen-McColloch Pipeline; (2) the Calabasas Feeder; (3) the Rialto Pipeline; (4) the Second Lower Feeder; and (5) the Sepulveda Feeder. A proactive, long-term program to rehabilitate these five feeders has been incorporated into Metropolitan's Capital Investment Plan (CIP). Background information on the program is included in **Attachment 2**, along with the status of activities within each of the four aforementioned PCCP Rehabilitation Program elements.

In January 2017, Metropolitan's Board certified the Final Programmatic Environmental Impact Report (Final PEIR) for the PCCP Rehabilitation Program for the purpose of compliance with the California Environmental Quality Act (CEQA). The inclusion of all five lines within a single programmatic CEQA document provides flexibility to adjust construction sequencing by enabling the rehabilitation of specific reaches of PCCP to move forward based on the most up-to-date condition assessments and priorities.

The Second Lower Feeder delivers treated water from the Robert B. Diemer Water Treatment Plant in the city of Yorba Linda to Palos Verdes Reservoir in the city of Rolling Hills Estates. This pipeline was completed in 1970 and is 39 miles long, with diameters ranging from 78 inches to 84 inches. The pipeline originally contained approximately 30 miles of PCCP, with the remainder constructed of welded steel pipe. The Second Lower Feeder operates at pressures up to 300 pounds per square inch and crosses through a dense urban area.

The Second Lower Feeder is the initial PCCP pipeline to be addressed under the PCCP Rehabilitation Program due to its condition, its history of repairs, the presence of corrosive soils and third-party stray currents, and its high internal operating pressure. Rehabilitation of 14 of the original 30 miles of PCCP has been completed to date. In May 2019, Metropolitan's Board also authorized procurement of 12,150 feet of welded steel liner pipe for current and future Second Lower Feeder PCCP relining projects. Approximately 6,660 feet of that pipe is being utilized for relining work currently underway under the Second Lower Feeder Reach 3A rehabilitation. The remaining 5,490 feet of liner will be utilized for the relining work to be performed by the contractor under the subject construction contract. The contractor will then procure the remaining amounts of steel liner under this contract to complete the project. The use of the pre-purchased steel liner will allow the contractor to expedite the start of the lining work while the remaining liner is being fabricated.

Final design for the rehabilitation of 19,500 feet of PCCP portions of the Second Lower Feeder within the cities of Lomita, Los Angeles, and Torrance was completed in September 2022. Specifications for this work have been advertised, and bids received as discussed below, and staff recommends moving forward with construction at this time. Rehabilitation of the remaining 15.8 miles of PCCP within the Second Lower Feeder will be the subject of future actions over several years, with multiple construction and procurement contracts.

In accordance with the April 2022 action on the biennial budget for fiscal years 2022/23 and 2023/24, the General Manager will authorize staff to proceed with the actions described below, pending board award of the construction contract. Based on the current CIP expenditure forecast, funds for the work to be performed pursuant to this action during the current biennium are available within the CIP Appropriation for Fiscal Years 2022/23 and 2023/24 (Appropriation No. 15525). Funds required for work to be performed pursuant to the subject contract after fiscal year 2023/24 will be budgeted within the CIP appropriation for fiscal years 2024/25 and 2025/26. This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP Evaluation Team to be included in the PCCP Reliability Program.

Second Lower Feeder PCCP Rehabilitation, Reach 3B – Construction

The scope of the contract includes lining approximately 19,500 feet of existing PCCP segments along the southwestern portion of the Second Lower Feeder traversing the cities of Los Angeles, Torrance, and Lomita. The existing pipes will be lined with smaller diameter steel liner sections that will accommodate full internal and external pressures on the pipeline. The work also includes replacing three 42-inch sectionalizing valves with three new 48-inch sectionalizing valves; enlarging four existing maintenance holes and constructing seven additional ones for safer egress; construction and removal of a temporary bypass line at Palos Verdes Reservoir to enable Metropolitan to sustain minimal member agency water demands during project shutdowns; and relocation of eight air release and vacuum valves from below grade to above grade to reduce the risk of cross contamination of the pipeline's potable water supply.

To minimize above-ground impacts during construction, seven access shafts will be excavated to allow for installation of the new steel liners. This project will be completed over three shutdown periods scheduled during cooler months to minimize water supply impacts to member agencies. The planned shutdowns for the construction contract extend nearly five months, from early December 2023 through late April 2024, and from early December 2024 through late April 2025. A final two-week shutdown is required in January 2026 for Metropolitan forces to remove temporary isolation bulkheads and piping at the Palos Verdes Reservoir.

Metropolitan forces will perform pipeline shutdown work, including isolation and dewatering of portions of the Second Lower Feeder, Sepulveda Feeder, Palos Verdes Feeder, Palos Verdes Reservoir, and various member agency service connections in preparation for the contractor's work. The first shutdown will isolate approximately five miles of the Second Lower Feeder and the terminus of the Palos Verdes Feeder. The second shutdown includes the same facilities as the first plus an additional four miles of the Second Lower Feeder plus three miles of the southern portion of the Sepulveda Feeder. The third and final shutdown will impact the southern 1.1 miles of the Second Lower Feeder from the Oak Street Pressure Control Structure to the Palos Verdes Reservoir.

A total of $93.8 million is required for this work. In addition to the amount of the contract described below, other funds to be allocated include $8,400,000 for construction management and inspection; $6,422,000 for Metropolitan force work as described above; $3,310,000 for contract administration, environmental support,

project management, and temporary accommodations for impacted residents; and $1,971,000 for submittal review and preparation of record drawings. Professional services include $510,000 for technical support during construction by Black and Veatch, Inc.; $500,000 for PLA administration services with Parsons Constructors, Inc.; $220,000 for environmental monitoring and reporting by Helix Group Inc.; and $150,000 for community outreach services by Water System Consulting, all under existing board-authorized agreements. Right-of-way and permitting costs include $450,000 for land lease fees payable to Los Angeles Community College District for storage of Metropolitan-furnished liner pipe (approximately $290,000 of which will be payable under an existing board-authorized agreement that expires in January 2025 and the remaining $160,000 under a future agreement that will start in February 2025 and may be the subject of a future board action); $310,000 for an access and permitting agreement with the city of Lomita; $250,000 for a median and landscaping restoration agreement with the Los Angeles Conservation Corps, to be awarded under the General Manager's Administrative Code authority to award contracts of $250,000 or less; and $75,000 for a land lease agreement with the city of Torrance for the temporary storage of valves and construction equipment, to be awarded under the General Manager's Administrative Code authority to award contracts of $250,000 or less. Funds allocated for remaining funds are $2,385,000.

The total amount expended to date for PCCP rehabilitation of Second Lower Feeder Reach 3B is approximately $14.2 million, including design and liner pipe procurement. The total estimated cost to complete the Reach 3B rehabilitation, including the amount appropriated to date and funds allocated for the work described in this action, is approximately $108 million.

Award of Construction Contract (J.F. Shea Construction, Inc.)

Specifications No. 2026 for the rehabilitation of PCCP segments within the Second Lower Feeder was advertised for bids on September 21, 2022. As shown in **Attachment 3**, three bids were received and opened on December 8, 2022. The low bid from J.F. Shea Construction, Inc. in the amount of $68,847,000 complies with the requirements of the specifications. The other bids ranged from $87,991,972 to $112,206,766, while the engineer's estimate was $72 million. For this contract, Metropolitan established a Small Business Enterprise participation level of at least ten percent of the bid amount. J.F. Shea Construction, Inc. has committed to meet this level of participation. The subcontractors for this contract are listed in **Attachment 4**. This contract will be conducted under the terms of Metropolitan's PLA.

As described above, Metropolitan staff will perform construction management and inspection with assistance from a specialty welding inspection consultant. Engineering Services' performance metric target range for construction management and inspection of projects with construction greater than $3 million is 9 to 12 percent. For this project, the performance metric goal for inspection is 9.8 percent of the total construction cost. The total cost of construction for this project is $85,659,000, which includes the cost of the contract ($68,847,000), Metropolitan force construction and supplies ($6,422,000), three large diameter valves ($5,324,000), steel liner pipe ($4,816,000), and street median restoration ($250,000).

Access and Permitting Agreement (City of Lomita) – New Agreement

This action authorizes an access and permitting agreement with the city of Lomita in an amount not to exceed $310,000. This amount includes $235,850.47 for permit fees during the planned construction duration, and an option to extend the permit on a month-to-month basis for an additional six months at a rate of $11,609 per month. Work is not expected to extend beyond the planned construction duration, but the standard city of Lomita contract language requires a six-month deposit for any extension of the work duration, with unused funds to be reimbursed to Metropolitan.

Alternatives Considered

Staff evaluated two alternatives to rehabilitating the southernmost reach of the PCCP portions of the Second Lower Feeder, which consist of 26,000 feet of PCCP and three sectionalizing valves. The first alternative would perform all work under one construction contract. However, this alternative would have required an 8-month shutdown of the pipeline. This reach of the Second Lower Feeder is the only source of water supply to member agencies in this area, and the affected service connections cannot tolerate a shutdown greater than a few weeks during the low-demand winter season, and much less during peak demand periods.

The selected alternative instead splits the work into two contracts (Reaches 3A and 3B). The first contract (Reach 3A), which relines approximately 6,500 feet of PCCP, was awarded by the Board in May 2022 and is currently underway. The second contract (Reach 3B), which is the subject of this action, will complete the remaining 19,500 feet of the southernmost reach of the PCCP portions of the Second Lower Feeder. Utilizing two contracts allows for greater lead time to procure temporary bypass piping and reduces schedule and materials procurement risks associated with longer shutdowns.

The selected alternative is a cost-effective approach which manages the risks associated with relatively short shutdowns on the Second Lower Feeder and minimizes service interruptions to member agencies. This alternative is consistent with the objectives of Metropolitan's PCCP Rehabilitation Program and will enhance the reliability of Metropolitan's distribution system.

Summary

This action awards a $68,847,000 construction contract to J.F. Shea Construction, Inc. to rehabilitate Reach 3B of the Second Lower Feeder. This action also authorizes a $310,000 access and permitting agreement with the city of Lomita. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Background and Program Status, **Attachment 3** for the Abstract of Bids, **Attachment 4** for the listing of Subcontractors for Low Bidder, **Attachment 5** for the Location Map, **Attachment 6** for Addendum No. 5 to the Final PEIR for the PCCP Rehabilitation Program, **Attachment 7** for the Final PEIR for the Second Lower Feeder Vol 1, and **Attachment 8** for Final PEIR Vol 2 Findings of Fact, Mitigation Monitoring, and Statement of Overriding Considerations.

Project Milestone

January 2026 – Completion of construction

Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

By Minute Item 50009, dated January 13, 2015, the Board authorized the first phase of final design to rehabilitate the PCCP portions of the Second Lower Feeder.

By Minute Item 50699, dated January 10, 2017, the Board certified the Final Programmatic Environmental Impact Report for the PCCP Rehabilitation Program, and approved the program for the Second Lower Feeder, Sepulveda Feeder, Calabasas Feeder, Rialto Pipeline, and Allen-McColloch Pipeline for the purposes of CEQA.

By Minute Item 51597, dated May 14, 2019, the Board awarded a contract to construct and procure materials for the rehabilitation of portions of the Second Lower Feeder.

By Minute Item 51860, dated January 14, 2020, the Board authorized a lease agreement with Los Angeles Community College in an amount not to exceed $850,000 for a five-year term for property to be used for construction staging and storage of steel liner pipe.

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of $600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/2023 and 2023/2024.

By Minute Item 52828, dated May 10, 2022, the Board awarded a contract to procure materials and perform construction for the rehabilitation of portions of the Second Lower Feeder.

By Minute Item 53004, dated October 11, 2022, the Board authorized an agreement with Parsons Constructors, Inc. in an amount not to exceed $5,750,000 to administer the Project Labor Agreement.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

Metropolitan's Board certified the PCCP Rehabilitation Program's Final PEIR on January 10, 2017. At that time, the Board also adopted the Findings, the SOC, the MMRP, and the program itself. On January 19, 2022, Addendum No. 5 to the Final PEIR was prepared to document the proposed minor modifications to the approved project as described in this letter. CEQA and the State CEQA Guidelines require the preparation of an addendum to a previously certified PEIR if changes or additions are necessary, but none of the conditions calling for the preparation of a subsequent EIR have occurred (Section 15164 of the State CEQA Guidelines). Instead, the proposed modifications require only minor changes or additions to the evaluation in the certified Final PEIR to make it adequate under CEQA. None of the proposed modifications would result in significant adverse impacts beyond those impacts already disclosed in the Final PEIR.

CEQA determination for Option #2:

None required

Board Options

Option #1

Review and consider Addendum No. 5 to the certified 2017 Programmatic Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program, and

a. Award a $68,847,000 contract to J.F. Shea Construction, Inc. to rehabilitate Reach 3B of the Second Lower Feeder; and
b. Authorize an access and permitting agreement with the city of Lomita in an amount not to exceed $310,000.

Fiscal Impact: Expenditure of $93.8 million in capital funds. Approximately $50 million will be incurred in the current biennium and has been previously authorized. The remaining funds from this action and the future construction costs will be accounted for and appropriated under the next biennial budget.

Business Analysis: This option would increase the reliability of Metropolitan's distribution system consistent with the goals identified for the PCCP Rehabilitation Program.

Option #2

Do not move forward to rehabilitate Reach 3B of the Second Lower Feeder at this time.

Fiscal Impact: None

Business Analysis: This option would likely increase the risk of pipe failures, unplanned shutdowns, and costly repairs over time.

Staff Recommendation

Option #1

12/21/2022

John V. Bednarski *Date*
Manager/Chief Engineer
Engineering Services

12/22/2022

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Background and Program Status

Attachment 3 – Abstract of Bids

Attachment 4 – Subcontractors for the Low Bidder

Attachment 5 – Location Map

Attachment 6 – Addendum No. 5 to Final PEIR

Attachment 7 – Final PEIR

Attachment 8 – Final PEIR Vol 2 Findings-MMRP-SOC

Ref# ES12691471

Allocation of Funds for Second Lower Feeder PCCP Rehabilitation Reach 3B

	Current Board Action (Jan. 2023)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt., contract admin, envir. monitoring)	3,050,000
Submittals Review & Record Drwgs.	1,971,000
Construction Inspection & Support	8,400,000
Metropolitan Force Construction	5,977,000
Materials & Supplies	445,000
Incidental Expenses	260,000
Professional/Technical Services	
Black & Veatch, Inc.	510,000
Parsons Constructors, Inc.	500,000
Helix Group, Inc.	220,000
Water Systems Consulting	150,000
Right-of-Way	
City of Lomita	310,000
City of Torrance	75,000
Los Angeles Community College	450,000
Equipment Use	-
Contracts	
J.F. Shea Construction, Inc.	68,847,000
Los Angeles Conservation Corps	250,000
Remaining Budget	2,385,000
Total	**$ 93,800,000**

The total amount expended to date for PCCP rehabilitation of Second Lower Feeder Reach 3B is approximately $14.2 million. The total estimated cost to complete the Reach 3B rehabilitation, including the amount appropriated to date and funds allocated for the work described in this action, is approximately $108 million.

PCCP REHABILITATION PROGRAM
BACKGROUND AND PROGRAM STATUS

Metropolitan's water delivery system includes approximately 830 miles of large-diameter pipelines. There are prestressed concrete cylinder pipe (PCCP) reaches within 27 feeders, with diameters ranging from 54 to 201 inches. These PCCP lines are located in both dense urban regions and remote areas and were installed between 1965 and 1985. The total original length of PCCP was 163 miles.

Over the last several decades, water agencies throughout the United States and other countries have found that under certain conditions, PCCP lines may have a reduced service life and elevated risk of failure versus other types of pipe. PCCP failures can be catastrophic and may occur without warning. A PCCP failure may compromise system reliability and result in significant costs due to interruption of service, unplanned major repairs, and potential third-party damages.

In September 2011, as a proactive measure to maintain overall system reliability, Metropolitan initiated a comprehensive program to inspect, manage, and rehabilitate its PCCP feeders. This effort included preparation of a risk analysis to assess the need and priority for rehabilitation of individual PCCP lines. Through this process, five of Metropolitan's 27 PCCP lines were identified to have experienced a disproportionate share of all prestressing wire breaks, repair length to date, and cost of repairs. The five priority lines are: (1) Allen-McColloch Pipeline, (2) Calabasas Feeder, (3) Rialto Pipeline, (4) Second Lower Feeder, and (5) Sepulveda Feeder. The PCCP within these five lines is expected to continue to deteriorate, as indicated by a progression of prestressing wire breaks over time. While Metropolitan's other PCCP feeders contain prestressing wire breaks in some pipe segments, they do not exhibit the same trend of increasing wire breaks over time. These other feeders may eventually need to be rehabilitated but appear to be stable at present. Their condition will be reevaluated on a regular basis, and adjustments will be made to the program if additional feeders are determined to be at risk in the future.

In January 2015, final design commenced to rehabilitate the initial pipeline: Second Lower Feeder. In January 2017, Metropolitan's Board certified the Final Programmatic Environmental Impact Report (Final PEIR) for the entire PCCP Rehabilitation Program and approved the program for all five priority lines for the purpose of compliance with the California Environmental Quality Act (CEQA). The inclusion of all five lines within a single programmatic CEQA document provides flexibility to adjust construction sequencing by enabling the rehabilitation of specific reaches of PCCP to move forward based on up-to-date condition assessments and priorities.

The comprehensive strategy for managing Metropolitan's PCCP lines and maintaining their reliability is comprised of four coordinated elements. The following describes these elements and summarizes the status of activities for each:

No.	Element	Status
1	**Continued Assessment and Monitoring of PCCP Lines –** Metropolitan currently inspects all PCCP lines within the distribution system every three to seven years. In order to increase knowledge of the pipelines' baseline condition to track prestressing wire breaks over time, and to identify distressed PCCP segments, staff will continue to aggressively inspect PCCP lines using state-of-the-art inspection techniques.	At present, electromagnetic inspection continues to be the industry's primary technique for identification of wire breaks. A complete cycle of inspections of Metropolitan's feeders takes approximately five to seven years to complete. To date, four cycles of electromagnetic inspections have been performed on most of the PCCP feeders. In August 2022, the Board approved a new agreement for pipe inspection services. This season, a portion of the Sepulveda Feeder has already been inspected. Other planned inspections for 2022/23 include 10.3 miles of Sepulveda Feeder in February 2023.

No.	Element	Status
2	**Monitoring of Stray Currents and Installation of Cathodic Protection** – Metropolitan will continue to perform corrosion surveys and monitor stray currents on a one to two-year cycle. Where indicated by corrosion monitoring, staff will install stray current drain stations or impressed current systems to minimize continued deterioration from stray current interference, which is a major cause of corrosion damage.	To date, stray current protection has been installed in 31.5 miles of PCCP lines. This protection includes both current drain stations and impressed current systems. A CIP project to install three more stray current drain stations on the Sepulveda Feeder is scheduled for next year.
3	**Near-Term Repair of Distressed PCCP Segments** – Metropolitan will continue to prioritize and repair PCCP segments with elevated numbers of prestressing wire breaks, broken-back cracks, or other indications of risk or distress. During the course of the PCCP Rehabilitation Program, individual PCCP segments may be identified as distressed prior to the scheduled rehabilitation of an entire feeder. If needed, staff will recommend moving forward with near-term repairs to those individual PCCP segments.	To date, approximately 4.5 miles of distressed PCCP segments have been repaired. Most recently, urgent repairs were completed on the Allen-McColloch Pipeline in 2021.
4	**Long-Term Rehabilitation –** The goal of this element is to complete the rehabilitation or replacement of all PCCP segments within the five priority lines.	For the Second Lower Feeder, the following is a summary of work to date: • Preliminary Design – Reach 9, which crosses the Newport-Inglewood Fault zone: Geotechnical investigations and seismic studies are underway. • Final Design – Reach 3B: Final design is complete. Award of a construction contract is the subject of this action. • Procurement – Procurement of 13 large-diameter conical plug isolation valves is underway. Three 48-inch diameter valves have been delivered and are currently in storage at Lake Mathews and the La Verne Facility awaiting installation. Two 54-inch diameter valves have been fabricated and delivered to Lake Mathews. Two additional 54-inch valves are under fabrication and expected to be delivered in mid-2023. The final three 54-inch valves are expected to be delivered in 2024. • Construction – relining of the following reaches is complete: – Reach 1 (23,100 feet) – Reach 2 (26,900 feet) – Reach 4 (10,000 feet) – Reach 8 (2,900 feet) • Construction – relining of the following reaches is currently underway: – Reach 3A (6,500 feet)

No.	Element	Status
		For the Sepulveda Feeder, the following is a summary of work to date: • Preliminary Design – South Reach: Preliminary design is complete; final design is ongoing – North Reach: Design effort is ongoing. • Final Design of South Reach – Reach 1: Design in progress – Reach 2: Design in progress Work on the Sepulveda Feeder North Reach has been accelerated to support addition of pumping capacity to enhance drought resiliency. For the Allen-McColloch Pipeline, Calabasas Feeder, and Rialto Pipeline, the following is a summary of work to date: • Preliminary design activities are underway. For all five at-risk pipelines, the following is a summary of work to date: • Outreach – Currently underway with member agencies to address construction phasing, service connection outages, shutdown durations, and water quality-related issues. – Currently underway with local agencies and communities to minimize traffic and other potential impacts to the public.

The goal of this comprehensive strategy for managing PCCP lines is to maintain reliable deliveries to Metropolitan's member agencies while optimizing the remaining useful life of PCCP lines. The effort includes development of a multi-year schedule and conceptual-level cost estimates with a long-term rehabilitation and replacement plan for the five priority PCCP lines. The overall schedule, cost estimates, and sequencing of work will be reassessed regularly during the development of Metropolitan's biennial capital budget.

System-wide hydraulic analyses are underway to assess hydraulic impacts of the PCCP rehabilitation work on Metropolitan's distribution system. The results of the analyses have been used to develop alternatives to minimize the loss of hydraulic capacity, to evaluate impacts of extended shutdowns on individual service connections, and to identify options for maintaining deliveries. The replacement of smaller-diameter sectionalizing valves and meters with larger units is an example of an approach for maintaining feeder hydraulic capacity.

The strategy for the priority feeders is to complete preliminary design of the rehabilitation work for the entire length of each feeder at an early stage of the program. This approach will provide flexibility to adjust construction sequencing of individual reaches if priorities change. The sequencing for rehabilitation will be determined by several factors, including: (1) updated assessments of risk; (2) Metropolitan's water supply availability and the operational needs for specific feeders; (3) impacts to member agency service connections; and (4) readiness for construction. The priority and sequencing for PCCP rehabilitation will be reevaluated periodically throughout the life of the program.

The Metropolitan Water District of Southern California

Abstract of Bids Received on December 8, 2022, at 2:00 P.M.

Specifications No. 2026
Second Lower Feeder PCCP Rehabilitation Reach 3B

The work includes rehabilitation of approximately 19,000 linear feet of prestressed concrete cylinder pipe (PCCP), including excavating access portals and removing portions of existing PCCP, installing Metropolitan-furnished and Contractor-furnished steel liner pipe, expanding and welding the steel liner pipe, grouting the annular space, cement mortar lining, and modifying pipeline appurtenant structures, rehabilitating three existing isolation valve structures, rehabilitating two service connections, installing and removing Palos Verdes Reservoir temporary bypass lines, disinfecting the pipeline, controlling traffic, and abating hazardous materials.

Engineer's estimate: $72 million

Bidder and Location	Total	SBE $	SBE %	Met SBE[1]
J.F. Shea Construction, Inc. Walnut, CA	**$68,847,000**	**$7,133,273**	**10.36%**	**Yes**
PCCP Rehabilitation Joint Venture Dallas, OR	$87,991,972	-	-	-
Michels Trenchless, Inc. Brownsville, WI	$112,206,766	-	-	-

[1] Small Business Enterprise (SBE) participation level established at 10% for this contract.

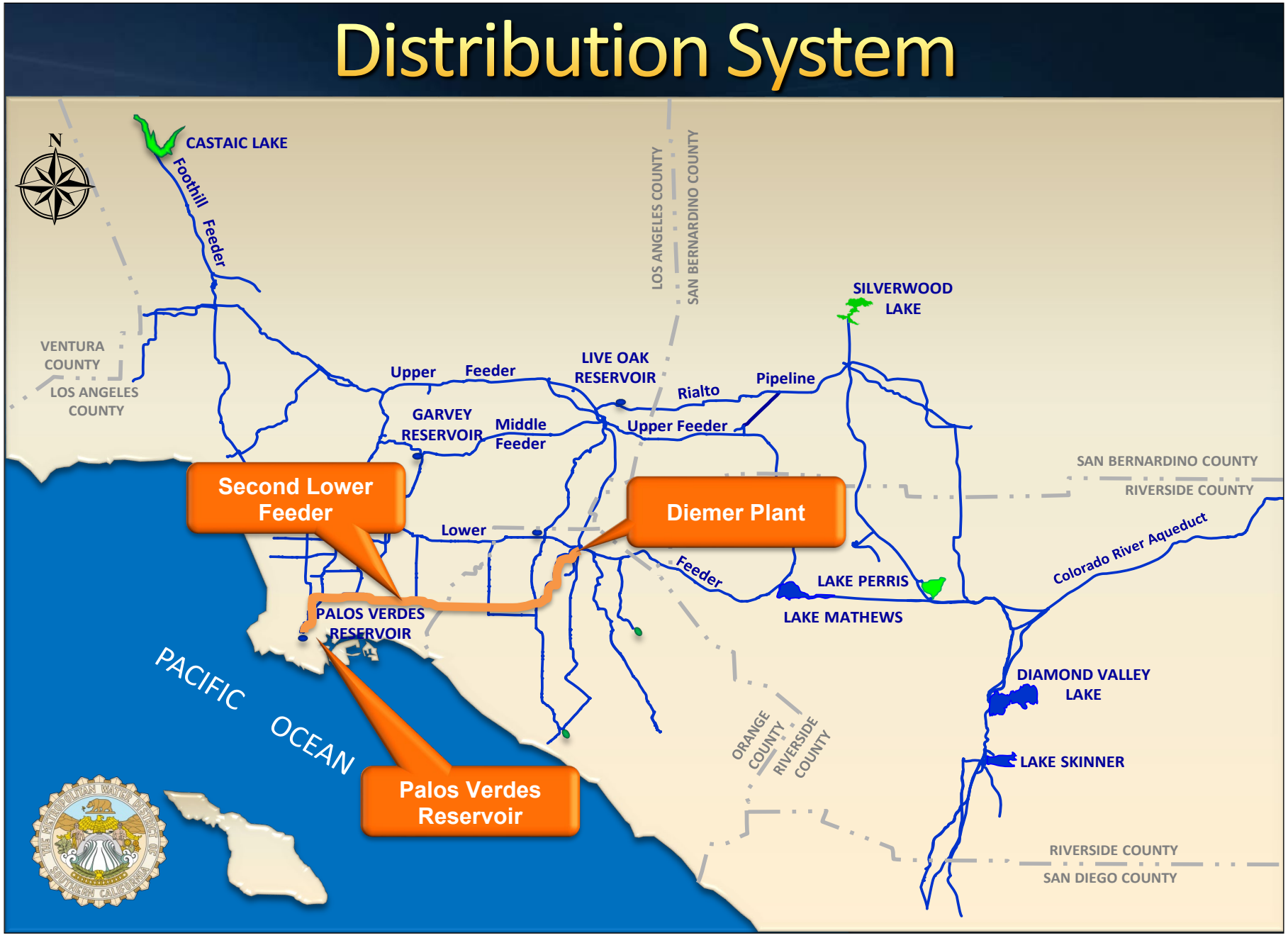
The Metropolitan Water District of Southern California

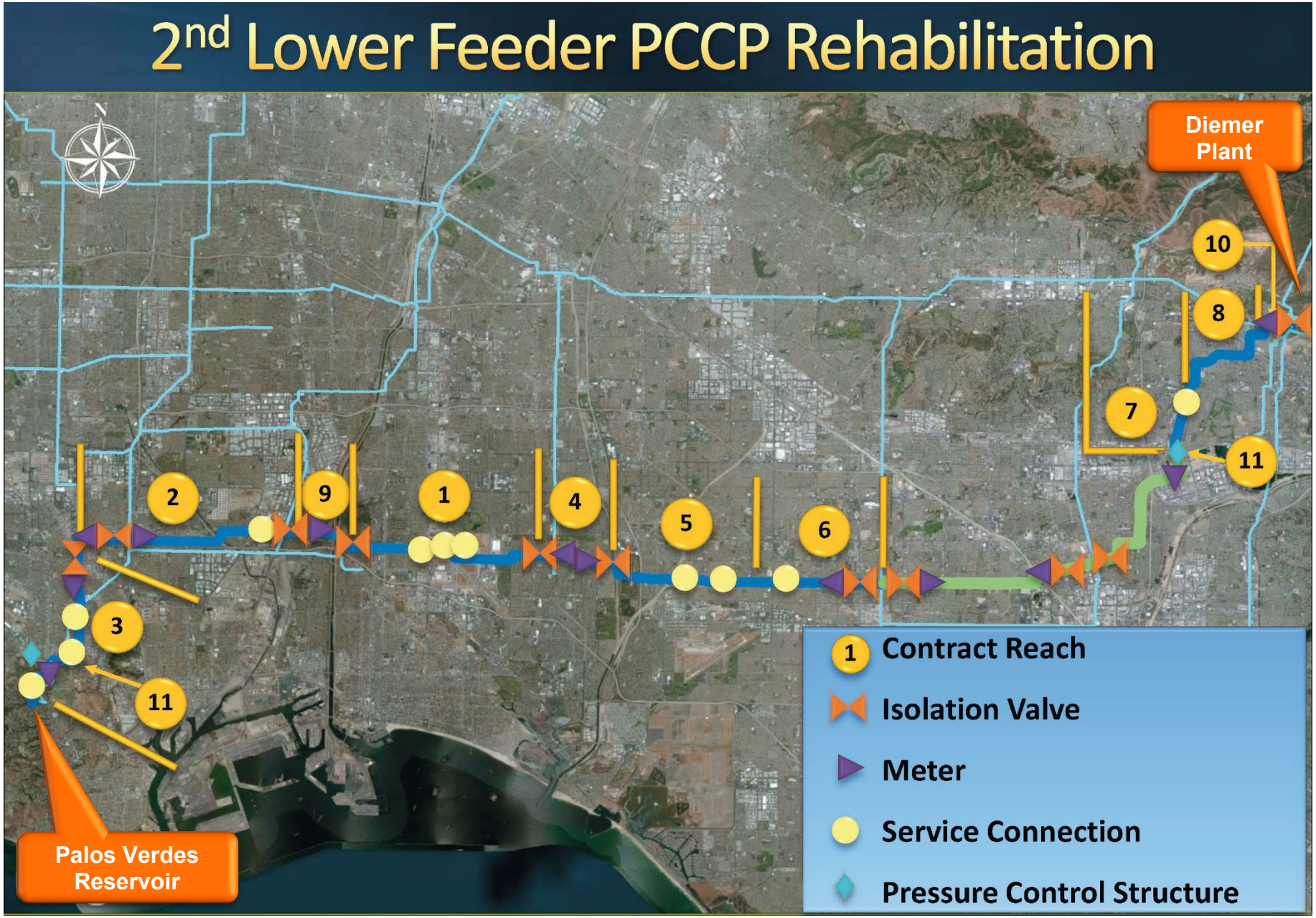
Subcontractors for Low Bidder

Specifications No. 2026
Second Lower Feeder PCCP Rehabilitation Reach 3B

Low bidder: J.F. Shea Construction, Inc.

Subcontractor and Location
Cell-Crete Monrovia, CA
Crosstown Electrical & Data, Inc. Irwindale, CA
Dean's Certified Welding, Inc, Temecula, CA
Environmental Construction Group, Inc Signal Hill, CA
Hardy & Harper, Inc. Lake Forest, CA
Layfield USA Corporation Lakeside, CA
Southern Contracting Company San Marcos, CA


Distribution System
N
CASTAIC LAKE
Foothill Feeder
VENTURA COUNTY
LOS ANGELES COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
Upper Feeder
LIVE OAK RESERVOIR
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
Second Lower Feeder
Diemer Plant
Lower Feeder
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
PACIFIC OCEAN
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
Palos Verdes Reservoir
RIVERSIDE COUNTY
SAN DIEGO COUNTY


2nd Lower Feeder PCCP Rehabilitation
N
Diemer Plant
Palos Verdes Reservoir
1
2
3
4
5
6
7
8
9
10
11
Contract Reach
Isolation Valve
Meter
Service Connection
Pressure Control Structure

ADDENDUM #5
to the
Programmatic Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program
Second Lower Feeder Reach 3

January 2022

The Metropolitan Water District of
Southern California
700 North Alameda Street
Los Angeles, California 90012

Metropolitan Report No. 1527-5

This page intentionally left blank

ADDENDUM #5

to the

PROGRAMMATIC ENVIRONMENTAL IMPACT REPORT

for the

PRESTRESSED CONCRETE CYLINDER PIPE
REHABILITATION PROGRAM

SECOND LOWER FEEDER REACH 3

SCH: 2014121055

Background

Lead Agency: The Metropolitan Water District of Southern California

Addendum to Certified Programmatic Environmental Impact Report Pursuant to: California Code of Regulations, Title 14, Division 6, Chapter 3, Article 11, Section 15164.

Background and Description of the Prestressed Concrete Cylinder Pipe Rehabilitation Program

Between 1962 and 1985, 163 miles of Prestressed Concrete Cylinder Pipeline (PCCP) were installed throughout The Metropolitan Water District of Southern California's (Metropolitan) service area. Under certain subsurface conditions, PCCP lines have an elevated risk of failure compared with other types of pipe. In response to this risk of failure, in the late 1990s, Metropolitan inspected and assessed all 163 miles of PCCP within its distribution system. In 2011, Metropolitan initiated a comprehensive program of inspections to evaluate and rank PCCP lines with the highest risk of failure. The data indicate that the following five pipelines represent the highest risk: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder. The PCCP Rehabilitation Program (PCCP Program) was developed to rehabilitate the PCCP portions of the five subsurface water distribution pipelines (also known as feeders) that were identified as having the highest risk as described above.

The PCCP Program is designed to maintain the reliability of Metropolitan's distribution system to minimize risks associated with failures by proactively rehabilitating each portion of PCCP, starting with the pipes that show the greatest risk of failure. The PCCP Program will help Metropolitan avoid possible unplanned system outages, thereby increasing service reliability for customers within Metropolitan's service area.

The following are the objectives of the PCCP Program:

- Reduce the risk of unplanned outages.
- Extend the service life of the pipelines.
- Perform the rehabilitation work in a cost-effective manner.
- Minimize the effects of rehabilitation efforts on Member Agency deliveries.
- Minimize the loss of hydraulic capacity due to rehabilitation.
- Improve system operational and emergency flexibility.

A Programmatic Environmental Impact Report (PEIR) was prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 (Public Resources Code [PRC] Section 21000 et seq.) and the Guidelines for Implementation of CEQA (State CEQA Guidelines) published by the Public Resources Agency of the State of California (California Code of Regulations, Title 14, Section 15000 et seq.). The PCCP PEIR was certified by the Metropolitan Board of Directors on January 10, 2017.

Proposed Project Summary

The proposed project, Reach 3 of the Second Lower Feeder, covers rehabilitation of portions of a 4.9-mile section of the 78-inch diameter Second Lower Feeder in the cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates and a 300-linear-foot section of the 84-inch diameter Sepulveda Feeder in the cities of Los Angeles and Torrance. Proposed locations for project elements have been identified, including the contractor's work and storage area, pipe access sites from which the feeder would be relined, installation of large isolation valves, belowground structures that would be improved, air-release/vacuum valves that would be relocated above grade, air-release/vacuum valves that would be improved, and the construction of a service connection (WB-41). Rehabilitation and site restoration activities would take approximately 21 months and would be broken into three phases identified as Phase 3a, Phase 3b, and Phase 3c. For Phase 3a, mobilization of equipment and traffic control setup would be scheduled to begin in December 2022, and traffic control and equipment would be removed, and the sites restored by the end of June 2023. Water service would be interrupted on the Second Lower and Sepulveda Feeders beginning in January 2023, and the pipelines would be returned to service in April 2023. For Phase 3b, mobilization of equipment and traffic control setup would begin in December 2023 and would extend to June 2024. Water service would be interrupted from January 2024 through April 2024. For Phase 3c, mobilization of equipment and traffic control setup would begin in December 2024 and would extend to June 2025. Water service would be interrupted from January 2025 through April 2025. The PCCP Rehabilitation Program schedule is dependent on periodic pipeline inspections and risk assessments of all the PCCP lines within Metropolitan's service area. Thus, if inspections reveal another pipeline or pipeline reach is at greater risk, the repair schedule would be altered. Shutdowns are primarily scheduled during low water use times (i.e., the optimum time for pipeline shutdowns is winter months when water demand is less than during the summer months).

Environmental Consequences

Consistent with the procedures identified in Section 15168(c) of the State CEQA Guidelines, the proposed project is a subsequent activity that is part of the PCCP Program, which "must be examined in the light of the program EIR to determine whether an additional environmental document must be

prepared." Metropolitan has prepared an Initial Study to determine if the proposed project would have new effects that were not examined in the PEIR.

The environmental consequences of the proposed project are described in the attached Initial Study. The impacts of the proposed project are compared to the impacts described in the PEIR to determine whether the proposed project would result in new impacts not previously described and whether those new impacts would be significant, or whether the proposed project would result in significant impacts that are substantially more severe than the impacts identified in the PEIR. Several environmental resource areas are not discussed in this Initial Study, as these items were determined not to require further analysis beyond what was included for the Second Lower Feeder portion of the PCCP Program in the December 2014 Initial Study. The State CEQA Guidelines Appendix G items that are not included in this Initial Study are detailed in the introductory section.

The categories of impacts evaluated in the attached Initial Study include:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Recreation
- Transportation/Traffic

As described in the Initial Study that follows, the impacts of the proposed project are either consistent with the impacts described in the PEIR or less severe than those identified in the PEIR; therefore, the proposed project would not result in new significant impacts or substantially more severe significant impacts than those described in the PEIR. Applicable mitigation measures identified in the PEIR will be implemented for the proposed project.

Finding

This Addendum to the PCCP PEIR reflects the independent judgement of Metropolitan. Pursuant to Section 15168 of the State CEQA Guidelines, the proposed project is within the scope of the program covered by the PCCP PEIR. The proposed project would result in no new significant environmental impacts or substantially more severe significant impacts than those described in the PEIR. The Initial Study identifies mitigation measures from the PEIR that will be implemented for the proposed project. No new project-specific mitigation measures were identified. Consequently, the proposed project would not affect the original January 2017 program approval determination, and no supplemental environmental impact report (EIR), subsequent EIR, or Mitigated Negative Declaration to the PEIR is required.

This page intentionally left blank

INITIAL STUDY

FOR THE

SECOND LOWER FEEDER REACH 3 OF THE PRESTRESSED CONCRETE CYLINDER PIPE REHABILITATION PROGRAM

The Metropolitan Water District of Southern California
Environmental Planning Section
700 N. Alameda Street
Los Angeles, California 90012

MAILING ADDRESS:
P.O. Box 54153
Los Angeles, California 90054-0153

E-MAIL ADDRESS:
EP@mwdh2o.com

Metropolitan Report No. 1527-5
January 2022

This page intentionally left blank

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

AB	Assembly Bill
ANSI	American National Standards Institute
AQMP	Air Quality Management Plan
AWWA	American Water Works Association
BMPs	best management practices
BRA	Biological Resource Assessment
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
CRS	Cultural Resources Study
dBA	A-weighted decibel
DPM	diesel particulate matter
DTSC	California Department of Toxic Substances Control
EIR	Environmental Impact Report
GHG	greenhouse gas
HCP	Habitat Conservation Plan
L_{EQ}	average sound energy over a specified period
LOS	level of service
LST	Localized Significance Threshold
LUST	leaking underground storage tank
Metropolitan	The Metropolitan Water District of Southern California
MM	mitigation measure
N/A	not applicable
NCCP	Natural Community Conservation Plan
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
PCCP	Prestressed Concrete Cylinder Pipe
PCCP Program	Prestressed Concrete Cylinder Pipe Rehabilitation Program
PEIR	Programmatic Environmental Impact Report
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
PM_{10}	particulate matter 10 microns or less in diameter
PRC	Public Resources Code
PRIMP	Paleontological Resources Impact Mitigation Program
proposed project	Second Lower Feeder Reach 3

ROW	right-of-way
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SLF	Second Lower Feeder
SO_X	sulfur oxides
Sta.	Station Number
s/v	second per vehicle (delay)
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
V/C	volume to capacity
VOC	volatile organic compounds

INTRODUCTION

Purpose of the Initial Study

The purpose of this Initial Study is to assess the potential for new or more severe significant environmental impacts for the Second Lower Feeder Reach 3 (proposed project) rehabilitation beyond those identified in the Programmatic Environmental Impact Report (PEIR) prepared for the Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (PCCP Program). The PEIR was certified by The Metropolitan Water District of Southern California's (Metropolitan) Board of Directors on January 10, 2017 (SCH #2014121055) and addressed the potential for environmental impacts at a planning level for each of the five pipelines that would be rehabilitated under the PCCP Program. The proposed project covers rehabilitation of a 4.9-mile section of the Second Lower Feeder in the cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates and a 300-linear-foot section of the 84-inch-diameter Sepulveda Feeder in the cities of Los Angeles and Torrance (see **Figure 1**).

The PEIR was prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 (Public Resources Code [PRC] Section 21000 et seq.) and the Guidelines for Implementation of CEQA (State CEQA Guidelines) published by the Public Resources Agency of the State of California (California Code of Regulations, Title 14, Section 15000 et seq.). Consistent with the procedures identified in Section 15168(c) of the State CEQA Guidelines, the proposed project is a subsequent activity that is part of the PCCP Program, which "must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared." Metropolitan is conducting an Initial Study to determine if the proposed project would have new effects that were not examined in the PEIR. In accordance with the State CEQA Guidelines Section 15168(c)(1) and (2), in the event that no new or substantially more severe significant effects from the subsequent activity are identified and no new mitigation measures are required, Metropolitan can approve the activity as being within the scope of the program covered by the PEIR, and no new environmental document is required. However, if new or substantially more severe significant impacts or additional mitigation measures are identified, a Negative Declaration or Environmental Impact Report (EIR) is required.

Scope of the Initial Study

As discussed above, this Initial Study evaluates the proposed project to determine whether new or more severe significant environmental effects beyond those identified in the PEIR would occur. Previous analysis completed as part of the December 2014 Initial Study/Notice of Preparation prepared for the PCCP Program and Second Lower Feeder Project determined that further analysis would not be required for some resource areas. It should be noted that the December 2014 Initial Study/Notice of Preparation described the PEIR as both a project-level EIR for the Second Lower Feeder Project and a PEIR for four other pipelines. Only a programmatic analysis was conducted for the certified PEIR, however; therefore, this Initial Study serves as the project-level analysis for one portion of the PCCP Program—Reach 3 of the Second Lower Feeder. The following items were determined not to require further analysis beyond what was included for the Second Lower Feeder portion of the PCCP Program in the December 2014 Initial Study because no significant environmental impacts were identified:

I. Aesthetics (b. substantially damage scenic resources)

II. Agriculture and Forestry Resources (a. conversion of farmland; b. conflict with agricultural use or Williamson Act; c. conflict with forestland or timberland zoning; d. conversion of forestland; e. changes that could convert farmland or forestland)

III. Air Quality (e. odors)

IV. Biological Resources (d. interfere with species movement; f. conflict with a habitat conservation plan)

VI. Geology and Soils (e. soils incapable of supporting septic tanks)

VIII. Hazards and hazardous materials (f. private airstrip; h. wildland fires)

IX. Hydrology and Water Quality (b. groundwater supplies; f. otherwise degrade water quality; g. housing in a 100-year flood hazard area; h. structures in a 100-year flood hazard zone; i. risk due to flooding or levee/dam failure)

X. Land Use and Planning (a. physically divide an established community; c. conflict with a habitat conservation plan)

XI. Mineral Resources (a. loss of availability of a mineral resource of value to the region and state; b. loss of availability of a locally important mineral resource)

XII. Noise (c. permanent increase in ambient noise levels; f. noise in the vicinity of a private airstrip)

XIII. Population and Housing (a. induce substantial population growth; b. displace substantial number of housing units; c. displace substantial numbers of people)

XIV. Public Services (a. provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities)

XV. Recreation (b. inclusion, construction, or expansion of recreational facilities)

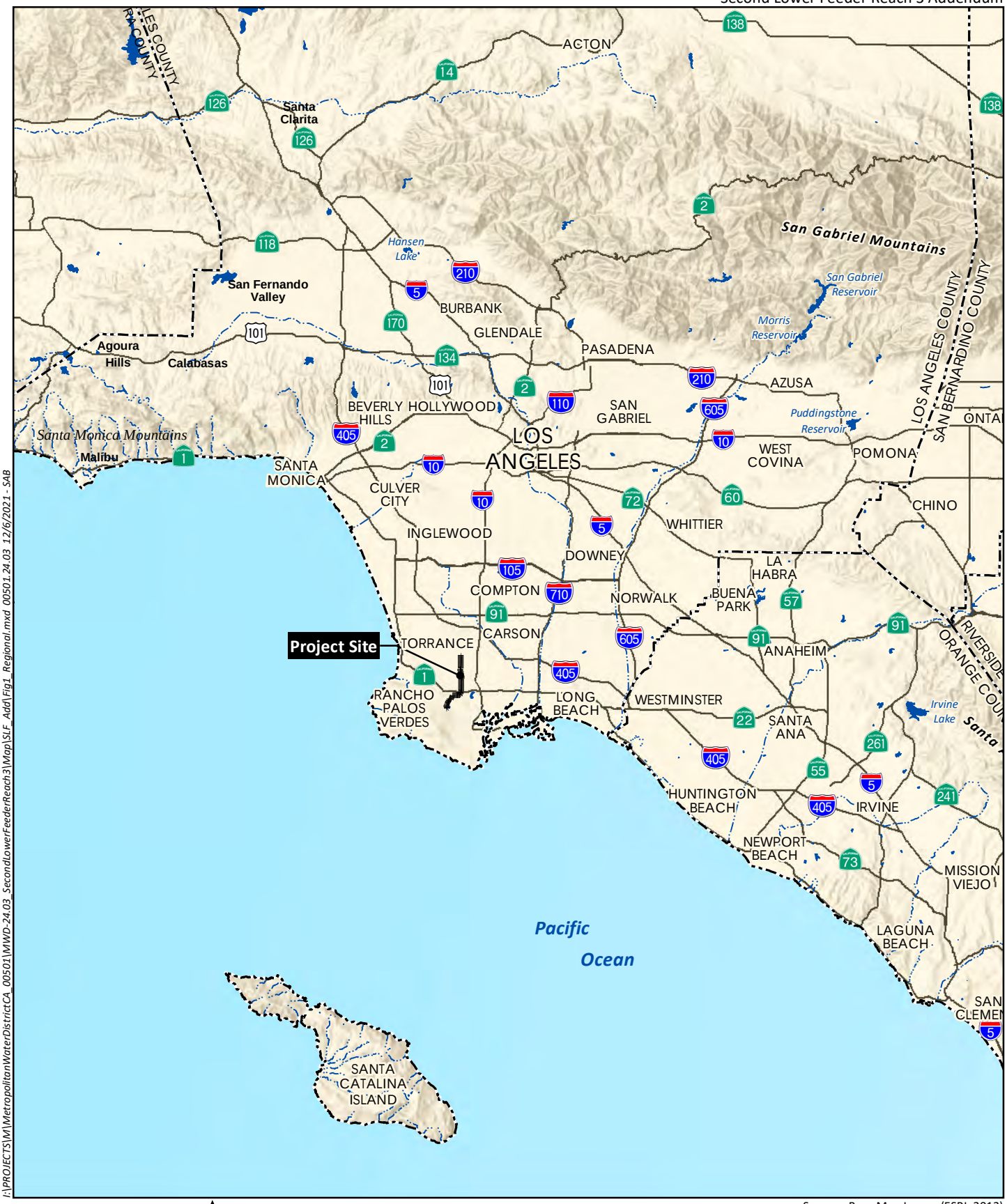
XVI. Utilities and Service Systems (a. conflict with wastewater treatment requirements; b. construction or expansion of new water or wastewater treatment facilities; c. construction or expansion of stormwater drainage facilities; d. sufficient water supplies; e. adequate wastewater capacity; f. sufficient landfill capacity; g. federal, state and local statutes and regulations related to solid waste)

The PCCP PEIR included an analysis of energy conservation consistent with Appendix F to the State CEQA Guidelines, which concluded that energy consumption related to program implementation would not be wasteful, inefficient, or unnecessary. Because Appendix F specifies that energy conservation is to be considered as part of an EIR, and the PEIR considered energy conservation in the analysis of program energy consumption, no additional analysis related to energy conservation is included in this Initial Study.

Additional analyses for issues and resources not included in the list above are provided in the Initial Study checklist that follows.

Format of the Initial Study

The Initial Study uses a modified version of the checklist set forth in Appendix G of the State CEQA Guidelines. It indicates whether an environmental impact category would have new or more severe significant impacts than those identified in the PCCP PEIR, or whether impacts would be less than or equal to those identified in the PCCP PEIR. In addition, the Initial Study identifies applicable mitigation measures included in the PCCP PEIR for implementation, as part of the proposed project. In certain circumstances, the mitigation measures included in the PCCP PEIR are not applicable to the proposed project because the project location or specific characteristics of the proposed project do not trigger the need for mitigation. For example, no historic structures are located within the project limits; therefore, mitigation for such resources is not required.



I:\PROJECTS\M1\MetropolitanWaterDistrictCA_00501\MWD-24.03_SecondLowerFeederReach3\Map\SLF_Add\Fig1_Regional.mxd 00501.24.03 12/6/2021 - SAB

Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1

APPENDIX G, ENVIRONMENTAL CHECKLIST FORM

1. Title

Initial Study for the Second Lower Feeder, Reach 3 of the Prestressed Concrete Cylinder Pipe Rehabilitation Program

2. Lead Agency Name and Address

The Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, California 90012

Mailing Address

P.O. Box 54153
Los Angeles, California 90054-0153

3. Contact Person and E-mail

Lilia I. Martínez, Principal Environmental Specialist
EP@mwdh2o.com

4. Location

Cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates, California

5. Sponsor's Name and Address

The Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, California 90012

6. Land Use

Public Right-of-way

7. Zoning

Public Right-of-way (Not Zoned)

8. Project Description

The proposed project is located within the cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates, California and would reline approximately 26,000 linear feet (4.9 miles) of PCCP along the Second Lower Feeder and approximately 300 linear feet along the Sepulveda Feeder with prefabricated coiled steel liner pipe, extending from Second Lower Feeder Station 1860+10 (located at the intersection of Western Avenue and 220th Street in the city of Los Angeles) to Second Lower Feeder Station 2116+84 (located adjacent to the Palos Verdes Reservoir in the city of Rolling Hills Estates) and from Sepulveda Feeder (SF) Station 2270+46 to SF Station 2273+29 (located along Western Avenue between 219th and

220th streets in the cities of Torrance and Los Angeles); see **Figure 2**. Rehabilitation activities would occur throughout the project footprint including air release/vacuum valve relocations, valve replacements, pumpwell air vent installations, maintenance hole enlargements, incorporation of new maintenance holes, and other minor work.

Construction within the pipelines would occur over three phases referred to as Phase 3a, Phase 3b, and Phase 3c. Each of the three phases would include a four-month shutdown period (January to April 2023 for Phase 3a, January to April 2024 for Phase 3b, and January to April 2025 for Phase 3c). During these shutdowns, the Second Lower Feeder would be shutoff and dewatered from Station 1475+25 (located on Bixby Road west of Long Beach Boulevard in the city of Long Beach) to Station 2116+84 (located adjacent to the Palos Verdes Reservoir in the city of Rolling Hills Estates) and the Sepulveda Feeder would be shut down and dewatered from Station 1927+65 (located on Van Ness Avenue at El Segundo Boulevard in the city of Gardena) to Station 2273+36 (located on Western at 220th Street in the city of Torrance). Construction activities would include:

- Approximately 21 months of mobilization and traffic control work, including 12 months of pipeline rehabilitation activities as follows: Beginning in December 2022, equipment would be mobilized, and traffic control would be set up. Water service shutdowns would begin in January 2023 and the pipelines returned to service by the end of April 2023. Traffic controls and equipment would be removed by the end of June 2023. In December 2023, equipment would again be mobilized, and traffic control set up. Water service shutdowns would begin in January 2024, and the pipelines returned to service in April 2024. Traffic controls and equipment would be removed by the end of June 2024. In December 2024, equipment would again be mobilized for a third time, and traffic control would be set up. Water service shutdowns would begin in January 2025 and the pipelines returned to service in April 2025. Traffic controls and equipment would be removed by the end of June 2025.

Dewatering activities, as well as pipeline relining activities and ventilation, would generally occur 24 hours per day, Monday through Sunday. Other construction activities, such as excavation, would generally be limited to 7:00 a.m. to 7:00 p.m. Monday through Friday, and on Saturdays when necessary and with prior approval of the Engineer, in accordance with local cities and municipalities. Noise attenuation measures would be implemented where needed, consistent with the PEIR, and appropriate jurisdictional permits will be obtained.

After all rehabilitation activities have been completed, for a period of five to ten days, the Second Lower Feeder and Sepulveda Feeder would be disinfected in accordance with American Water Works Association (AWWA) and American National Standards Institute (ANSI) standards. After disinfection, both feeders would be returned to service.

The following sections describe the components of the PCCP Program generally and how those components would be implemented as part of the proposed project.

Project Components

As discussed in the PEIR, rehabilitation of PCCP can be categorized as primary, secondary, and associated temporary construction components. These components and the various methods needed to construct, install, and operate the components are summarized below and would be used as appropriate for rehabilitation efforts under the proposed project.

Second Lower Feeder Project Alignment
Sepulveda Feeder Project Alignment
Pipe Access Site Station
City Boundary

1863
1860
1916
1964
2022
2015
2034
2098
2109
2114

Maple Ave
Sepulveda Blvd
Arlington Ave
Plaza Del Amo
223rd St
W 223rd St
Western Ave
W 228th St
Cabrillo Ave
W Sepulveda Blvd
235th St
Los Angeles Unincorporated
Lomita Blvd
Skypark Dr
Torrance
Lomita
Narbonne Ave
Torrance
Los Angeles
Normandie Ave
Eshelman Ave
Lomita Blvd
W Lomita Blvd
Western Ave
Crenshaw Blvd
Pacific Coast Hwy
S Vermont Ave
Lomita
Torrance
Rolling Hills Estates
Lomita
Los Angeles
W Anaheim St
Palos Verdes Dr E
Rolling Hills Estates
Rolling Hills
Rolling Hills Estates
Lomita
Palos Verdes Dr N
N Gaffey St
Western Ave
Lomita
Rancho Palos Verdes
Rolling Hills Estates
Rancho Palos Verdes
Rancho Palos Verdes
Los Angeles

I:\PROJECTS\M\MetropolitanWaterDistrictCA_00501\MWD-24.03_SecondLowerFeederReach3\Map\SLF_Add\Fig2_ProjectComponents.mxd 00501.24.03 1/17/2022 - SAB

0 1,500 Feet

Source: Aerial (Maxar, 2020)

HELIX Environmental Planning

Project Components

Figure 2

- Primary components include the different methods of rehabilitation considered for segments of the pipelines under the PCCP Program. The rehabilitation method that would be used for this proposed project would be relining with coiled steel liner pipe.

- Secondary components include permanent appurtenant structures. These appurtenant structures include buried (underground) structures and aboveground enclosures. Buried structures include vaults that house piping such as those at interconnections and equipment such as valves, meters, service connections, and blow-offs. Aboveground enclosures, typically located on sidewalks or median strips, house air release/vacuum valves and air vents.

- Temporary construction components include pipe access sites, structure excavation sites, contractor work areas, and equipment staging areas.

Primary Project Components

Relining with Coiled Steel Liner Pipe

As discussed in the PEIR, steel cylinder relining rehabilitation of PCCP would involve the following:

- Inserting coiled steel liner pipe into the existing PCCP line.

- Expanding the coiled steel liner pipe to fit properly within the PCCP interior.

- Welding the expanded steel liner pipe within the PCCP.

- Filling the annular space between the expanded steel liner pipe and existing PCCP with cement grout.

- Applying a cement mortar lining to the interior surface of the steel liner pipe.

Most of the rehabilitation activities would occur within the existing pipeline, and site impacts would occur primarily at the pipe access sites. **Figure 3** shows an example of the type of coiled steel liner pipe that would be inserted into the existing PCCP. All work described above would be done inside the existing pipeline from pipe access sites along the existing pipeline alignment.

Figure 3. Coiled Steel Pipe Section

Secondary Project Components

As discussed in the PEIR, pipeline systems typically include equipment vaults that house water meters, isolation valves, check valves, bypass valves, back-flow preventer valves, pressure-reducing valves, pump wells, service connection, and blow-offs. The top of the structure is typically several feet belowground surface and the structures are accessed via ladders from street-level hatches or maintenance holes.

Maintenance Holes and Aboveground Enclosures

Maintenance holes typically provide access for maintenance and repairs and are spaced at regular intervals along pipelines. Existing maintenance holes would be used for ventilation, as well as for access to the interior of the pipeline for personnel, small equipment, and materials during rehabilitation of other project components (e.g., pipeline relining).

The proposed project would include the following three activities related to maintenance holes: maintenance hole enlargement, relocation of air release and vacuum valves at nine maintenance hole vaults to aboveground location, and maintenance hole refurbishment. Each activity is further described below.

Maintenance hole enlargement would occur at the five existing maintenance holes shown in **Table 1**. If determined to be necessary, the five maintenance hole enlargement sites may also be used as pipe access

sites. Therefore, in order to provide flexibility during construction, these sites are conservatively assumed to also be used as pipe access sites with an average excavation area of 86 feet by 34 feet.

Table 1. Maintenance Hole Enlargement Sites

Site	Location	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)
SLF Sta. 1875+56	Within the center of Western Avenue, immediately south of W 223rd Street	150 x 35
SLF Sta. 1899+76	Within the east side of Western Avenue, north of Sepulveda Boulevard	200 x 40
SLF Sta. 1957+80	Within the Western Ave median adjacent to W 246th Street	20 x 40
SLF Sta. 2034+32	On the north side of 262nd Street, west of Monte Vista Avenue	40 x 15
SLF Sta. 2045+04	Within the grassy parkway on the south side of 262nd Street west of Murad Ave	20 x 40

Note: For irregularly-shaped work areas, the maximum width and length are presented in the table.
SLF Sta.: Second Lower Feeder Station Number

California State Water Resources Control Board regulations require that all treated water supply systems be protected from potential contamination. Air release/vacuum valves currently located in vaults along the project pipeline have a potential to introduce contaminants into the Second Lower Feeder. The purpose of these valves is to control air pressure in the mainline by automatically opening to the atmosphere to allow air into or out of the pipeline during dewatering or filling operations. Being located in underground vaults that are susceptible to flooding with rain runoff or seepage water, there is a possibility that as these valves open, they will allow water that has flooded the vault into the pipeline, thereby contaminating it with rain-runoff or seepage water pollutants. Therefore, per the aforementioned regulations, existing air release/vacuum valves in underground vaults along the project would be relocated aboveground.

The relocation of air release/vacuum valves from belowground to aboveground would involve installation of new piping from the existing valve connection point in the vault to a nearby aboveground location and installation of a new valve aboveground. This would require shallow trenching from the existing belowground vault to the new aboveground location.

For the proposed project, the trench would be approximately two feet wide and about five feet deep. The length of the trench would vary with the size of the street to be crossed, as valves would be moved from their current underground locations within the roadway to nearby area outside of the roadway. In addition, the access structures would be retrofitted with locking maintenance hole covers, and the access structure ring would be removed.

The new aboveground air release/vacuum valves would be housed in small enclosures within the public right-of-way in a median or sidewalk or within Metropolitan-owned property. **Figure 4** shows a typical aboveground valve enclosure. **Table 2** identifies the locations where air release/vacuum valves would be relocated aboveground.

Following the equipment relocation, the remaining equipment in the maintenance vaults would be repainted. Additionally, existing mortar coating would be removed, existing steel pipe would be coated and new steel pipe sleeves would be installed in 24 maintenance holes and in two side outlets.

Figure 4. Typical Aboveground Valve Enclosure

Table 2. Air Release/Vacuum Valve Relocation Sites

Site	Location	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)
SLF Sta. 1863+24	Within the sidewalk on the east side of Western Ave south of 220th Street	20 x 40
SLF Sta. 1910+14	Within the Western Ave median north of 234th Street	20 x 40
SLF Sta. 1918+31	Within the sidewalk on the east side of Western Ave south of 235th Street	20 x 40
SLF Sta. 1934+77	Within the Western Ave median south of 238th Street	20 x 40
SLF Sta. 1957+80	Within the Western Ave median adjacent to W 246th Street	20 x 40
SLF Sta. 1963+48	Within the east side of Western Ave adjacent to W 247th Place	20 x 40
SLF Sta. 2034+32	On the north side of 262nd Street, west of Monte Vista Avenue	40 x 14.5
SLF Sta. 2045+04	Within the grassy parkway on the south side of 262nd Street west of Murad Ave	20 x 40
SLF Sta. 2101+17	Within the dirt parkway on Palos Verdes Drive E south of Palos Verdes Drive N	20 x 40

Note: For irregularly-shaped work areas, the maximum width and length are presented in the table.
SLF Sta.: Second Lower Feeder Station Number

Pumpwells and Blow-off Structures

As discussed in the PEIR, pumpwells and blow-off structures along pipelines are used to dewater the pipeline into natural creeks, channels, waterways, and storm drains when a shutdown of the pipeline is necessary. Pumpwells allow temporary pumps to be used to dewater a pipeline. Blow-offs allow gravity to dewater the pipelines. Pumpwells and blow-offs also provide access points for routine maintenance or pipeline inspection. These structures are typically located within the buried equipment vaults.

Table 3 identifies the location and improvements that would occur at the one pumpwell and three blowoff isolation structures within the project limits.

Table 3. Pumpwell Isolation Valve and Blow-off Structure Improvement Locations

Site	Location	Improvement	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)
SLF Sta. 1875+56	Within the sidewalk on the east side of Western Avenue south of 223rd Street	Install new vent stack for pump well structure	50 x 20
SLF Sta. 1920+30	Within the median on Western Avenue south of W 235th Street	Modify blow-off structure	140 x 40
SLF Sta. 1961+70	Within the median on Western Avenue south of W 247th Street	Modify blow-off structure	140 x 40
SLF Sta. 1973+18	Within the southbound lanes of Western Avenue on the southwest corner of Lomita Boulevard and Western Avenue	Modify blow-off structure	140 x 40

Note: For irregularly-shaped work areas, the maximum width and length are presented in the table.
SLF Sta.: Second Lower Feeder Station Number

Isolation Valves and Flow Meters

The proposed project would involve the removal of three existing and installation of three new mainline isolation valves, including rehabilitation of the existing valve vault structures and replacement of appurtenances. The work includes removal of two existing flow meters within the valve vault structures, and replacement of both meters within the new pipe sections. The proposed project also includes removal of one existing and installation of one new stand-alone meter within Oak Street. The three new isolation valves would require structural modifications to the existing large reinforced concrete vault structures within existing developed streets, including mechanical, electrical, instrumentation, and controls equipment. **Table 4** identifies the location and improvements that would occur at the three isolation valve vaults and one flow meter vault structure within the project limits.

Table 4. Isolation Valve Vault and Flow Meter Vault Structures Improvement Locations

Site	Location	Improvement	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)
SLF Sta. 1859+80	Within westbound lane of 220th Street east of Western Avenue	Isolation valve replacement and flow meter replacement, and modify existing vault structure	230 x 45
SLF Sta. 1865+41	Within the median on Western Avenue south of 220th Street and north of 221st Street	Isolation valve and flow meter replacement, and modify existing vault structure	200 x 40
SLF Sta. 2050+00	In Oak Street south of 262nd Street	Remove existing flow meter and install new flow meter	100 x 40
SF Sta. 2270+35	Within the median on Western Avenue north of 220th Street and south of 219th Street	Isolation valve and flow meter replacement, and modify existing vault structure	200 x 40

Note: For irregularly-shaped work areas, the maximum width and length are presented in the table.
SLF Sta.: Second Lower Feeder Station Number; SF Sta.: Sepulveda Feeder Station Number

Other Improvements

In addition to the isolation valve replacements at the improvement locations previously described, multiple other isolation valves and three service connection valves would be replaced.

Temporary Construction Components

As discussed in the PEIR, the temporary construction components include pipe access sites, installation of bulkhead, vault excavation sites, contractor work areas, and equipment staging areas. The temporary construction components would be present during rehabilitation activities only. After construction, these components would be removed, and the sites would be returned to pre-construction conditions.

Bulkhead Installation

As discussed in the PEIR, bulkheads may be required along various sections of the pipelines to isolate one section of the pipeline from another and to ensure continued and reliable water supply delivery to member agencies while rehabilitation is being performed on another section of pipe. For the proposed project, one bulkhead would be installed at Second Lower Feeder Station 1594+20.

Contractor's Work Areas

As discussed in the PEIR, contractor's work areas allow for construction activities to occur safely and efficiently within a construction site. Construction activities would include excavation, shoring, pipe removal, pipeline rehabilitation, electrical panel installation, and construction support activities such as ventilation, dewatering, pipe disinfection, and refilling.

One of the contractor's work areas is proposed to extend into Metro Park, located at 26205 Oak Street in the city of Lomita. Tree removal and grass disturbance would be required within Metro Park to allow for the storage of equipment. Trees that are removed at Metro Park would not be replaced in order to provide operational flexibility.

Pipe Access Sites

As discussed in the PEIR, a pipe access site is defined as the entry or exit portal that exposes the underground PCCP section of the pipe or equipment vault to be rehabilitated (i.e., it is the trench from which new coiled steel liner pipe, valves, and/or temporary bulkheads would be installed). Each pipe access site would be located within a contractor's work area with space to stage liner pipe prior to installation. Multiple pipe access sites would be needed to rehabilitate the pipeline and buried equipment vaults included in the PCCP Program.

Spacing of pipe access sites would vary based on several factors, including the horizontal and vertical bends of the pipe; the locations of valves, vaults, and other equipment; and other factors. Pipe access sites for the proposed project are shown in **Figure 2**. The pipe access sites would vary in size but would be up to 20 feet deep for the proposed project. **Table 5** identifies the locations and approximate sizes of the pipe access sites. However, as previously discussed, the five maintenance hole enlargement sites shown in **Table 1** may also be used as pipe access sites. Therefore, in order to provide flexibility during construction, these sites are conservatively assumed to also be used as pipe access sites with an average excavation area of 40 feet long, 17 feet wide, and 19 feet deep.

Existing surface improvements, such as road pavements, sidewalks, and landscaping, would be removed at each pipe access site, and soils would be excavated and temporarily removed from the site to expose the existing pipeline. Tree removal and/or trimming would be required at multiple pipe access sites, and overhead utility line relocation would be required at Second Lower Feeder Station 1859+80. Once rehabilitation is complete, many of the pipe access sites would have maintenance holes installed for future maintenance/repairs and the surrounding area would either be backfilled with soils originally excavated or backfilled with cement slurry, and the surface of each access site and surrounding work zone would be restored to existing conditions with the addition of maintenance hole covers in some locations. This would involve re-paving existing roads, repairing or replacing existing sidewalks, and replanting landscaping.

Pipe Access Site Ingress/Egress

Pipe access sites within roadways would generally be accessed via the roadway; however, access to Pipe Access Sites 2109 and 2114 would require additional ingress/egress routes. Ingress to the Pipe Access Sites 2109 and 2114 would be achieved by traveling west along Palos Verdes Drive North and then south along Palos Verdes Drive East. Egress would involve a U-turn across Palos Verdes Drive East to exit the area traveling north and then east on Palos Verdes Drive North.

Additionally, ingress to the flow meter vault at Second Lower Feeder Station 2050, located near the southern terminus of Oak Street, would be achieved via Oak Street. Egress would either be achieved via Oak Street or from Oak Street through a Metropolitan-owned property and out to Palos Verdes Drive North.

Contractor Staging and Storage Areas

Contractor staging and storage areas provide space to temporarily store liner pipes, construction materials such as shoring boxes and pipe bedding materials, and equipment such as excavators and dump trucks. Space within the contractor's work areas may be used as a temporary staging area; however, space limitations require that most materials and equipment be stored at a larger contractor storage area.

Three staging areas are proposed along the project alignment. The first staging area would be located in the city of Torrance on the northeast corner of West 223rd Street and Abalone Avenue (**Figure 5a**). This

site would be primarily used for staging during the proposed valve replacement at the intersection of 220th Street and Western Avenue. At this location, existing trees and utilities would be avoided. The second would be located in the city of Rolling Hills Estates at the northeast corner of Palos Verdes North and Palos Verdes East (**Figure 5b**). At this location, the project would either use the existing dirt lot as a staging area or would create a laydown area within the street adjacent to the dirt lot. The third staging area would be located in the vacant area immediately southeast of the pipe access site at Second Lower Feeder Station 2109+65, southwest of Palos Verdes Drive East (**Figure 5b**).

In addition to these three smaller staging areas, a larger contractor storage area would be required and would be located at an approximately 12-acre vacant lot at Los Angeles Harbor College, one mile east of the project alignment (**Figure 5c**). Metropolitan has leased the site from Los Angeles Harbor College from February 2020 through January 31, 2023, with the potential for one or two 1-year extensions. In addition to storing equipment, materials, and vehicles at the site, Metropolitan would install temporary office trailers as well as security gates. Metropolitan determined through previous environmental documentation (dated November 2019) that there would be no potential significant impacts associated with using the Los Angeles Harbor College site as a contractor storage area for the PCCP Program and it is therefore not included in the analysis of this document.

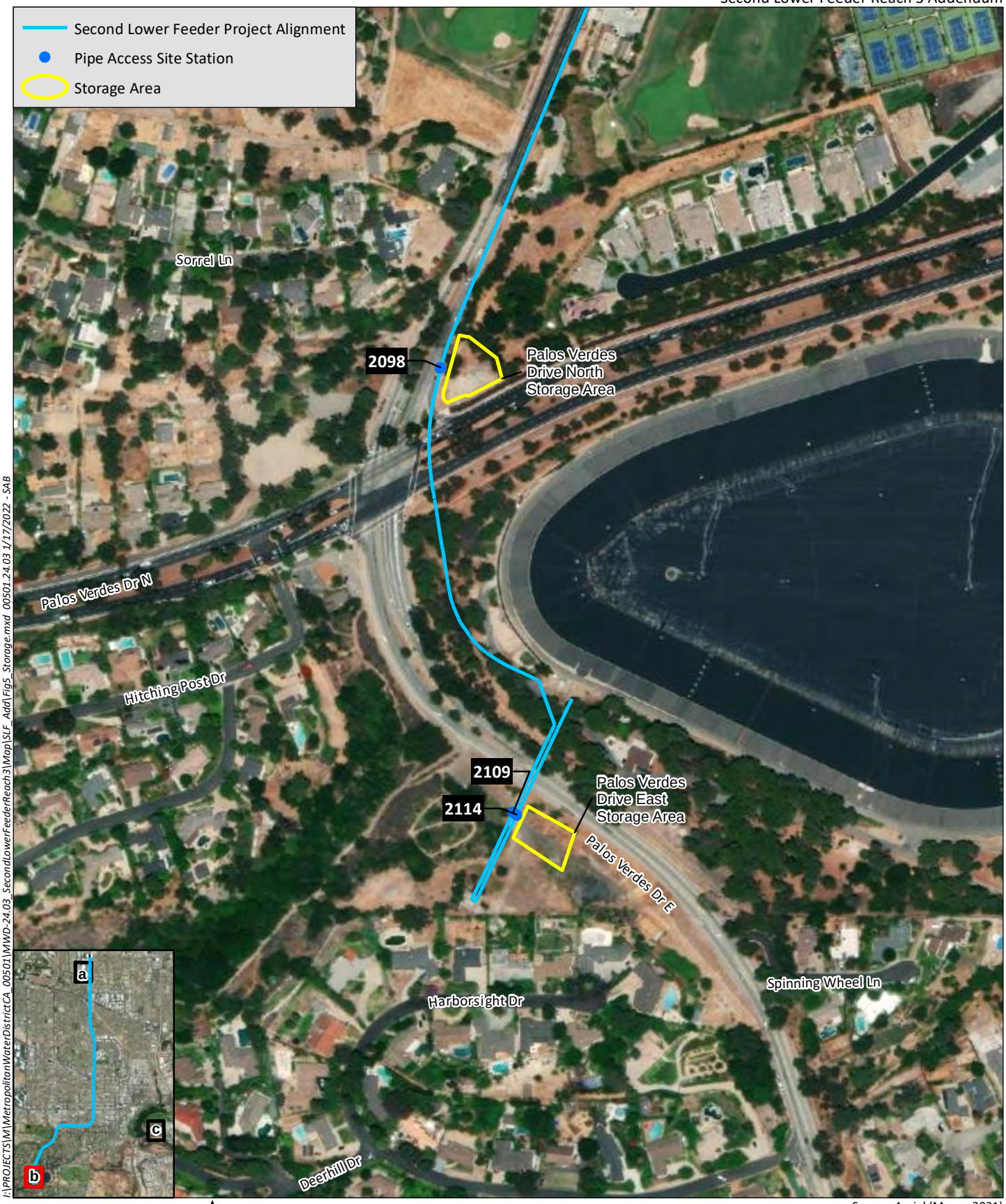
Upon completion of construction work on the Second Lower Feeder, the contractor storage and staging areas would be returned to their pre-construction condition, as appropriate and pursuant to any agreements. For example, if pavement were to be damaged during staging, Metropolitan would re-pave the area.

Source: Aerial (Maxar, 2021)

HELIX Environmental Planning

Contractor Staging Area

Figure 5a



HELIX Environmental Planning

Contractor Staging Areas

Figure 5b

Source: Aerial (Maxar, 2021)

HELIX Environmental Planning

Contractor Storage Area

Figure 5c

Table 5. Proposed Project Pipe Access Sites for PCCP Relining

Pipe Access Site	Location	Alignment	Approximate Excavation Dimensions (Length x Width x Depth, in feet)	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)	Location Type
SLF Sta. 1860	On the north side of W 220th Street, east of Western Avenue	East/West	40 x 18 x 20	230 x 45	Public ROW Roadway Utility
SLF Sta. 1863	Within the median on Western Avenue, south of 220th Street	North/South	40 x 18 x 20	200 x 40	Public ROW Roadway Utility
SLF Sta. 1916	Within the median on Western Avenue, north of W 235th Street	North/South	40 x 18 x 17	200 x 40	Public ROW Roadway Utility
SLF Sta. 1964	Within the median on Western Avenue, south of W 247th Place	North/South	40 x 18 x 18	200 x 40	Public ROW Roadway Utility
SLF Sta. 2015	Within the median on Western Avenue, north of W 261st Street	North/South	40 x 18 x 25	220 x 35	Public ROW Roadway Utility
SLF Sta. 2022	On the north side of 262nd Street, east of Cayuga Avenue	East/West	40 x 18 x 19	140 x 30	Public ROW Roadway Utility
SLF Sta. 2034	On the north side of 262nd Street, west of Monte Vista Avenue	East/West	40 x 15 x 18	140 x 30	Public ROW Roadway Utility
SLF Sta. 2098	On Palos Verdes Drive E north off Palos Verdes Drive N.	North/South	40 x 13 x 21.5	215 x 30	Public ROW Roadway Utility
SLF Sta. 2109 and 2114	Southwest of Palos Verdes Drive E	North/South	40 x 18 x 15.5	250 x 65	MWD Permanent Easement 1413-22-1 Utility

Note: For irregularly-shaped work areas, the maximum width and length are presented in the table.
ROW: right-of-way; SLF Sta.: Second Lower Feeder Station Number

CHECKLIST

Organization of the Initial Study

This Initial Study uses a modified version of the checklist set forth in Appendix G of the State CEQA Guidelines. Based on the analysis that follows, it was determined that no new or more severe significant impacts than those identified in the PEIR would occur as a result of implementation of the proposed project.

Determination

On the basis of this initial evaluation and application of the State CEQA Guidelines (Section 15162, 15163, and 15164):

	YES	NO
1. Substantial changes are proposed in the project that will require major revisions of the PEIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or		X
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous PEIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or		X
3. New information of substantial importance to the project becomes available, and		
a. The information was not known and could not have been known at the time the PEIR was certified as complete or was adopted, and		X
b. The new information shows any of the following:		
i. The project will have one or more significant effects not discussed previously in the PEIR;		X
ii. Significant effects previously examined will be substantially more severe than shown in the PEIR;		X
iii. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project; or		X
iv. Mitigation measures or alternatives that were not previously considered in the PEIR would substantially lessen one or more significant effects on the environment.		X

Findings:

1. The project has effects that were not examined in the EIR; therefore, an Initial Study needs to be prepared leading to either an EIR or a Negative Declaration.		X
2. The agency finds that pursuant to Section 15162, no new effects will occur and no new mitigation measures will be required. The agency can approve the project as being within the scope of the project covered by the PEIR, and no new environmental document is required.	X	

Jennifer Harriger
Signature

01-19-2022
Date

Jennifer Harriger
Printed Name

Section Manager, Environmental Planning Section
Title

I. AESTHETICS

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Have a substantial adverse effect on a scenic vista?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR noted that while there are some scenic resources present in the program area, impacts to these resources would be less than significant for the following reasons: (1) aesthetic impacts during construction would be temporary; (2) work areas would be restored to pre-construction conditions once construction is completed; and (3) visible, aboveground components of proposed PCCP Program facilities would be minimal (e.g., air release/vacuum valves). No mitigation was proposed.

As noted in Table 4.1-4 of the PCCP PEIR, Palos Verdes Drive East and Palos Verdes Drive North are the only scenic resources within the vicinity of the Second Lower Feeder. Reach 3 of the Second Lower Feeder travels along or immediately adjacent to Palos Verdes Drive East for approximately one mile, and excavation sites 2098 and 2109/2114 occur on or adjacent to Palos Verdes Drive East. Additionally, the pipeline transects Palos Verdes Drive North, and two contractor storage sites would occur along these roadways (one at the intersection of Palos Verdes Drive East and Palos Verdes Drive North, and one in the vacant lot southeast of site 2109, southwest of Palos Verdes Drive East). An air release/vacuum valve would also be relocated aboveground at the intersection of Palos Verdes Drive East and Palos Verdes Drive North. However, as stated in the PEIR, potential aesthetic impacts resulting from the rehabilitation and contractor storage areas associated with the proposed project would be temporary, and the working areas would be restored to pre-construction conditions. The visible aboveground component would be minimal and would not result in a significant adverse effect on Palos Verdes Drive North or Palos Verdes Drive East (see **Figure 4**). Therefore, impacts regarding substantial adverse effects on a scenic vista would be less than significant.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As described in the PCCP PEIR, multiple excavation areas would be used for program rehabilitation activities, which would have the potential to contribute to the degradation of the existing visual character and quality of the project site and the immediate surroundings through the introduction of vehicles, equipment, stockpiled material, and other elements. Due to the short-term nature of construction activities and use of contractor storage areas, however, the impact of the program was determined to be less than significant. Also, as described in the PEIR, permanent visible changes after construction are expected to result in minimal impacts because only aboveground components, such as the relocation of air release/vacuum valves, would be visible (see **Figure 4**). The PCCP PEIR concluded that impacts to visual character or quality related to aboveground structures would be less than significant due to the small footprints of the aboveground structures and because the aboveground structures would likely be placed intermittently and not grouped together. In addition, the aboveground structures would be located in developed areas, where such structures already

commonly exist; these areas would generally not be sensitive to the introduction of such structures. No mitigation was proposed.

Consistent with the PCCP Program, construction of the proposed project would involve the introduction of vehicles, equipment, stockpiled material, and other elements to residential neighborhoods during the course of rehabilitation activities. Thus, the same potential for short-term impacts related to visual character and quality, as discussed in the PEIR, would occur under the proposed project.

Table 2 identifies the nine aboveground relocation sites of the air release/vacuum valves of the proposed project. **Table 3** identifies the location of the pumpwell relocation and blow-off structure improvement locations for the proposed project. Permanent visible changes would be the same as those discussed in the PCCP PEIR, and related impacts would be less than significant. No mitigation would be required.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR discussed the possible use of lighting in contractor's work areas and storage areas for safety and security purposes and the potential for that lighting to spill over into adjacent light-sensitive areas, especially residential land uses, which could result in significant construction-related impacts. Permanent lighting was not included as part of the program; therefore, the PCCP PEIR identified no operational impacts related to light and glare. For construction impacts, the following mitigation measure was identified:

- **MM AES-1** requires that all safety and security lighting at contractor's work areas and staging areas be directed downward and shielded to avoid light spilling over into residential areas, thereby reducing impacts to a less than significant level.

For the proposed project, nighttime work and lighting may be required for the 24-hour periods when the Second Lower Feeder is either dewatered or returned to service, as well as during some pipeline relining and related ventilation work. Implementation of **MM AES-1** would reduce impacts related to light and glare to below a level of significance.

The severity of the impact would be the same as that identified in the PCCP PEIR.

II. AIR QUALITY

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, the criteria used to identify consistency with the South Coast Air Quality Management District (SCAQMD) 2012 Air Quality Management Plan (AQMP) included whether there would be air quality violations or delays in attainment or whether there would be exceedances of the

assumptions included in the AQMP. Regarding the consistency of the PCCP Program with the assumptions included in the AQMP, programmatic impacts were determined to be less than significant because no permanent land use changes would occur as a result of program implementation. With respect to the potential for air quality violation or delays in attainment, the PCCP Program was determined to result in significant impacts as a result of construction-period emissions exceeding SCAQMD regional mass emissions thresholds, and the following mitigation measure was identified:

- **MM AIR-1** requires controls on emissions from construction equipment through the use of best available control technology devices.

While construction-period emissions would be reduced with implementation of **MM AIR-1**, impacts were determined to remain significant and unavoidable.

The total amount of concurrent construction activities assumed for the proposed project based on the project phasing (up to 5 excavation sites, 5 new valve/meter vault structures, and 3 above grade relocations of air release/vacuum valves) would be less than what was analyzed within the PEIR, which assumed concurrent construction activities for 10 excavation sites, 3 aboveground relocations of air-release/vacuum valves, 2 new valve/vault/blow-off structures, and a 1,000-foot-long segment of pipe in a new alignment. Construction assumptions, including equipment, for the proposed construction activities would be similar to that analyzed in the PEIR; however, Reach 3 does not include installation of parallel pipeline. Additional details regarding assumptions and adjustments made to the PEIR analysis are provided in Appendix A.

Table 6 shows daily regional mass emissions at individual sites with implementation of **MM AIR-1**. As shown therein, no regional SCAQMD threshold would be exceeded at any individual site. Additionally, as shown in **Table 7**, maximum daily regional mass emissions for the concurrent construction schedule would not exceed the SCAQMD regional mass emissions thresholds for concurrent construction activities under the proposed project with implementation of **MM AIR-1**.

Table 6. Mitigated Daily Regional Mass Emissions for Single Sites (pounds per day)

Project Component	**Location**	**VOC**	**CO**	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Typical Excavation Site	On-Site	0.5	30.1	2.3	<0.1	0.2	<0.1
	Off-Site	<0.1	0.4	0.2	<0.1	0.1	<0.1
	Total	*0.6*	*30.5*	*2.5*	*<0.1*	*0.3*	*0.1*
Typical New Valve/Meter Vault Structure	On-Site	0.4	25.5	1.8	<0.1	<0.1	<0.1
	Off-Site	<0.1	0.8	0.1	<0.1	0.1	<0.1
	Total	*0.5*	*26.3*	*2.0*	*<0.1*	*0.2*	*<0.1*
Typical Belowground Air-release/ Vacuum Valve Relocation	On-Site	0.1	6.5	0.5	<0.1	<0.1	<0.1
	Off-Site	<0.1	0.4	0.2	<0.1	0.2	<0.1
	Total	*0.2*	*6.9*	*0.7*	*<0.1*	*0.2*	*<0.1*
Single-Site Maximum	**-**	**1.2**	**63.7**	**5.2**	**0.1**	**0.7**	**0.3**
Regional Mass Emissions Threshold	-	75	550	100	150	150	55
Single Site Exceeds Threshold?	**-**	***No***	***No***	***No***	***No***	***No***	***No***

Source: Calculations by HELIX 2021 (see Appendix A).
VOC = volatile organic compounds; CO = carbon monoxide; NO_X = nitrogen oxides; SO_X = sulfur oxides; PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Table 7. Mitigated Daily Regional Mass Emissions for Concurrent Construction Scenario (pounds per day)

Emission Site Location	VOC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
On-Site	5.1	297.3	22.1	0.5	1.2	0.7
Off-Site	0.6	7.4	2.4	0.1	1.8	0.5
Total for Concurrent Construction Schedule	**5.7**	**304.7**	**24.5**	**0.5**	**3.0**	**1.2**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Total Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

Source: Calculations by HELIX 2021 (see Appendix A).
Note: Emissions are the result of the unrounded single-site emissions, multiplied by the number of applicable construction sites; numbers may not add correctly due to rounding.
The concurrent construction scenario assumes five excavation sites, five new valve/meter vault structures, and three above grade relocations of air release/vacuum valves occurring simultaneously.
VOC = volatile organic compounds; CO = carbon monoxide; NO_X = nitrogen oxides; SO_X = sulfur oxides;
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Subsequent to the certification of the PEIR, the Board of the SCAQMD approved the 2016 AQMP, which identifies stationary and mobile source strategies to ensure that federal Clean Air Act deadlines for attainment of the National Ambient Air Quality Standards are met. The proposed project, as was discussed for the program, would not involve changes to land uses such that the assumptions used in the development of the 2016 AQMP would be exceeded. Thus, no conflict with the AQMP would occur.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, concurrent regional mass emissions for the full construction scenario (as described above) would result in emissions that exceed the SCAQMD thresholds for volatile organic compounds (VOCs), nitrogen oxides (NO_X), and carbon monoxide (CO). After the implementation of **MM AIR-1**, thresholds would still be exceeded for NO_X and CO. Thus, regional emissions from the PCCP Program were determined to be significant and unavoidable. The PEIR determined that localized emissions during program rehabilitation efforts would exceed the SCAQMD localized significance thresholds for NO_X, but implementation of **MM AIR-1** would reduce the impact to a less-than-significant level.

As discussed in Item II.a, the proposed project would not result in regional mass emissions that would exceed SCAQMD thresholds following the implementation of **MM AIR-1**. Thus, impacts would be less than significant after implementation of **MM AIR-1**. Localized emissions would be no greater than identified in the PEIR, as discussed in Item (d), and would be less than significant after implementation of **MM AIR-1**. Furthermore, because the proposed project rehabilitation activities within roadways would mostly occur on relatively low-volume streets with alternative routes available for roadways users, no CO or particulate matter hotspots would result from increased congestion near excavation sites.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
c. Result in a cumulatively considerable net increase in any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. Refer to the discussion in Items II.a and II.b. As shown in Table 4.3-7 of the PEIR, the South Coast Air Basin is in non-attainment for federal and state ozone standards. However, because emissions from the proposed project would not exceed the SCAQMD regional mass emissions thresholds, impacts would be less than significant after implementation of **MM AIR-1**.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As identified in the PEIR, program rehabilitation activities were determined to have a significant impact on sensitive receptors located in proximity to excavation sites. Such impacts were determined to be reduced with the implementation of **MM AIR-1**, but were found to be significant and unavoidable.

The proposed project would involve rehabilitation activities in proximity to sensitive receptors, such as residences and schools. All excavation areas would occur in residential neighborhoods, as would the aboveground relocation of air-release/vacuum valves and many of the blowers used for pipeline ventilation. Because the locations of these activities are consistent with the distances from sensitive receptors analyzed in the PEIR and the emissions at these locations would be no greater than identified in the PEIR, impacts related to sensitive receptors would be the same as described in the PEIR.

Diesel particulate matter (DPM) is the primary toxic air contaminant (TAC) that would be emitted during construction and would be generated from the use of off-road diesel equipment required for demolition, site grading, excavation, and other construction activities. Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The amount to which the receptors could be exposed, which is a function of concentration and duration of exposure, is the primary factor used to determine health risk. The generation of TAC emissions during construction would be variable and sporadic due to the nature of construction activity. Additionally, construction activities would occur in multiple places over 4.9 miles and would not be concentrated in a single location. Therefore, due to the short duration and intermittent nature of construction activities, and due to the highly dispersive properties of DPM, project-related TAC emission impacts during construction would not expose sensitive receptors to substantial pollutant concentrations and the impact would be less than significant.

A CO hotspot is an area of localized CO pollution caused by severe vehicle congestion on major roadways, typically near intersections. If a project increases average delay at signalized intersections operating at Level of Service (LOS) E or F or causes an intersection that would

operate at LOS D or better without the project to operate at LOS E or F with the project, a quantitative screening is required. The increase in daily trips associated with construction of the project would be nominal compared to local traffic volumes, and operation of the project would not result in an increase in traffic. The project would neither cause new severe congestion nor significantly worsen existing congestion. There would be no potential for a CO hotspot or exposure of sensitive receptors to substantial, project-generated, local CO emissions. The impact would be less than significant.

The severity of the impact would be the same as that identified in the PEIR.

III. BIOLOGICAL RESOURCES

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR identified impacts to special-status species as potentially significant at the programmatic level. Areas that are most likely to contain special-status species near the Second Lower Feeder were identified as the Diemer Water Treatment Plant and Black Hills Golf Course in Yorba Linda, and open space areas near the southwest terminus of the Second Lower Feeder in Rolling Hills Estates. Mitigation measures were identified in the PEIR to reduce potential impacts to special-status species resulting from PCCP Program activities:

- **MM BIO-1** requires a pre-construction survey by a qualified biologist for project sites where vegetation removal or ground disturbance would occur in areas that contain special-status species; and
- **MM BIO-2** requires a qualified biologist to determine the presence of nesting bird species in areas where vegetation removal would occur during the nesting season. If a nest is found, the biologist shall determine site-specific measures necessary to avoid disturbing the nest until nesting activity has ceased.

While these measures would reduce the potential for significant impacts to candidate, sensitive, or special-status species resulting from PCCP Program activities, the PEIR determined that impacts may remain significant. The PCCP PEIR concluded that further project-specific analysis and documentation would be necessary to determine if impacts could be reduced to a less-than-significant level.

A Biological Resources Assessment (BRA) was completed for the proposed project by Rincon Consultants, Inc. (Rincon; 2020a) and is provided as Appendix B. The proposed project site is located primarily within paved rights-of-way of existing roadways in highly developed/disturbed urbanized areas. The areas identified by the PEIR as most likely to include special-status species are not located within the proposed project limits.

The California Natural Diversity Database lists 21 special-status plant species and 21 special-status wildlife species that have the potential to occur within a five-mile radius of the proposed project

limits. One sensitive plant community (southern coastal bluff scrub) was also identified within five miles of the project site. Since sensitive plant and wildlife species typically have very specific habitat requirements, and the project area is highly disturbed and lacks suitable habitat, the noted species are not considered to have potential to occur in the project area.

Low-quality foraging and/or roosting habitat for three special-status species (southern California legless-lizard, western mastiff bat, and San Diego desert woodrat) occurs adjacent to and within the proposed project limits, with Palos Verdes Reservoir and Second Lower Feeder Stations 2109/2114 having the greatest potential to support special-status species. The BRA notes, however, that the project site and surrounding areas have a history of frequent disturbance and are surrounded by existing development and heavily travelled transportation corridors; therefore, there is low potential for the identified special-status species to occur on site. Additionally, the BRA states that the adjacent areas with low-quality potentially suitable habitat are also heavily disturbed and have low potential for occurrence of special-status species.

Overall, the project site does not contain habitat that would support species identified as candidate, sensitive, or special-status species; therefore, **MM BIO-1** would not be applicable to the proposed project.

Migratory birds, including most birds that could nest in the study area, are protected by the federal Migratory Bird Treaty Act, which forbids most forms of harm to birds, including to their active nests. In addition, California Fish and Game Code Section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Where vegetation, and especially trees, are removed as part of construction during the nesting season (generally February 1 to August 31), there is the potential for violations under the Migratory Bird Treaty Act and Section 3503 et seq. of the California Fish and Game Code. The project site contains ornamental trees and shrubs that could provide suitable nesting habitat for several common bird species. Implementation of **MM BIO-2** would reduce potential impacts on nesting birds to a less-than-significant level.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR identified impacts to riparian habitat and other sensitive natural communities as potentially significant at the programmatic level. Areas that are most likely to contain riparian habitat or other sensitive natural communities near the Second Lower Feeder were identified as the Diemer Water Treatment Plant and Black Hills Golf Course in Yorba Linda and open space areas near the southwest terminus of the Second Lower Feeder in Rolling Hills Estates. Mitigation measures were identified in the PCCP PEIR to reduce potential impacts to riparian habitat and other sensitive natural communities resulting from PCCP Program activities:

- **MM BIO-3** requires a pre-construction survey by a qualified biologist for project sites where vegetation removal or ground disturbance would occur in areas that contain riparian habitat; and
- **MM BIO-4** requires adherence to adopted Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs), or a pre-construction survey by a qualified biologist for areas or activities not covered by an adopted HCP/NCCP, where vegetation removal and/or ground disturbance would occur in areas that contain sensitive natural communities.

The PCCP PEIR concluded that further project-specific analysis and documentation would be necessary to determine if impacts could be reduced to a less-than-significant level.

The BRA states that no riparian habitat, sensitive plant communities, or other sensitive natural communities are present within the proposed project limits or designated work areas. The proposed project would therefore have no impact on riparian habitat or other sensitive natural communities in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, and **MM BIO-3** and **MM BIO-4** would not be applicable to the proposed project.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
c. Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal areas, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR identified impacts to wetlands as potentially significant at the programmatic level. Areas that are most likely to contain wetlands near the Second Lower Feeder were identified as the Diemer Water Treatment Plant and Black Hills Golf Course in Yorba Linda and open space areas near the southwest terminus of the Second Lower Feeder in Rolling Hills Estates. Mitigation was identified in the PEIR to reduce potential impacts to wetlands resulting from PCCP Program activities:

- **MM BIO-5** requires a pre-construction survey by a qualified biologist for project sites where vegetation removal or ground disturbance would occur in areas that contain wetland.

The PCCP PEIR concluded that further project-specific analysis and documentation would be necessary to determine if impacts could be reduced to a less-than-significant level.

The BRA states that although a riparian corridor is mapped within the work area for Second Lower Feeder Station 2098 in the USFWS NWI Wetland Mapper, this feature was not found to be present during the pedestrian survey. The area was found to be dominated by non-native Peruvian pepper trees and no water source was observed. A band of riverine habitat was also mapped along the Palos Verdes Drive East between Oak Street and Club View Lane. This feature was not observed in the field and no work areas are proposed at this location. Therefore, per the BRA, no potentially jurisdictional drainages or wetlands occur within the proposed project limits or designated work areas. The proposed project would have no impact on federally protected wetlands; therefore, **MM BIO-5** would not be applicable to the proposed project.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PEIR notes that PCCP Program pipelines cross many counties and cities that have tree preservation policies or ordinances in place. The PCCP Program would involve the removal of some trees and vegetation during construction activities, and restoration of project sites to pre-construction conditions may not be consistent with existing tree preservation policies or ordinances; therefore, the PCCP PEIR determined that related impacts would be potentially significant. Mitigation was identified to reduce potential impacts related to conflicts with tree preservation policies:

- **MM BIO-7** requires Metropolitan to coordinate with affected jurisdictions to determine appropriate requirements for PCCP Program projects that would require vegetation removal.

The proposed project may involve trimming or removal of vegetation and trees. The proposed project limits cross the jurisdiction of the cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates, and each of these jurisdictions has its own tree preservation ordinance. Trimming or removal of vegetation and trees related to the proposed project may occur within the jurisdiction of each of these cities. Additionally, the portion of the project site located along Western Avenue occurs within the California Department of Transportation (Caltrans) right-of-way; therefore, tree removal in this location would require coordination with Caltrans. Impacts would be potentially significant, but implementation of **MM BIO-7** would reduce impacts to a less-than-significant level.

The severity of the impact would be the same as that identified in the PEIR.

IV. CULTURAL RESOURCES

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR noted that ground-borne vibration from excavation and concrete cutting could potentially affect the nearby built environment and impacts to historical resources in the vicinity of program-related work could be potentially significant. Table 4.5-8 of the PCCP PEIR identified one known historical resource in the vicinity of the Second Lower Feeder where it crosses Almeda Drive: the Mojave Road former Indian trade route and U.S. Army Road (California Historical Landmark #963). Mitigation was identified to reduce potential impacts to historical resources:

- **MM CUL-1** requires a qualified cultural resource specialist to determine the presence of identified or eligible historical resources and to provide measures to prevent impacts to those resources as appropriate.

In accordance with **MM CUL-1**, a Cultural Resources Study (CRS) was completed for the proposed project by Rincon (2020b) and is provided as Appendix C. The records search completed

in support of the CRS identified seven historic resources within 0.5-mile of the project, although none occurs within the project boundaries and no historic resources were discovered within the project boundaries during the field survey. The closest of-age resource is the Palos Verdes Reservoir constructed in 1939, located approximately 60 feet from the project. However, the project is not expected to impact the reservoir. Additionally, the reservoir was previously recommended ineligible for listing on the National Register of Historic Places and the California Register of Historical Resources. The CRS states that since the project site is located in a residential area and has been previously developed with modern infrastructure, and since no historic cultural resources have been recorded or were observed during surveys of the excavation sites, staging location, or pipeline alignment, additional steps related to **MM CUL-1** would not be necessary for the proposed project. The historical resource identified in the PEIR is outside of the proposed project limits, and proposed activities would not result in a substantial adverse change in the significance of this resource. No mitigation would be required.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR discussed how sediments in proximity to pipelines have been previously disturbed and determined that the possibility of encountering intact archaeological resources during PCCP Program activities would be low. The possibility that archaeological resources may be encountered still exists, however, and the PEIR stated that impacts would be potentially significant. The following mitigation measures from the PEIR would reduce programmatic impacts to a less-than-significant level:

- **MM CUL-2** requires a pre-construction, site-specific records search to identify if additional sites or resources have been recorded on or adjacent to the proposed project site. If the proposed project site is found to be within the recorded area of a significant or potentially significant site, then archaeological and/or Native American monitoring during ground-disturbing activities is required.
- **MM CUL-3** requires a pre-construction meeting to inform construction personnel how to identify cultural resources during ground-disturbing activities and what to do if such potential resources are found.
- **MM CUL-4** establishes a protocol in the event that potentially significant cultural resources are unexpectedly encountered during construction.
- **MM CUL-5** requires a professional archaeologist to perform a pedestrian survey of areas where ground-disturbing activities are proposed. If archaeological resources are recorded or are discovered during the survey and avoidance is not feasible, then site testing and evaluation by a professional archaeologist is required.

Table 4.5-8 of the PCCP PEIR identified one known archaeological resource adjacent to the Second Lower Feeder (Site CA-LAN-281): a deep dark midden deposit and probable village site that was removed in conjunction with the construction of Metropolitan's Palos Verdes Reservoir. The identified archaeological resource is not within the proposed project limits, and the proposed project would not result in a substantial adverse change in the significance of this archaeological resource.

Pursuant to **MM CUL-2** and **MM CUL-5**, the CRS for the proposed project included a cultural resources records search, a sacred lands file search, and a field survey. The records search identified six archaeological cultural resources within 0.5-mile of the project, none of which occurs within the project boundaries. The nearest cultural resource identified in the records search (19-000191) consisted of a prehistoric shell midden located at the Palos Verdes Reservoir. However, the CRS notes that this resource was likely completely destroyed by the construction of the Palos Verdes Reservoir in 1939. No cultural resources were discovered within the project boundaries during the pedestrian survey. Additionally, in accordance with **MM CUL-2**, Metropolitan requested a Sacred Lands File search from the Native American Heritage Commission in early 2015. The Sacred Lands File search was completed with negative results for the project site. Because no archaeological resources have been identified within the proposed project limits, archaeological monitoring and Native American monitoring under **MM CUL-2** would not be required for the proposed project. The proposed project will, however, implement requirements from **MM CUL-3** and **MM CUL-4**, which would ensure impacts to archaeological resources would be less than significant. The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. Table 4.5-9 of the PCCP PEIR lists geologic formations located within the vicinity of the Second Lower Feeder where fossils have been recovered. The PEIR analysis concluded that it would be unlikely that paleontological resources would be discovered in areas with sediments previously disturbed by original pipeline construction; however, the possibility of encountering such resources still remains and the following mitigation measure was identified:

- **MM CUL-6** requires the development and implementation of a site-specific mitigation program to address potential impacts to paleontological resources.

Implementation of **MM CUL-6** would reduce potential impacts resulting from the PCCP Program to a less-than-significant level.

In compliance with **MM CUL-6**, a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed project was prepared by Rincon (2020c), and is provided as Appendix D. According to the paleontological records search performed as part of the PRIMP, 11 vertebrate localities were identified in the general vicinity of the project although no fossil localities have been previously recorded within the proposed project limits. The nearest vertebrate localities (LACM 1053 and LACM 3065) were identified approximately 0.2 mile southwest of Second Lower Feeder Station 2049. Additionally, LACM 1099 was identified less than 0.25 mile west of Second Lower Feeder Station 2098. LACM 1098 was also identified further to the southwest, south of Palos Verdes Drive North and east of Portuguese Bend Road.

According to the PRIMP, the geologic units underlying the project area have a paleontological sensitivity ranging from low to high. The older Quaternary alluvium, older Quaternary eolian deposits, San Pedro Formation, and Monterey Formation immediately underlying most of the project area are all assigned a high paleontological sensitivity because they have proven to yield vertebrate fossils near the project area and throughout the Los Angeles Basin. Holocene surficial alluvial deposits (Qya2, Qyf2), underlying a small segment of the southwestern project area, have a low paleontological sensitivity at the surface because they are too young to preserve fossilized

remains. At shallow depth, the Holocene alluvial deposits overlie sensitive Pleistocene age deposits across the project area. Therefore, the paleontological sensitivity of the Holocene deposits is determined to be low to high, increasing at a depth of about five feet below ground surface (see Figure 3 in Appendix D).

Requirements in the PRIMP include retention of a qualified paleontologist to implement the PRIMP, a Worker Environmental Awareness Program to train all site personnel prior to the start of work, obtainment of a curation agreement with an accredited museum prior to construction, monitoring during earth moving in previously undisturbed areas, the availability of appropriate equipment and supplies, adherence to guidelines involving bulk matrix sampling, appropriate laboratory preparation and curation protocol, and a final report of findings. Details regarding each of these requirements can be found in Section 3 of Appendix D. With the implementation of the PRIMP, as required by **MM CUL-6**, impacts to paleontological resources would be less than significant.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PEIR identified the potential for PCCP Program activities to disturb human remains within the pipeline alignments or in staging areas during excavations or grading and determined that this could result in a significant impact if damage to or destruction of human remains occurred. Compliance with California state law in Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the PRC would, however, reduce potential programmatic impacts related to disturbance of human remains to a less-than-significant level. No mitigation was proposed.

Activities associated with the proposed project could also disturb human remains, which would result in a significant impact. Consistent with analysis in the PEIR, however, compliance with California state law in Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the PRC would make this potential impact of the proposed project less than significant. No mitigation would be required.

The severity of the impact would be the same as that identified in the PEIR.

V. GEOLOGY AND SOILS

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:		
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42)?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR discussed how the PCCP Program is located within a seismically active area. All of the feeders, with the exception of the Calabasas Feeder, cross at least one Alquist-Priolo Earthquake Fault Zone. The PEIR determined that the PCCP Program would nonetheless have less-than-significant impacts related to fault rupture for the following reasons: (1) the PCCP Program would not include the construction of structures intended for human occupancy; (2) the PCCP Program would not draw a significant amount of people to the area; (3) the probability of a seismic event coinciding with construction is very low; and (4) Metropolitan would require contractors to comply with the requirements of the California Building Code and the California Division of Occupational Safety and Health. The PEIR also stated that hazards related to fault rupture are considered to pose an acceptable level of risk for construction and operation of a water conveyance system. No mitigation was proposed.

The proposed project components would not be located within an Alquist-Priolo Earthquake Fault Zone (CGS 1999). The Newport-Inglewood-Rose Canyon Fault Zone is the closest Alquist-Priolo Earthquake Fault Zone, located approximately 3.5 miles northeast of the project. As discussed in the PEIR, impacts related to fault rupture would be less than significant because the proposed project would not include the construction of structures intended for human occupancy and would comply with all applicable requirements. No mitigation would be required.

The severity of the impact would be the same as that identified in the PEIR.

	New or More Severe Significant Impact than Identified in the PEIR	*Impact Less than or Equal to Impact Identified in the PEIR*
ii. Strong seismic ground shaking?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR discussed that all five feeders would be potentially subject to strong seismic shaking as a result of earthquakes on nearby or more distant faults, but determined that impacts related to seismic shaking would be less than significant for the same reasons as summarized above for Item V.a.i. No mitigation was proposed.

The proposed project would be potentially subject to strong seismic shaking as a result of earthquakes on nearby or more distant faults. Impacts of the proposed project would be of the same severity as those analyzed in the PCCP PEIR, as the proposed project would not include the construction of structures intended for human occupancy and would comply with all applicable requirements. No mitigation would be required.

The severity of the impact would be the same as that identified in the PEIR.

	New or More Severe Significant Impact than Identified in the PEIR	*Impact Less than or Equal to Impact Identified in the PEIR*
iii. Seismically related ground failure, including liquefaction?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. Figure 4.6-8 of the PCCP PEIR identified areas surrounding the Second Lower Feeder that are susceptible to liquefaction during seismic events, which would result in settlement and lateral spreading that could damage the pipelines and result in impacts. Analysis included in the PEIR determined, however, that impacts related to liquefaction would be less than significant for the same reasons as summarized above for Item V.a.i. No mitigation was proposed.

As shown in Figure 4.6-8 of the PCCP PEIR, Reach 3 of the Second Lower Feeder is not located within an area that is susceptible to liquefaction. Additionally, the proposed project would not include the construction of structures intended for human occupancy and would comply with applicable requirements. Therefore, the proposed project is at a lower risk for liquefaction than what was analyzed in the PEIR. No mitigation would be required.

The severity of the impact would be less than that identified in the PEIR.

	New or More Severe Significant Impact than Identified in the PEIR	*Impact Less than or Equal to Impact Identified in the PEIR*
iv. Landslides?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. Figure 4.6-8 of the PCCP PEIR identified areas surrounding the Second Lower Feeder that are susceptible to earthquake-induced landslides that could damage the pipelines and result in impacts. Programmatic impacts were determined to be less than significant for the reasons summarized above for Item V.a.i. No mitigation was proposed.

The proposed project is located in an area with little topography and is surrounded by urban development. As shown in Figure 4.6-8 of the PCCP PEIR, there is the potential for earthquake-induced landslides along the southern region of Reach 3 of the Second Lower Feeder; however, the potential for earthquake-induced landslides is low, and the severity of the impact would be the same as that identified in the PEIR. No mitigation would be required.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR identified the potential for soil erosion or the loss of topsoil to occur as a result of trenching during pipeline rehabilitation. In addition, the movement and temporary stockpiling of excavated soil could result in short-term erosion and sedimentation if improperly handled and stored. The PEIR identified environmental commitments Metropolitan would fulfill as part of the PCCP Program which would reduce potential impacts to a less-than-significant level. These commitments include:

- Compliance with SCAQMD Rule 403 to minimize fugitive dust, construction traffic, and particulate matter releases; and

- Implementation of water quality best management practices (BMPs), including a Storm Water Pollution Prevention Plan (SWPPP), as applicable, for sediment and erosion control, pollutant treatment, outlet protection, and general site management.

As described in the PEIR, no specific areas in which soil erosion is likely were identified within the vicinity of the Second Lower Feeder. Because the proposed project is not located in an area identified as susceptible to soil erosion, the proposed project would have the same potential impacts as those identified in the PCCP Program and would employ the same environmental commitments identified within the PEIR.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. Aside from the earthquake-related landslide and liquefaction hazards discussed above, the PCCP PEIR did not identify other unstable geology or soils hazards area within the vicinity of the Second Lower Feeder. Consequently, no additional geology or soils hazards are anticipated. There would therefore be no impacts beyond the less-than-significant impacts identified for Items V.a.iii and V.a.iv, which discuss impacts related to earthquake-related landslide and liquefaction hazards.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR stated that while some areas of the PCCP Program may be underlain by expansive soils that could deform, resulting in damage to feeders and risking injury to workers, impacts would be less than significant for similar reasons summarized above for Item V.a.i. No mitigation was proposed.

Expansive soils identified in the PCCP PEIR in the vicinity of the Second Lower Feeder occur in unincorporated Orange County and the cities of Buena Park, Lomita, and Rancho Palos Verdes. According to the Safety Element of the City of Lomita General Plan, soils within the central and southern portions of Lomita have a high shrink-swell potential and are therefore at an increased risk of hazards related to expansive soil (City of Lomita 1998). A portion of the proposed project would cross through the southern portion of Lomita, and therefore has the potential to be located on expansive soil. However, the hazard of expansive soils is an existing risk for the current operation of the feeders, and the proposed project would not increase this risk. Additionally, for the same reasons as summarized above for Item V.a.i, impacts related to expansive soil would be less than significant.

The severity of the impact would be the same as that identified in the PEIR.

VI. GREENHOUSE GAS EMISSIONS

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, greenhouse gas (GHG) emissions would occur as a result of program rehabilitation activities, including the use of construction equipment, material delivery and off-haul, and commute trips by workers. Because program emissions would exceed the SCAQMD interim threshold of 3,000 metric tons per year, impacts were determined to be significant. Although there would be small reductions in GHG emissions associated with implementation of **MM AIR-1**, programmatic impacts were determined to be significant and unavoidable.

Proposed project GHG emissions were estimated using the PEIR's quantification of individual sites and multiplying that by the total number of sites (i.e., all three phases combined) that would be used as part of the proposed project. Consistent with SCAQMD's prescribed methodology and the PEIR analysis, GHG emissions were amortized over a 30-year period. As shown in **Table 8**, the proposed project would result in 323.0 metric tons of carbon dioxide equivalent (CO_2e), which would be 10.8 metric tons of CO_2e per year when amortized over 30 years. Because the proposed project would not exceed the SCAQMD interim GHG emissions threshold, impacts would be less than significant, which is less than impacts identified in the PEIR. Nevertheless, **MM AIR-1** will be implemented due to the overall program GHG emissions.

The severity of the impact would be less than that which was identified in the PEIR.

Table 8. Estimate of Proposed Project GHG Emissions (metric tons)

Phase	**Individual Site CO_2e**	**Proposed Project CO_2e**
Typical Excavation Site (Quantity: 15)	9.2	137.6
Typical New Valve/Meter Vault Structure (Quantity: 9)	17.5	157.9
Typical Belowground Air-release/Vacuum Valve Relocation (Quantity: 8)	3.4	27.4
Total Construction Emissions[1]		323.0
30-year Amortized Total		10.8

Source: HELIX 2021, Appendix A.
[1] Note that numbers may not total due to rounding.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
b. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, because Metropolitan has not adopted a qualified plan, policy, or regulation to reduce GHG emissions, the most applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions is Assembly Bill (AB) 32, which codified the state's GHG emissions-reduction targets for 2020. Although rehabilitation activities would result in GHG emissions, it was determined that

program emissions would not conflict with GHG reduction goals outlined in the AB 32 Scoping Plan.

Additionally, the PEIR discussed two Executive Orders (EOs) related to the reduction of statewide GHG emissions. EO B-30-15 established an interim GHG reduction target of 40 percent below 1990 levels by 2030, and EO S-03-05 established a long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050. Senate Bill (SB) 32, which codified the state's GHG emissions-reduction targets for 2030, was signed into law in September 2016. The PEIR pointed out that significant policy, technical, and economic solutions will be required in order to meet the goals of EO S-03-05 and B-30-15; however, these changes would require state and/or federal action and would be outside of the control of Metropolitan. While long-term climate change policy and regulatory changes are currently unknown, the PEIR concluded that PCCP Program features would not conflict with the goals in EO S-03-05 and EO B-30-15, and related impacts would be less than significant.

The proposed project would result in GHG emissions associated with rehabilitation activities, as shown in the discussion of Item VI.a. These activities would result in a net increase in GHG emissions, but the emissions would be minimal and temporary and would not otherwise conflict with the statewide GHG reduction targets identified in AB 32 and SB 32.

The severity of the impact would be the same as that identified in the PEIR.

VII. HAZARDS AND HAZARDOUS MATERIALS

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As described in the PCCP PEIR, although solvents, paints, oils, grease, and fuels would be transported, used, and disposed of during the construction phase, these materials would not represent the transport, use, and disposal of acutely hazardous materials. In addition, as described in the PEIR, Metropolitan's contractors would implement the following environmental commitments as part of the PCCP Program:

- Rehabilitation activities would incorporate BMPs, including a SWPPP, as applicable, for sediment and erosion control, pollutant treatment, outlet protection, and general site management; and
- A Spill Emergency Response Plan would be prepared prior to the start of construction to ensure that hazardous materials and waste are handled, stored, and disposed of in accordance with applicable federal and state laws and regulations. All materials and fuels within staging areas and excavation sites and work zones would be stored in a manner that reduces potential for spills.

Due to implementation of the above environmental commitments and required compliance with existing regulations, the PEIR concluded that impacts related to the routine transport, use, or disposal of hazardous materials would be less than significant, and no mitigation was proposed.

The proposed project would require transport, use, and disposal of hazardous materials such as solvents, paints, oils, grease, and fuels. Compliance with applicable regulations and implementation of the described environmental commitments of the PCCP Program would result in

less-than-significant impacts related to the routine transport, use, or disposal of hazardous materials, and no mitigation would be required.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed above, the PCCP PEIR determined that the program would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The risk of upset and accidents involving the release of hazardous materials into the environment was therefore also determined to be less than significant for the PCCP Program.

For the proposed project, as described in Item VII.a., rehabilitation activities would require transport, use, and disposal of hazardous materials, which could result in upset or accidents that could release hazardous materials into the environment. Such transport, use, and disposal must be compliant with applicable regulations, and impacts would be similar to those identified in the PEIR.

After rehabilitation activities are complete, the operation of the proposed project would be the same as existing conditions. Therefore, there would be no impacts related to risk of upset and accidents involving the release of hazardous materials into the environment associated with operation of the program pipelines.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, construction-related hazardous releases that could occur within 0.25 mile of a school would be from commonly used materials such as fossil fuels, solvents, and paints and would not include substances listed in 40 Code of Federal Regulations 355, Appendix A, *Extremely Hazardous Substances and Their Threshold Planning Quantities*. Accidental releases of commonly used hazardous materials would be localized and immediately contained and cleaned up. The PEIR determined that program impacts would be less than significant with the implementation of the following mitigation measures:

- **MM HAZ-1** requires the preparation of a project-level analysis of previously identified hazardous materials sites in the vicinity;
- **MM HAZ-2** establishes a protocol for the identification and management of previously unknown hazardous materials sites that may be encountered during construction activities;
- **MM HAZ-3** requires the construction contractor to implement BMPs to minimize human exposure to potential contaminants; and
- **MM HAZ-4** establishes a protocol for the handling of contaminated groundwater that could be encountered during construction.

As shown in **Table 9**, there are five schools within 0.25 mile of the proposed project alignment. Additionally, the main contractor storage area would be located at a vacant lot at Los Angeles Harbor College. Although rehabilitation would involve hazardous materials typical of a construction project (as discussed above under Item VII.a.), the proposed project would operate in compliance with federal, state, and local regulations. In accordance with **MM HAZ-1**, a project-level analysis of previously identified hazardous materials sites in the vicinity has been conducted (see Item VII.d, below). Additionally, **MM HAZ-2** through **MM HAZ-4** would be implemented for the proposed project, thereby reducing potential impacts to a less-than-significant level.

Table 9. Schools within 0.25 mile of the Proposed Project Alignment

School	Address	Approximate Distance from the Proposed Project
Harbor City Elementary School	1508 254th Street, Harbor City	0.20 mile east
Eshelman Avenue Elementary School	25902 Eshelman Avenue, Lomita	0.17 mile north
President Avenue Elementary School	1465 West 243rd Street, Harbor City	0.24 mile east
Alexander Fleming Middle School	25425 Walnut Street, Lomita	0.24 mile west
Narbonne High School	24300 S Western Avenue, Harbor City	50 feet east

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR identified the potential for rehabilitation activities to encounter hazardous materials sites found in various environmental databases. Excavations into contaminated media at known or unknown sites could result in a significant hazard to the construction workers, the public, or the environment. Program impacts were determined to be potentially significant, but impacts would be mitigated to a less-than-significant level through the implementation of **MM HAZ-1** through **MM HAZ-4** of the PEIR.

In accordance with **MM-HAZ-1**, a records search was conducted in June 2021 of state databases that identify sites for which a hazardous materials release or incident has occurred or sites that

generate, store, treat, or dispose of hazardous materials. Specifically, this included the California Department of Toxic Substances Control (DTSC) EnviroStor website and the State Water Resources Control Board (SWRCB) GeoTracker website. Four hazardous materials sites were identified within 1,000 feet of the proposed project on the EnviroStor site's map (DTSC 2021). These include an active voluntary cleanup site at a former automotive shop located 100 feet east of the project (case number 60001269); a site under evaluation located at 1638 West 227th Street, approximately 270 feet east of the project (case number 19990046); a site under evaluation located at 2026 Abalone Avenue, approximately 430 feet west of the project (case number 19240022); and a closed school investigation at Los Angeles Harbor College (case number 60001351). The GeoTracker website lists 13 sites within 1,000 feet of the proposed project, all of which consist of a leaking underground storage tank (LUST) cleanup site. The locations of these sites are listed below:

- Rubber Craft (1800 220th Street), 800 feet west of the project (case number 905010134)
- Pasminco Property (22219 Western Avenue), 50 feet west of the project (case number 905010034)
- Thrifty Oil Company (22620 Western Avenue), 50 feet east of the project (case number 10595/25919)
- Former Shell Gas Station (22930 Western Avenue), 50 feet east of the project (case number 905010189)
- Aable Muffler (23908 Western Avenue), 50 feet east of the project (case number 907100134)
- Shell Oil Company (25001 Western Avenue), 50 feet west of the project (case number 907100098)
- Lomita Gas Station (1800 Lomita Boulevard), 250 feet west of the project (case number I-04807)
- Mobil Gas Station (1701 Pacific Coast Highway), 100 feet west of the project (case number R-09417)
- Former Shell Services Station (1695 Pacific Coast Highway), 100 feet east of the project (case number 907100089A)
- Former Texaco (1752 Pacific Coast Highway), 320 feet west of the project (case number I-06181)
- Chevron (25800 Western Avenue), 50 feet east of the project (case number 907100070)
- Los Angeles Harbor College (1111 Figueroa Place), adjacent to the project (case number 907440425)
- Lomita Sheriff's Station (26123 Narbonne Avenue), 380 feet northwest of the project (case number R-05421)

There are multiple known hazardous materials sites near the proposed project limits, and there is potential for construction crews to encounter previously unknown contaminated media during excavations, which could result in a significant impact. However, MM HAZ-2 through MM HAZ-4 shall be implemented to reduce potential impacts to a less-than-significant level.

After rehabilitation is complete, the operation of the proposed project would be the same as existing conditions.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
e. For a project located within an airport land use plan or, where such plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, the Second Lower Feeder is within the notification area for Joint Forces Training Base in Los Alamitos. Notification areas are established to ensure that structures are not built near the airport that would adversely affect day-to-day operations. Since the PCCP Program only includes small aboveground structures, such as small valve enclosures (see **Figure 4**), it was determined that the program would have no impact on airport operations at the Joint Forces Training Base in Los Alamitos.

The PEIR also notes that the Second Lower Feeder is within the runway protection zone of the Long Beach Municipal Airport. Runway protection zones are intended to provide for the unobstructed passage of landing aircraft, and no structures or congregation of people are allowed in this zone. Aboveground rehabilitation activities or permanent aboveground elements of the PCCP Program within this zone would result in potentially significant impacts, and the following mitigation was identified:

- **MM HAZ-5** requires coordination with airport management, as appropriate, for rehabilitation activities occurring within runway protection zones and implementation of identified operation and safety requirements; and
- **MM HAZ-6** requires prior approval of airport officials for any aboveground elements within runway protection zones.

The PEIR determined that implementation of these mitigation measures would reduce impacts to airport operations and safety to less-than-significant levels.

The Long Beach Municipal Airport is located approximately 8.3 miles to the east of the proposed project limits; therefore, the proposed project limits are not located within the Airport Influence Area (County 2003). The runway protection zone is more than eight miles away from the closest proposed excavation site. No related impacts would occur, and no mitigation would be required.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, if an excavation were to take place in roadways that serve as emergency/evacuation routes, and capacity of the affected streets were reduced during construction (such as reducing four lanes to two lanes), the ability of these streets to serve as emergency/evacuation routes may be impaired

and impacts would be potentially significant. The following mitigation was identified to address these potentially significant impacts:

- **MM HAZ-7** requires emergency/evacuation routes to be maintained during PCCP Program construction activities by: (1) avoiding the placement of excavation sites in roadways designated as emergency/evacuation routes; (2) working with local jurisdictions to maintain capacity on emergency/evacuation routes when those roadways cannot be avoided; and/or (3) notifying emergency personnel and posting temporary signage to direct emergency/evacuation traffic if detours are necessary.

Implementation of **MM HAZ-7** would reduce programmatic impacts to a less-than-significant level.

The PEIR does not identify an emergency response plan or an emergency evacuation plan for the city of Torrance; however, there are known designated emergency/evacuation routes within the cities of Los Angeles, Lomita, and Rolling Hills Estates. These include Normandie Avenue and Vermont Avenue in Los Angeles; Pacific Coast Highway, Western Avenue, Narbonne Avenue, and Lomita Boulevard in Lomita; and Palos Verdes Drive East and Palos Verdes Drive North in Rolling Hills Estates. However, as stated above, implementation of **MM HAZ-7** would reduce impacts to a less-than-significant level. Additionally, as discussed below in Item XII.a, construction traffic control measures and procedures would be implemented as part of the proposed project in order to reduce temporary construction traffic and transportation impacts on city streets. Impacts to emergency response and/or evacuation during project construction would therefore be less than significant. Once rehabilitation is complete, all proposed project sites would be returned to pre-construction conditions, and no related long-term impacts would occur.

The severity of the impact would be less than that identified in the PEIR.

VIII. HYDROLOGY AND WATER QUALITY

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Violate any water quality standards or waste discharge requirements?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, construction-related chemicals, such as fuels, oils, grease, solvents, and paints, would be stored in limited quantities at work sites, which could wash into and pollute surface waters or groundwater in the absence of proper controls. The PEIR points out, however, that Metropolitan would incorporate Sediment and Erosion Control standard practices and requirements to minimize construction-related runoff impacts, and contractors would be required to comply with applicable National Pollutant Discharge Elimination System (NPDES) regulations. Programmatic impacts were determined to be less than significant.

The proposed project would involve excavation sites and work areas in which construction-related chemicals would be used and stored and sediment would be stockpiled. As described in Item V.b., however, water quality BMPs would be implemented for sediment and erosion control, pollutant treatment, outlet protection, and general site management. Additionally, compliance with applicable NPDES regulations would be required. Project-specific impacts would be less than significant.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PEIR, no alteration of the course of a stream or river would occur under the PCCP Program. While construction would include excavation and the overall disturbance of existing hardscape and landscape, which could temporarily alter drainage patterns and potentially cause erosion and sedimentation, implementation of water quality BMPs was determined to reduce programmatic impacts to a less-than-significant level.

The proposed project would involve excavation sites, which could temporarily alter drainage patterns with the potential to cause erosion and sedimentation, but water quality BMPs, as described in Item V.b., would be implemented to ensure such project impacts would be less than significant.

Following the completion of rehabilitation activities, work areas would be returned to existing conditions, and no impact would occur.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PEIR, no alteration of the course of a stream or river would occur under the PCCP Program. The PEIR did discuss the potential for new aboveground facilities to change the extent of permeable or impermeable surfaces, which could alter the direction and volume of overland flows during both wet and dry periods. The following mitigation was identified:

- **MM HYD-1** requires the development and implementation of a project-specific grading and drainage plan for proposed aboveground facilities within pervious areas to ensure no increase in flooding would occur on or off site.

As shown in **Table 2**, there are nine air-release/vacuum valves that are proposed to be relocated to aboveground locations. The aboveground relocation sites would be located within existing paved areas for seven of the stations: 1863+24, 1910+14, 1918+31, 1934+77, 1957+80, 1963+48, and 2034+32. The aboveground relocation sites at Stations 2045+04 and 2101+17 would be within existing parkways; however, the footprint of the new enclosures would be minimal. The proposed project would not involve the substantial conversion of permeable surfaces to impermeable surfaces. As such, impacts would be less than significant, and no mitigation would be required.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PEIR, runoff could be generated during construction of the PCCP Program facilities during a storm event or from non-stormwater discharges, such as water used for dust control or hydrostatic testing of the pipelines. The PEIR stated that Sediment and Erosion Control and Groundwater Dewatering standard practices and requirements would be implemented to minimize construction-related runoff and dewatering impacts. Impacts were determined to be less than significant with implementation of these standard practices and requirements, as well as compliance with applicable NPDES regulations.

The proposed project could involve polluted runoff during storm events or during non-storm discharges, as discussed in the PEIR; however, with proper implementation of BMPs and compliance with applicable regulations, impacts would be less than significant. Following the completion of rehabilitation activities, work areas would be returned to their existing condition and no permanent changes related to runoff would occur.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
j. Expose people or structures to inundation by seiche, tsunami, or mudflow?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR states that the program study area does not include coastal areas that could be subject to tsunami. While some areas in the PCCP Program are adjacent to bodies of water that could be subject to inundation by seiche under extreme conditions, the PEIR points out that placement of proposed facilities in these areas would not exacerbate this condition. The majority of the PCCP Program area, including areas surrounding the Second Lower Feeder, is relatively flat and not susceptible to mudflows. Based on these considerations, the PEIR determined that programmatic impacts related to inundation by seiche, tsunami, or mudflow would be less than significant.

The proposed project is not located in an area that has been identified as a tsunami inundation zone or an area close to enclosed water bodies or hillsides that suggest risks related to seiches or mudflows. Furthermore, no habitable structures are included in the proposed project. Therefore, impacts would be less than significant.

The severity of the impact would be the same as that identified in the PEIR.

IX. LAND USE AND PLANNING

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
b. Conflict with applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PEIR discussed that since the PCCP Program would not change land uses, the program's consistency with land use plans would be the same as the existing condition and no programmatic impacts related to conflicts with land use plans, policies, and regulations would result from program implementation. No mitigation was proposed.

Work activities related to the proposed project would temporarily occupy public rights-of-way, but would not change existing land uses. All required permits would be obtained prior to the start of construction. No conflict with land use plans, policies, or regulations would occur, and no mitigation would be required.

The severity of the impact would be the same as that identified in the PEIR.

X. NOISE

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PCCP PEIR discussed the potential for noise impacts related to rehabilitation activities such as excavation, concrete sawing, and providing ventilation and power. Since determining noise impacts requires an analysis of ambient noise conditions, the location of receptors, and attenuation of the noise, the PEIR concluded that severity and location of the impacts could not be determined until excavation sites were identified. The following mitigation measures related to construction noise were identified:

- **MM NOI-2** requires a noise consultant to be retained during excavation site planning to assist in locating excavation sites away from sensitive receptors or where sensitive receptors can be shielded from construction noise;
- **MM NOI-3** requires a project-level noise study at all excavation sites where sensitive receptors are present; and
- **MM NOI-4** requires staging areas to be located in areas that would not affect sensitive receptors or where receptors can be shielded from staging noise.

As required by **MM NOI-2** and **MM NOI-3**, a construction noise impact analysis for the proposed project was prepared by HELIX in December 2021, and is included as Appendix E. The contractor

storage and staging areas were sited per **MM NOI-4**, with one occurring at a vacant lot at Los Angeles Harbor College, one at the intersection of Palos Verdes Drive North and Palos Verdes Drive East, one southwest of Palos Verdes Drive East, and one at the northeast corner of West 223rd Street and Abalone Avenue.

The severity of the impacts would vary depending upon the proximity of construction activity to sensitive receptors, but the PEIR found that it is likely that noise levels would exceed local standards. Thus, program impacts were determined to be significant and unavoidable following the implementation of **MM NOI-2** through **MM NOI-4**.

On Friday, December 7, 2018, six site-specific field noise measurements were conducted along the pipeline alignment. These measurement locations are summarized in **Table 10**. Measurements ranged from 57.3 to 76.1 A-weighted decibels (dBA).

Table 10. Site Survey Noise Measurement Results

Approximate Location	Time	Measurement (dBA L_{EQ})
SLF Sta. 1863	11:24 a.m.	73.7
SLF Sta. 1897	11:05 a.m.	76.1
SLF Sta. 1964	10:42 a.m.	72.3
SLF Sta. 2022	10:18 a.m.	62.3
SLF Sta. 2098	9:51 a.m.	68.0
SLF Sta. 2114	7:36 a.m.	57.3

L_{EQ}: an average of the sound energy occurring over a specified period, SLF Sta.: Second Lower Feeder Station Number.

The PEIR references the noise elements of each jurisdiction's general plan and noise ordinance and identifies whether local CEQA thresholds have been adopted. For the proposed project, the applicable thresholds from the cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates are included in Table 11.

Table 11. Applicable Noise Thresholds

City of Los Angeles CEQA Thresholds Guide
Los Angeles developed a CEQA Thresholds Guide (Los Angeles 2006) to establish significance thresholds for construction activities. These thresholds would be applicable to construction activities within 500 feet of a noise-sensitive use. A project would normally have a significant impact on noise levels from construction if: • Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise-sensitive use; • Construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise-sensitive use; or • Construction activities would exceed the ambient noise level by 5 dBA at a noise-sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday.
City of Torrance Municipal Code
Article 3 – construction. 46.3.1: • Construction can occur between 7:30 a.m. to 6 p.m. Monday through Friday, and 9 a.m. to 5 p.m. on Saturdays. Prohibited on Sundays and Holidays observed by City Hall. • Can request extended hours from the Community Development Director.

City of Lomita Municipal Code
Chapter 4.4.04 • During day hours, noise limits are 65 dBA for residential, 75 dBA for commercial, and 80 dBA for manufacturing. • During night hours, noise limits are 55 dBA for residential, 70 dBA for commercial, and 75 dBA for manufacturing. Chapter 4.4.11 • Construction equipment can operate between 7 a.m. and 6 p.m. Monday through Friday, except holidays and between 9 a.m. and 5 p.m. Saturday and Sunday. • Noise levels cannot reach more than 35 dB for a cumulative period of 15 minutes of an hour at any receiving property line.
City of Rolling Hills Estates Municipal Code
Chapter 8.32-Noise: 8.32.210 A. Permitted construction hours and days. • Monday through Friday 7 a.m. to 5 p.m., and Saturday 9 a.m. to 5 p.m. • Construction is not allowed any time on Sunday and holidays. Chapter 8.32-Noise: 8.32.050 • From 7:00 a.m. to 10:00 p.m. exterior noise limits are 55 dBA for residential, 65 dBA for commercial, and 75 dBA for industrial. • from 10:00 p.m. to 7:00 a.m. exterior noise limits are 45 dBA for residential, 55 dBA for commercial, and 45 dBA for industrial.

Excavation to access the pipeline is proposed at the locations shown in **Table 5**. The Second Lower Feeder pipe access sites occur in the cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates. Specifically, Stations 1860, 1863, and 1964 occur in Los Angeles; Station 1916 occurs in both Los Angeles and Torrance; Station 2022 occurs in Lomita; Station 2015 occurs in both Los Angeles and Lomita; and Stations 2098 and 2109/2112 occur in Rolling Hills Estates. The maintenance hole enlargement sites at SLF Stations 1875+56 and 1957+80 occur in Los Angeles, SLF Station 1899+76 occurs in Torrance, and SLF Stations 2034+32 and 2045+04 occur in Lomita. The five maintenance hole enlargement sites may also be used as pipe access sites. All potential pipe access sites are located within single-family residential areas. In addition to single-family residences, four of the sites are also surrounded by multi-family residences (Stations 1860, 1864, 1916, and 2022), one site is located near a park (Station 2098), and one site is located near a school (Station 1957+80).

The city of Torrance does not set noise level standards for construction, and impacts from the various construction activities described below that are located in Torrance would therefore be less than significant when conducted between the hours of 7:30 a.m. to 6 p.m. on weekdays and 9 a.m. to 5 p.m. on Saturdays. If necessary, extended hours can be requested from the Community Development Director. Construction activities, such as dewatering, pipeline relining, and ventilation to support relining work, that occur outside of these specified days and timeframes, however, would represent a significant and unmitigable impact.

Excavation would require the simultaneous use of an excavator and dump truck for short periods of time to access the pipeline segments. Construction noise due to pipeline excavation would generate noise levels exceeding the applicable thresholds at each of the potential pipe access locations. Therefore, potential significant impacts would occur at all excavation sites as a result of construction noise from pipeline excavation. Pipe access site construction noise levels are provided below in Table 12.

Table 12. Pipe Access Site Construction Noise

SLF Site	NSLU Jurisdiction	Threshold at NSLU (dBA L_{EQ} [1 hour])	Modeled Noise Levels (dBA L_{EQ} [1 hour])	Exceed Standard at NSLU?
Pipe Access Sites				
1860	Los Angeles	55	89.1	Yes
1863	Los Angeles	55	77.1	Yes
1916	Los Angeles/ Torrance	55 / NA	77.1	Yes / NA
1964	Los Angeles	55	69.1	Yes
2015	Los Angeles/ Lomita	55 / 65	70.0	Yes
2022	Lomita	65	83.1	Yes
2034	Lomita	65	83.1	
2098	Rolling Hills Estates	55	66.8	Yes
2109 and 2114	Rolling Hills Estates	55	63.1	Yes
Maintenance Hole Enlargement Sites (Potential Pipe Access Sites)				
1875+56	Los Angeles	55	75.1	Yes
1899+76	Torrance	NA	73.5	NA
1957+80	Los Angeles	55	75.1	Yes
2034+32	Lomita	65	83.1	Yes
2045+04	Lomita	65	89.1	Yes

Source: HELIX 2021; Appendix E
NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level
NA = not applicable (Torrance does not have daytime noise level limits for construction activities).

A grouting mixer, generator, welder, and crane would be required for relining activity at each excavation area. The loudest equipment types would be a grouting mixer and generator in use simultaneously. Construction noise due to pipeline relining would exceed applicable noise levels at each of the pipe access locations. Construction noise from relining activities is provided in **Table 13**.

Table 13. Relining Activity Site Construction Noise

SLF Site	NSLU Jurisdiction	NSLU Distance	Day Threshold at NSLU (dBA L_{EQ} [1 hour])[1]	Night Threshold at NSLU (dBA L_{EQ} [1 hour]) [1]	Noise Levels (dBA L_{EQ} [one hour])	Exceed Day Standard at NSLU?	Exceed Night Standard at NSLU?
Pipe Access Sites							
1860	Los Angeles	10 feet	55	45	92.4	Yes	Yes
1863	Los Angeles	40 feet	55	45	80.4	Yes	Yes
1916	Los Angeles/ Torrance	40 feet	55 / NA	45 / 50	80.4	Yes	Yes
1964	Los Angeles	100 feet	55	45	72.2	Yes	Yes
2015	Los Angeles/ Lomita	90 feet	55 / 65	45 / No construction allowed	73.2	Yes	Yes / NA
2022	Lomita	20 feet	65	No construction allowed	86.4	Yes	NA
2034	Lomita	20 feet	65	No construction allowed	86.4	Yes	Yes
2098	Rolling Hills Estates	130 feet	55	No construction allowed	69.9	Yes	NA
2109 and 2114	Rolling Hills Estates	200 feet	55	No construction allowed	66.0	Yes	NA
Maintenance Hole Enlargement Sites (Potential Pipe Access Sites)							
1875+56	Los Angeles	50 feet	55	45	78.4	Yes	Yes
1899+76	Torrance	60 feet	NA	50	76.8	Yes	Yes
1957+80	Los Angeles	50 feet	55	45	78.4	Yes	Yes
2034+32	Lomita	20 feet	65	No construction allowed	86.4	Yes	NA
2045+04	Lomita	10 feet	65	No construction allowed	92.4	Yes	NA

Source: HELIX 2021; Appendix E

[1] Relining activity would fall under the Los Angeles standard for construction activity lasting more than 10 days in a three-month period, which is 5 dBA above the 50 dBA ambient noise levels presumed for a residential neighborhood.

NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level

NA = not applicable.

Ventilation and access to support relining work would be conducted along the project alignment at manhole locations, to provide adequate air supply and access for workers and equipment. A generator, welder, and fan/blower would be in use simultaneously, and could generate elevated noise levels at nearby noise sensitive land uses (NSLUs). For daytime ventilation activities, potentially significant impacts would occur if the ventilation activities were conducted within 265 feet of an NSLU in a residential area in the city of Los Angeles, 90 feet of an NSLU in a residential area in Lomita, 30 feet of an NSLU in a commercial area in Lomita, 265 feet of an NSLU in a residential area in Rolling Hills Estates, or 90 feet of an NSLU in a commercial area in Rolling Hills Estates. The city of Torrance does not set daytime construction noise level standards in its municipal code, and impacts would therefore be less than significant when conducted between the hours of 7:30 a.m. and 6:00 p.m. on weekdays and between 9:00 a.m. and 5:00 p.m. on

Saturdays. For nighttime ventilation activities, potentially significant impacts would occur if the ventilation activities were conducted within 850 feet of residential uses in the nighttime in Los Angeles, or within 500 feet of residential uses in Torrance. Nighttime construction is not allowed in Lomita and Rolling Hills Estates, so nighttime ventilation activities in these two cities would result in significant impacts.

A jackhammer would be required for maintenance hole refurbishment and blow-off structure improvements. For work requiring the use of a jackhammer, noise levels would exceed local standards if located within 1,000 feet of an NSLU in a residential area in the city of Los Angeles; 550 feet of an NSLU in a residential area in Lomita; 180 feet of an NSLU in a commercial area in Lomita; 1,750 feet of an NSLU in a residential area of Rolling Hills Estates; or 550 feet of an NSLU in a commercial area of Rolling Hills Estates. As stated above, the city of Torrance does not set daytime construction noise level standards in its municipal code, so impacts would be less than significant when conducted during the outlined daytime hours.

Relocation of the air release/vacuum valves from belowground to aboveground would involve running new piping from the existing valve connection point in the vault to a nearby aboveground location and installing a new vault aboveground. This would require shallow trenching from the existing belowground vault to the new aboveground location. Shallow trenching would require the short-term use of a concrete saw and backhoe. Similarly, the replacement of and improvements to isolation valves, flow meters, and service connections would also require shallow trenching, which would require a backhoe and concrete saw. For the use of a backhoe, noise levels would exceed standards if located within 270 feet of an NSLU in the city of Los Angeles, 150 feet of an NSLU in a residential area of Lomita, 48 feet of an NSLU in a commercial area of Lomita, 480 feet of an NSLU is a residential area of Rolling Hills Estates, or 150 feet of an NSLU in a commercial area of Rolling Hills Estates. For the use of a concrete saw, noise levels would exceed standards if located within 2,000 feet of an NSLU in the city of Los Angeles, 1,150 feet of an NSLU in a residential area of Lomita, 350 feet of an NSLU in a commercial area of Lomita, 3,500 feet of an NSLU is a residential area of Rolling Hills Estates, or 1,150 feet of an NSLU in a commercial area of Rolling Hills Estates. As stated above, the city of Torrance does not set daytime construction noise level standards in its municipal code, so impacts would be less than significant when conducted during the outlined daytime hours.

Dewatering would require the use of a submersible pump and generator to power the pump. The only audible equipment would be the generator. Dewatering would occur 24 hours per day up to seven days. For dewatering requiring the use of a generator, noise levels from a generator would exceed daytime standards if located within 75 feet of an NSLU in the city of Los Angeles, 40 feet of an NSLU in a residential area of Lomita, 12 feet of an NSLU in a commercial area of Lomita, 120 feet of an NSLU is a residential area of Rolling Hills Estates, or 40 feet of an NSLU in a commercial area of Rolling Hills Estates. The city of Torrance does not set daytime construction noise level standards, so impacts would be less than significant when done during the designated daytime hours. For dewatering during nighttime hours, noise levels from a generator would exceed standards if located within 380 feet of an NSLU in the city of Los Angeles or within 215 feet of an NSLU in the city of Torrance. Dewatering activities within the cities of Lomita and Rolling Hills Estates would represent a significant and unmitigable impact, due to required nighttime work.

The project would also require other instances of nighttime construction. The proposed valve replacement at Service Connection T-08, located at Second Lower Feeder Station 1902+95 near the intersection of Western Avenue and Sepulveda Boulevard, and modifications to a blow-off structure, located at Station 1973+18 near the intersection of Western Avenue and Lomita Boulevard, may require nighttime work to minimize traffic effects at these major intersections. Construction work associated with improvements to Service Connection T-08 would occur as close as 200 feet from a residential NSLU within Torrance, where nighttime construction work is limited

to 50 dBA L_{EQ} (1-hour). Improvements would involve construction activities similar to those described above (trenching using a concrete saw and backhoe). At 200 feet, a backhoe would generate a noise level of 62.5 dBA L_{EQ} and a concrete saw would generate a noise level of 77.6 dBA L_{EQ}. As previously discussed, due to the short-term and mobile nature of the use of a backhoe, a barrier would likely not be used, and noise levels would exceed the Torrance nighttime noise limit of 50 dBA L_{EQ} (1-hour). For use of concrete saw, a 6-foot noise barrier would attenuate noise levels to approximately 60 dBA L_{EQ}, and noise levels at the nearby residential NSLUs would exceed the 50-dBA L_{EQ} (1-hour) nighttime noise limit for Torrance.

Construction work associated with modifications to the blow-off structure at Second Lower Feeder Station 1973+18 would occur as close as 120 feet from a residential NSLU within Los Angeles, where nighttime construction work is limited to 45 dBA L_{EQ} (1-hour). Blow-off structure modifications would require the use of a jackhammer, as described above. At 120 feet, a jackhammer would generate a noise level of 78.3 dBA L_{EQ}. With a 6-foot noise barrier, noise levels would be reduced to approximately 63 dBA L_{EQ}, and noise levels at the nearby residential NSLUs would exceed the 45-dBA L_{EQ} (1-hour) nighttime noise limit for Los Angeles.

Construction traffic would travel on local streets. A general rule of thumb is that a doubling of traffic would cause a doubling in sound energy (a 3-dBA increase), which would be perceptible, and therefore a significant increase. The proposed project would result in a minimal increase in traffic during construction that would not constitute a doubling of traffic. Therefore traffic-related noise resulting from construction would not be expected to cause a doubling in noise. Furthermore, overall construction noise impacts would be temporary and operation of the project would not result in an increase in traffic. Impacts from the addition of construction traffic would be less than significant.

To comply with **MM NOI-3**, the following project-specific measures shall be implemented:

- **MM NOI-3.1 Construction Exterior Noise Level Standards.** Construction noise from project construction activities shall comply with the daytime and nighttime thresholds and hours specified by the cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates for sensitive receptors to the maximum extent feasible.

  Within the city of Los Angeles, daytime construction activities lasting more than one day and less than 10 days in a three-month period shall comply with the 60 dBA L_{EQ} standard for residential zones. Daytime construction activities lasting more than 10 days in a three-month period shall comply with the 55 dBA L_{EQ} standard for residential zones. Nighttime (9:00 p.m. to 7:00 a.m. on weekdays, before 8:00 a.m. and after 6:00 p.m. on Saturday, and any time on Sunday) activities shall comply with the 45 dBA L_{EQ} standard for residential zones.

  Within the city of Torrance, construction activities shall occur only between 7:30 a.m. and 6:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturdays, if feasible. If construction occurs outside these hours, noise levels shall not exceed 50 dBA as measured at property lines.

  Within the city of Lomita, construction activities shall occur only between 7:00 a.m. and 6:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturdays, Sundays, and Holidays. In addition, daytime construction noise shall comply with the 65 dBA standard for residential land uses and the 75 dBA standard for commercial land uses.

  Within the city of Rolling Hill Estates, construction activities shall occur only between 7:00 a.m. and 5:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on

Saturdays. In addition, daytime construction noise shall comply with the 55 dBA standard for residential land uses and the 65 dBA standard for commercial uses.

- **MM NOI-3.2 Noise Reduction Measures for Pipe Access Site Excavation and Relining Activities.** Measures to reduce noise levels to below a level of significance may include the use of noise barriers; noise attenuation devices/modifications to construction equipment; limitations on the hours of operation; or a combination of these measures.

  For excavation and pipeline relining activities at all proposed pipe access sites, a 12-foot noise barrier shall be required to reduce noise levels.

  All noise barriers shall be solid and constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, with no cracks or gaps through or below the wall. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove or close-butted seams and must be at least ¾-inch thick or have a surface density of at least 3.5 pounds per square foot. Sheet metal of 18 gauge (minimum) may be used if it meets the other criteria and is properly supported and stiffened so that it does not rattle or create noise itself from vibration or wind. Noise blankets, hoods, or covers also may be used, provided they are appropriately implemented to provide the required sound attenuation. The noise barrier enclosures should be of an elongated "U" shape, with the elongated sides parallel to the pipeline.

- **MM NOI-3.3 Setback Distances for Mobile Operations (Ventilators, Manholes, Valves).** For construction operations that would require equipment to move along multiple locations along the pipeline alignment, the following setback distances and/or noise barriers shall be necessary to maintain noise levels to within local standards for residential land uses in Los Angeles, Torrance, Lomita, and Rolling Hills Estates, and for commercial land uses in the Lomita and Rolling Hills Estates. Setback distances and/or noise barriers shall be used to the extent feasible.

  Daytime

  For ventilation activities, equipment shall be set back outside of the distances within which noise levels would exceed thresholds, which would be at least 70 feet away with an 8-foot barrier, 110 feet away with a 6-foot barrier, or 265 feet away with no barrier from an NSLU in a residential area in the city of Los Angeles; at least 20 feet away with an 8-foot barrier, 33 feet away with a 6-foot barrier, or 90 feet away with no barrier from an NSLU in a residential area in the city of Lomita; at least 6 feet away with an 8-foot barrier, 11 feet away with a 6-foot barrier, or 30 feet away with no barrier from an NSLU in a commercial area in the city of Lomita; at least 70 feet away with an 8-foot barrier, 110 feet away with a 6-foot barrier, or 265 feet away with no barrier from an NSLU in a residential area in the city of Rolling Hills Estates; and at least 20 feet away with an 8-foot barrier, 33 feet away with a 6-foot barrier, or 90 feet away with no barrier from an NSLU in a commercial area in the city of Rolling Hills Estates.

  For the continuous use of a jackhammer during a single hour, equipment shall be set back outside of the distances within which noise levels would exceed thresholds, which would be at least 180 feet away with a 6-foot noise barrier or 1,000 feet away with no noise barrier from an NSLU in the city of Los Angeles; at least 100 feet away with a 6-foot noise barrier or 550 feet away with no noise barrier from an NSLU in a residential area in the city of Lomita; at least 32 feet away with a 6-foot barrier or 180 feet away with no noise barrier from an NSLU in a commercial area in the city of Lomita; at least 325 feet away with a 6-foot noise barrier or 1,750 feet away with no barrier from an NSLU in a residential area in the city of Rolling Hills Estates; and at least 100 feet away with a 6-foot

noise barrier or 550 feet away with no noise barrier from an NSLU in a commercial area in the city of Rolling Hills Estates. Noise generated from a jackhammer is limited to the impact point with the ground, so increasing the height of the noise barrier would not significantly lower noise levels.

A backhoe would be used at numerous and variable locations along the pipeline alignment, noise levels at specific receptors are not provided. Instead, the setback distances needed to meet the cities of Los Angeles', Lomita's, Rolling Hills Estates', and Carson's exterior noise thresholds at land uses located in proximity to anticipated work sites are provided. Due to the short-term use of a backhoe and the mobile nature of its use, a temporary noise barrier would not likely be used. For use of a backhoe, equipment shall be set back outside of the distances within which noise levels would exceed thresholds, which would be at least 270 feet from an NSLU in a residential area in the city of Los Angeles; at least 150 feet away from an NSLU in a residential area in the city of Lomita; at least 48 feet away from an NSLU in a commercial area in the city of Lomita; at least 480 feet away from an NSLU in a residential area in the city of Rolling Hills Estates; and at least 150 feet away from an NSLU in a commercial area in the city of Rolling Hills Estates.

For the continuous use of a concrete saw during a single hour, equipment shall be set back outside of the distances within which noise levels would exceed thresholds, which would be at least 300 feet away with a 6-foot noise barrier or 2,000 feet away with no noise barrier from an NSLU in a residential area in the city of Los Angeles; at least 160 feet away with a 6-foot noise barrier or 1,150 feet away with no barrier from an NSLU in a residential area in the city of Lomita; at least 50 feet away with a 6-foot noise barrier or 350 feet away with no noise barrier from an NSLU in a commercial area in the city of Lomita; at least 500 feet away with a 6-foot noise barrier or 3,500 feet away with no noise barrier from an NSLU in a residential area in the city of Rolling Hills Estates; and at least 160 feet away with a 6-foot noise barrier or 1,150 feet away with no noise barrier from an NSLU in a commercial area in the city of Rolling Hills Estates. Noise generated from a concrete saw is limited to the impact point with the ground, so increasing the height of the noise barrier would not significantly lower noise levels.

For the continuous use of a generator during a single hour, equipment shall be set back outside of the distances within which noise levels would exceed thresholds, which would be at least 25 feet away with a 6-foot noise barrier or 75 feet away with no noise barrier from an NSLU in a residential area in the city of Los Angeles; at least 14 feet away with a 6-foot noise barrier or 40 feet away with no barrier from an NSLU in a residential area in the city of Lomita; at least 5 feet away with a 6-foot noise barrier or 12 feet away with no noise barrier from an NSLU in a commercial area in the city of Lomita; at least 45 feet away with a 6-foot noise barrier or 120 feet away with no barrier from an NSLU in a residential area in the city of Rolling Hills Estates; and at least 14 feet away with a 6-foot noise barrier or 40 feet away with no noise barrier from an NSLU in a commercial area in the city of Rolling Hills Estates.

Nighttime

For the continuous use of a generator during a single hour at night, equipment shall be set back outside of the distances within which noise levels would exceed thresholds, which would be at least 135 feet away with a 6-foot noise barrier or 380 feet away with no noise barrier in the city of Los Angeles, and at least 80 feet away with a 6-foot noise barrier or 215 feet away with no noise barrier in the city of Torrance.

For nighttime ventilation activities, equipment shall be set back outside of the distances within which noise levels would exceed thresholds, which would be at least 170 feet away

with an 8-foot noise barrier or 850 feet away with no noise barrier in the city of Los Angeles, and at least 95 feet away with an 8-foot noise barrier or 500 feet away with no noise barrier in the city of Torrance.

- **MM NOI-3.4 Nighttime Construction Management Plan.** The project specifications shall require preparation of a Nighttime Construction Management Plan prior to the onset of construction. The plan shall describe measures to reduce noise levels for any nighttime work that may occur. Specific measures to reduce construction noise may include:
    - Placement of noise-generating equipment as far as feasible from noise-sensitive land uses.
    - Utilization of enclosures or other barriers for equipment to reduce noise levels.
        - If work at Service Connection T-08 using a concrete saw occurs during nighttime hours, a six-foot noise barrier shall be required between the equipment and residential land uses to reduce noise levels.
        - If work at the blow-off structure located at Second Lower Feeder Station 1973+18 using a jackhammer occurs during nighttime hours, a six-foot noise barrier shall be required between the equipment and residential land uses to reduce noise levels.
    - Construction equipment properly outfitted and maintained with manufacturer-recommended noise-reduction devices.
    - Diesel equipment operated with closed engine doors and equipped with factory-recommended mufflers.
    - Written notification to residents within 100 feet of the project site boundaries, provided a minimum of one week prior to nighttime construction activity. Notification to include a description of activities anticipated, expected dates and hours for construction, and contact information with details of a complaint and response procedure.

For daytime construction, impacts from pipe access site excavation would remain significant at all pipe access sites with the use of a 12-foot noise barrier. Impacts from relining activities would also remain significant at all pipe access sites except at Second Lower Feeder Station 1964, 2098, and 2109/2114 with the use of a 12-foot noise barrier. Impacts associated with pipe access site excavation and relining are therefore considered significant and unavoidable. As noted above, however, impacts would be consistent with those identified in the PEIR. For activities that would occur at various locations along the pipeline alignment and require equipment to move along the alignment, provided the setback distances with or without inclusion of noise barriers as described in MM NOI-3.3 are maintained, impacts would be reduced to less-than-significant levels.

For nighttime construction, noise levels from nighttime relining activities at all pipe access sites within the cities of Los Angeles and Torrance would exceed respective nighttime standards at nearby NSLUs, and impacts would be significant and unavoidable; however, impacts would be consistent with those identified in the PEIR. Similarly, noise levels from nighttime work at Service Connection T-08 in Torrance and at the blow-off structure located at Second Lower Feeder Station 1973+18 in the city of Los Angeles would exceed respective nighttime standards at nearby NSLUs, even with the use of noise barriers, and impacts would be significant and unavoidable; however, these impacts would be consistent with those identified in the PEIR. Impacts associated with dewatering and ventilation activities within the cities of Los Angeles and Torrance would be less than significant after

mitigation, which involves maintaining the setback distances listed in MM NOI-3.3. If dewatering or ventilation activities occur within these setback distances, impacts would be significant but consistent with those identified in the PEIR.

The use of noise barriers during nighttime dewatering, relining, and ventilation activities would reduce noise levels at nearby NSLUs within the cities of Lomita and Rolling Hills Estates; however, because the cities of Lomita and Rolling Hills Estates do not allow nighttime construction, noise impacts associated with construction between the hours of 6:00 p.m. and 7:00 a.m. on weekdays, before 9:00 a.m. and after 5:00 p.m. on Saturdays, Sundays, and Holidays in Lomita, or between the hours of 5:00 p.m. and 7:00 a.m. on weekdays, before 9:00 a.m. and after 5:00 p.m. on Saturdays, or any time on Sundays in the city of Rolling Hills Estates, impacts would be significant and unavoidable. As noted above, however, impacts would be consistent with those identified in the PEIR.

The severity of noise impacts for both daytime and nighttime work would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, the severity and location of excessive groundborne vibration or groundborne noise level impacts could not be determined until excavation sites were identified. The following mitigation was identified to reduce such impacts to a less-than-significant level:

- **MM NOI-1** requires a noise and vibration consultant to be retained during excavation site planning to assist in locating excavation sites away from vibration-sensitive land uses wherever possible, or to identify appropriate mitigation to reduce vibration levels at vibration-sensitive land uses to less-than-significant levels.

As stated in the Construction Noise Technical Report prepared for the proposed project, numerous pipe access sites would be within 200 feet of single-family and multi-family residences, with the nearest sensitive use living area approximately 30 feet from Pipe Access Site 1860. The greatest source of vibration would be from compaction of the soil following relining activities and prior to final paving of each site. Due to the size of the excavation areas, a small vibratory plate compactor or tamping rammer would likely be used. These are handheld units and would have no measurable vibration beyond 10 to 15 feet. Impacts from excessive vibration would therefore be less than significant.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity, above levels existing without the project?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. Temporary or periodic increases in ambient noise levels would result from construction activities associated with the project. These impacts are described in X.a., above. Impacts would remain significant and unavoidable.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, some portions of the existing pipelines are within airport land use plans or near airports; however, since the PCCP Program would not change land uses, and construction workers would wear noise safety gear as required by the federal Occupational Safety and Health Administration, noise impacts related to nearby airports were determined to be less than significant and no mitigation was proposed.

The project proposes the relining of an underground pipeline, and no housing or permanent workers would result from the project. Additionally, as mentioned, construction workers would wear noise safety gear as required by the federal Occupational Safety and Health Administration that would also serve as protection from airport noise exposure. No impacts from airport noise exposure would occur.

The severity of the impact would be less than that identified in the PEIR.

XI. RECREATION

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. The PEIR discussed that construction storage areas for the PCCP Program may be located in parks or other recreational facilities for months or longer, depending on how many excavation sites the storage area is serving. The PEIR stated that Metropolitan would work with the local jurisdictions and schools to ensure that rehabilitation activities would not result in significant temporary impacts on recreational activities or permanent physical deterioration of recreational facilities, and programmatic impacts were determined to be less than significant. No mitigation was proposed.

As described above in the Project Description, a main contractor storage area has been established for the proposed project at Los Angeles Harbor College, one mile east of the project alignment. Three contractor staging areas are proposed along the project alignment: one at the northeastern corner of the intersection of Palos Verdes Drive North and Palos Verdes Drive East, one southeast of Second Lower Feeder Station 2109+65 southwest of Palos Verdes Drive East, and one at the northeast corner of the intersection of West 223rd Street and Abalone Avenue (see **Figures 5a** through **5c**).

The contractor storage area is located adjacent to Machado Lake and is less than 0.5 mile from Ken Malloy Harbor Regional Park. The two contractor staging areas located along Palos Verdes Drive East are within 0.25 mile of Dapplegray Park and the George F Canyon Nature Center and Preserve. The contractor staging area at the northeast corner of the intersection of West 223rd Street and Abalone Avenue is located approximately 450 feet north of recreational baseball fields and 1,850 feet northwest of Torrance Park. Additionally, the pipeline alignment is located within 0.25 mile of Metro Park, Lomita Park, and Sur La Brea Park. One of the contractor's work areas is proposed to extend into Metro Park and require tree removal and grass disturbance to allow for the storage of equipment. However, such impacts would be minimal and would not permanently diminish the quality of this recreational facility. Although there are recreational areas located near contractor storage and staging areas, and rehabilitation sites, the recreational areas would not experience significant adverse impacts as a result of the project. Impacts to parks or other recreational areas would be less than significant, and no mitigation would be required.

The severity of the impact would be less than that identified in the PEIR.

XII. TRANSPORTATION/TRAFFIC

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
a. Conflict with an applicable plan, ordinance, or policy that establishes measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, and pedestrian and bicycle paths?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, the disruption of local and regional traffic caused by capacity reduction from program rehabilitation activities would be significant at some locations, but the level of impacts would be determined at the project level when rehabilitation locations had been identified. The PEIR identified the following mitigation measures to reduce potentially significant impacts:

- **MM TRA-1** requires that excavation sites be located to avoid traffic impacts to the maximum extent feasible;
- **MM TRA-2** requires Metropolitan and/or its contractors to coordinate with the appropriate counties and local jurisdictions to develop construction traffic control measures and procedures prior to the start of construction; and
- **MM TRA-3** requires excavation work zones and construction staging areas to avoid interfering with parking for adjacent land uses, to the extent feasible.

The PEIR determined that implementation of **MM TRA-1** would reduce impacts related to temporary traffic disruptions and reduced capacity in some locations but stated that the severity or location of impacts could not be determined; therefore, programmatic impacts were found to be significant and unavoidable. Temporary programmatic impacts related to construction traffic and parking were determined to be less than significant with the implementation of **MM TRA-2** and **MM TRA-3**.

The proposed project would generate construction-related traffic during site preparation, ground excavation, pipe isolation and dewatering activities, and rehabilitation work at the proposed excavation sites (see **Figure 2**). Construction vehicle access to the proposed excavation sites would require temporary lane closures on select streets. However, these impacts would be temporary, and the roadways would be restored to existing conditions following the completion of construction. Additionally, in accordance with **MM TRA-1** and **MM TRA-3**, Metropolitan has planned excavation work zones and contractor's work areas in such a manner as to minimize traffic and parking impacts to the extent feasible. Further, pursuant to **MM TRA-2**, Metropolitan would coordinate with the cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates to develop construction traffic control measures and procedures, prior to the start of construction on each excavation/pipe access site. Site-specific measures to reduce temporary construction traffic and transportation impacts on city streets may include, but would not be limited to, the following:

- Provide advance written notification of construction activities to residences, schools, and businesses around each construction site. Notifications will include a brief overview of the proposed project and its purpose, as well as the proposed construction activities and schedule. Notification would also include the name and contact information for each Metropolitan project manager or representative responsible for resolving traffic issues for the given pipeline.
- Identify travel routes and establish optimal arrival and departure times to minimize conflicts with residents, schools, and businesses, as feasible.
- Employ provisions to detour pedestrians and bicyclists from project activities near or on sidewalks and bike lanes.
- Implement safety measures, such as signs, flaggers, cones, signage, and advance notice as appropriate.
- Cover all open trenches with steel plating per Caltrans standards when not in use or at the end of each workday, as applicable.

Due to the temporary nature of the anticipated traffic impacts, no permanent off-site roadway improvements would be required for the proposed project. Site-specific traffic control measures would be identified by Metropolitan in coordination with the appropriate jurisdictions, and implementation of these measures would reduce temporary impacts to a less-than-significant level. No long-term mitigation would be required. Following the completion of proposed project rehabilitation activities, all operational transportation circulation would be restored to existing conditions.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, because the program would include rehabilitation of existing pipelines, which are underground, there would be minimal impacts related to long-term congestion management plans. For program

rehabilitation activities that would be located on or around arterials or intersections identified in the Los Angeles County Metropolitan Transportation Authority 2010 Congestion Management Program (CMP), the PCCP Program was determined to generate only a small number of truck trips and employee commuter trips compared with the daily traffic volumes for these access roads, and individual projects would take place over a few months or years. Once rehabilitation is complete in the CMP roadway, the street would be restored to preconstruction conditions. As such, program impacts were determined to be less than significant.

More than half of the length of the pipeline occurs within or adjacent to State Route 213, which is identified as an arterial within the CMP transportation network. The pipeline also crosses Interstate 1, which is also identified as an arterial, although the project does not propose excavation on or adjacent to Interstate 1 (Los Angeles County Metropolitan Transportation Authority 2010). Although portions of the project would occur within an arterial that is part of the CMP, the project would result in minimal temporary impacts to roadways. As described above under Item XII.a, the project would implement traffic control measures and procedures for the duration of construction to further minimize impacts. Following the completion of construction, roadways would be returned to existing conditions. The project would operate similar to existing conditions and would not result in an increase in operational traffic. Therefore, due to the minimal and temporary impacts to CMP arterials and freeways, impacts would be less than significant.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that would result in substantial safety risks?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, the Second Lower Feeder crosses under a portion of the Long Beach Municipal Airport and is within a runway protection zone. The PEIR noted that for aboveground rehabilitation activities in these runway protection zones, construction equipment and/or personnel could interfere with airport operations. Also, where pipelines cross under runway or taxiway areas, there is the potential for belowground construction activities to affect or be affected by airport operations and safety. Impacts would be less than significant with the incorporation of mitigation measures. Implementation of **MM HAZ-5** would reduce program construction-period impacts to less-than-significant levels. Aboveground elements for program operation in a runway protection zone were determined to result in a significant impact if they could interfere with airport operations and safety, but program impacts would be less than significant with the implementation of **MM HAZ-6**, as the measure would require approval from airport officials on program elements.

The proposed project limits are not located within the Airport Influence Area or runway protection zone for the Long Beach Municipal Airport (County 2003). The runway protection zone is more than eight miles east of the closest proposed excavation site. Accordingly, no related impacts would occur, and no mitigation would be required.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, no obstacles that would affect sight distance were determined to result from program construction. The PEIR also noted the potential for safety hazards to result from maneuvering of construction-related vehicles and equipment among general-purpose traffic on local streets and that temporary lane closures could affect non-motorized travel along affected road sections. Program impacts were determined to be less than significant with the implementation of **MM TRA-2**.

The proposed project would involve construction equipment and vehicles within fenced work areas. Traffic would be rerouted to avoid these areas such that no increase in hazards would occur. With the implementation of **MM TRA-2**, project-specific impacts would be less than significant.

The severity of the impact would be the same as that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
e. Result in inadequate emergency access?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, in some cases the program pipelines are within street rights-of-way that serve as emergency response routes and/or evacuation routes. The PEIR stated that if excavation were to take place in roadways that serve as emergency access and capacity of the affected streets were reduced during construction (such as reducing four lanes to two lanes), the ability of these streets to serve as emergency access routes may be impaired. Implementation of **MM HAZ-7** would reduce impacts to a less-than-significant level. Once rehabilitation is complete, contractors would be required to return the street to preconstruction conditions; therefore, there would be no long-term impacts related to emergency access.

As discussed in Item VII.g, the PEIR does not identify an emergency response plan or an emergency evacuation plan for the city of Torrance; however, there are known designated emergency/evacuation routes within the cities of Los Angeles, Lomita, and Rolling Hills Estates. These include Normandie Avenue and Vermont Avenue in Los Angeles; Pacific Coast Highway, Western Avenue, Narbonne Avenue, and Lomita Boulevard in Lomita; and Palos Verdes Drive East and Palos Verdes Drive North in Rolling Hills Estates. However, as stated above, implementation of **MM HAZ-7** would reduce impacts to a less-than-significant level. Additionally, as discussed in Item XII.a, traffic control measures and procedures would be implemented to reduce temporary construction traffic and transportation impacts on city streets. Temporary, construction-related impacts to emergency access would therefore be less than significant. Once rehabilitation is complete, proposed project sites would be returned to preconstruction conditions; therefore, no long-term impacts would occur.

The severity of the impact would be less than that identified in the PEIR.

Would the proposed project:	*New or More Severe Significant Impact than Identified in the PEIR*	*Impact Less than or Equal to Impact Identified in the PEIR*
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities?	☐	☒

Impact Less than or Equal to Impact Identified in the PEIR. As discussed in the PCCP PEIR, program rehabilitation would require temporary lane closures on certain streets. Where the pipeline directly travels under Class II bicycle lanes or encroaches on existing bus stops, work zones could interfere with bus services and bicycle traffic on these streets. Lane closures would be restricted to a short distance and would be short in duration, but temporary impacts could be significant. With implementation of **MM TRA-1** and **MM TRA-2**, however, programmatic impacts were determined to be less than significant.

The PCCP PEIR lists roads with designated Class II bicycle lanes in the vicinity of the Second Lower Feeder; none occur within the project boundaries. There is one bus route within the proposed project limits: GTrans Line 2, which travels along Western Avenue. Metro Line 205 also travels along Western Avenue within a small portion of the project site (Metro Transit 2018). Sidewalks and private driveways are present along the majority of the Reach 3 alignment. Implementation of **MM TRA-2** and related site-specific traffic control measures that are identified through coordination between Metropolitan and the appropriate jurisdictions would ensure that temporary impacts to pedestrian and bicycle facilities during construction activities would be less than significant.

Proposed project operation would have no impact on transit, bicycle, or pedestrian travel.

The severity of the impact would be the same as that identified in the PEIR.

REFERENCES

California Department of Toxic Substances Control (DTSC). 2021. EnviroStor website. Accessed June 24. Available from: https://www.envirostor.dtsc.ca.gov/public/.

California Geological Survey (CGS). 1999. Earthquake Zones of Required Investigation, Torrance Quadrangle. Released March 25.

City of Lomita. 1998. General Plan. Adopted May 4.

County of Los Angeles (County). 2003. Airport Influence Area map. May 13. Available from: http://planning.lacounty.gov/assets/upl/project/aluc_airport-long-beach.pdf.

Los Angeles County Metropolitan Transportation Authority. 2010. 2010 Congestion Management Program. Available from: https://planning.lacity.org/eir/ConventionCntr/DEIR/files/references/2010%20Congestion%20Management%20Plan.pdf,

Metro Transit. 2018. Bus and Rail System. September. Available from: https://media.metro.net/documents/a5e11b4f-11ac-4807-8cd2-0e7cff6aa94e.pdf.

Metropolitan Water District of Southern California (Metropolitan). 2016. Prestressed Concrete Cylinder Pipe Rehabilitation Program Final Programmatic Environmental Impact Report. December.

Rincon Consultants, Inc. (Rincon). 2020a. Biological Resources Assessment for the Prestressed Concrete Cylinder Pipe Rehabilitation Program – Second Lower Feeder Reach 3 Project, Cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates, Carson, and Long Beach, Los Angeles County, California. July 20.

2020b. Cultural Resources Study for the Prestressed Concrete Cylinder Pipe Rehabilitation Program – Second Lower Feeder Reach 3 Project, cities of Los Angeles, Torrance, Lomita, Rolling Hills Estates, Carson, and Long Beach, Los Angeles County, California. July 16.

2020c. Paleontological Resources Impact Mitigation Program for the Prestressed Concrete Cylinder Pipe Rehabilitation Program – Second Lower Feeder Reach 3. June.

State Water Resources Control Board (SWRCB). 2021. GeoTracker website. Accessed June 24. Available from: https://geotracker.waterboards.ca.gov/.

PREPARERS OF INITIAL STUDY

The following individuals participated in the preparation of the Initial Study:

The Metropolitan Water District of Southern California (CEQA lead agency)

- Lilia I. Martínez
- Jennifer Harriger
- José Aldrete

HELIX Environmental Planning, Inc.

- Amy L. Mila de la Roca
- Andrea Bitterling
- Hunter Stapp
- Jason Runyan
- Kristen Garcia

Appendix A
Air Quality/Greenhouse Gas Emissions Calculations

MWD-24 PCCP Reach3 Maximum Daily Emissions

CalEEMod Summary

Site Type	Location	Maximum Unmitigated Emissions (pounds per day)										Maximum Mitigated Emissions (pounds per day)									
		ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Typical Excavation Site	On-Site	3.14	27.48	27.55	0.05	0.00	1.62	1.62	0.00	1.54	1.54	0.53	2.31	30.11	0.05	0.00	0.07	0.07	0.00	0.07	0.07
	Off-Site	0.04	0.23	0.43	0.00	0.14	0.00	0.14	0.04	0.00	0.04	0.04	0.23	0.43	0.00	0.14	0.00	0.14	0.04	0.00	0.04
Typical New Valve/Meter Vault Structure	On-Site	2.55	22.61	23.43	0.04	0.00	1.30	1.30	0.00	1.24	1.24	0.42	1.84	25.48	0.04	0.00	0.06	0.06	0.00	0.06	0.06
	Off-Site	0.04	0.13	0.80	0.01	0.30	0.00	0.13	0.03	0.00	0.03	0.04	0.13	0.80	0.01	0.30	0.00	0.13	0.03	0.00	0.03
Typical Below Grade AV/VV Relocation	On-Site	0.55	4.71	6.00	0.01	0.00	0.25	0.25	0.00	0.24	0.24	0.10	0.45	6.45	0.01	0.00	0.01	0.01	0.00	0.01	0.01
	Off-Site	0.04	0.20	0.40	0.00	0.15	0.00	0.13	0.03	0.00	0.04	0.04	0.20	0.40	0.00	0.15	0.00	0.15	0.03	0.00	0.04

On-Site Fugitive Dust

Site Type	Max CY/Day	pounds per day	
		PM10	PM2.5
Typical Excavation Site	638.7	8.73E-02	1.32E-02
Typical New Valve/Meter Vault Structure	177.8	2.43E-02	3.68E-03
Typical Below Grade AV/VV Relocation	25.9	3.54E-03	5.36E-04

On-Site Haul Truck Idling

Site Type	Max Trip/Day	ROG	CO	NOX	PM10	PM2.5
Typical Excavation Site	3	3.78E-05	1.91E-04	1.36E-03	2.59E-06	2.48E-06
Typical New Valve/Meter Vault Structure	2	2.52E-05	1.27E-04	9.08E-04	1.73E-06	1.65E-06
Typical Below Grade AV/VV Relocation	2	2.52E-05	1.27E-04	9.08E-04	1.73E-06	1.65E-06

Maximum Concurrent Site Construction

Typical Excavation Site	5
Typical New Valve/Meter Vault Structure	5
Typical Below Grade AV/VV Relocation	3

Project Total

	Unmitigated Emissions (pounds per day)										Mitigated Emissions (pounds per day)									
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
On-Site	30.1	264.6	272.9	0.5	0.6	15.3	15.9	0.0	14.6	14.6	5.1	22.1	297.3	0.5	0.6	0.7	1.2	0.0	0.7	0.7
Off-Site	0.6	2.4	7.4	0.1	2.6	0.0	1.7	0.5	0.0	0.5	0.6	2.4	7.4	0.1	2.6	0.0	1.8	0.5	0.0	0.5
Total	**30.6**	**267.0**	**280.2**	**0.5**	**3.2**	**15.3**	**17.6**	**0.5**	**14.6**	**15.1**	**5.7**	**24.5**	**304.7**	**0.5**	**3.2**	**0.7**	**3.0**	**0.5**	**0.7**	**1.2**
SCAQMD Threshold	75	100	550	150	-	-	150	-	-	55	75	100	550	150	-	-	150	-	-	55
Exceed Threshold?	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Source:
1. CalEEMod version 2020.4.0
2. USEPA AP-42 Fifth Edition: 13.2.4 Aggregate Handling And Storage Piles
3. USEPA AP-42 Fifth Edition: 13.2.2 Unpaved Roads Table 13.2.2-1, Construction Sites
4. EMFAC2021 (v1.0.1) Emissions Inventory

MWD-24 PCCP Reach3 Annual GHG Emissions

CalEEMod Summary						
	Emissions (MT per year)					
Site Type	Bio CO2	N-Bio CO2	Total CO2	CH4	N20	CO2e
Typical Excavation Site	0.0	8.7	8.7	0.0	0.0	8.8
Typical New Valve/Meter Vault Structure	0.0	17.4	17.4	0.0	0.0	17.5
Typical Below Grade AV/VV Relocation	0.0	3.4	3.4	0.0	0.0	3.4

On-Site Haul Truck Idling					
	Total	Emissions (MT per year)			
Site Type	Trips	CO2	CH4	N20	CO2e
Typical Excavation Site	81	4.0E-01	1.8E-06	6.3E-05	4.0E-01
Typical New Valve/Meter Vault Structure	2	9.8E-03	4.5E-08	1.6E-06	9.8E-03
Typical Below Grade AV/VV Relocation	2	9.8E-03	4.5E-08	1.6E-06	9.8E-03

Total Site Types	
Typical Excavation Site	15
Typical New Valve/Meter Vault Structure	9
Typical Below Grade AV/VV Relocation	8

Project Total						
	Emissions (MT per year)					
	Bio CO2	N-Bio CO2	Total CO2	CH4	N20	CO2e
Total	0.0	320.6	320.6	0.1	0.0	323.0

On-Site Fugitive Dust Emissions

Soil Handling Emission Factors[1]		
	PM10	PM2.5
k, particle size multiplier	0.35	0.053
U, mean wind speed, miles per hour[6]	5.7	5.7
M, material moisture content (%)	12	12
CY per ton[2]	1.2641662	1.2641662
Emission Factor (pounds per CY material)	1.3664E-04	2.0692E-05

Vehicle Dust Emissions Factors[3]			
Input			
		PM10	PM2.5
a, empirical constant		0.9	0.9
b, empirical constant		0.45	0.45
k, empirical constant		1.5	0.15
s, surface material silt content (%)[4]		8.5	8.5
Emissions Factor (lb/VMT)			
Vehicles	W (tons)	PM10	PM2.5
Highway Haul Trucks	15	2.2690	0.2269

Highway Haul Trucks on Unpaved Roads						
			PM10		PM2.5	
Source	Round Trips	Miles/Trip	Emissions Factor (lb/VMT)	Max Daily (lb)	Emissions Factor (lb/VMT)	Max Daily (lb)
Highway Haul Trucks	1	0.2	2.2690	0.454	0.2185	0.044
Total Uncontrolled				**0.5**		**0.0**
Water unpaved travel surfaces twice daily (55% Reduction)				**0.2**		**0.0**
Speed limit 15 MPH (66.7% Reduction))				**0.1**		**0.0**

Notes:
1. Emissions factors from USEPA AP-42 Fifth Edition: 13.2.4 Aggregate Handling And Storage Piles:
EF = k * (0.0032) * ((U/5)^1.3 / (M/2)^1.4)
2. 1 cubic yard soil = 1.2641662 tons (CalEEMod User's Guide Appendix A)
3. Emissions factor equation from USEPA AP-42 Fifth Edition: 13.2.2 Unpaved Roads:
EF = k * (s/12)^a * (W/3)^b
4. Silt content from USEPA AP-42 Fifth Edition: 13.2.2 Unpaved Roads Table 13.2.2-1, Construction Sites.
5. Dust control on unpaved roads from Western Regional Air Partnership Fugitive Dust Handbook.
6. Mean wind speed from Long Beach Aiport ASOS data:
https://mesonet.agron.iastate.edu/sites/windrose.phtml?station=LGB&network=CA_ASOS

Idling Emissions for Heavy Duty Trucks

Input		Pounds per Day					MT per Year				
		ROG	CO	NOX	PM10	PM2.5		CO2	CH4	N20	Total
Trucks per Day in the Idling Queue	1.00						GWP	1	25	298	
Average Idling Time (minutes)	5.0	1.26E-05	6.36E-05	4.54E-04	8.65E-07	8.27E-07		0.00	2.25E-08	7.75E-07	0.00
Days Per Year	85.0										
Metric Tonnes (MT) per Pound	4.54E-04										

Notes:
1. Idling emissions are approximated by 5 mph emissions.
2. Average idling emissions in pounds per minute for Los Angeles County calculated using weighted average of annual VMT for heavy duty trucks.

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: Los Angeles (SC)
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, tons/day for Emissions, 1000 gallons/day for Fuel Consumption, mph for Speed, kWh/day for Energy Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Total VMT		ROG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	CH4_RUNEX	PM10_RUNEX	PM2.5_RUNEX	N2O_RUNEX
Los Angeles (SC)	2022	HHDT	Aggregate	5	Diesel	618.6509		0.000233543	0.001179758	0.008426822	2.368646593	1.08475E-05	1.60519E-05	1.53575E-05	0.000373181
					Total	**618.65**	**lbs/min**	**2.5167E-06**	**1.2713E-05**	**9.0809E-05**	**2.5525E-02**	**1.1689E-07**	**1.7298E-07**	**1.6549E-07**	**4.0215E-06**

Appendix B
Biological Resources Assessment

July 20, 2020
Project No: 17-04026

Lilia Martínez
Senior Environmental Specialist
The Metropolitan Water District of Southern California
Environmental Planning Section
700 North Alameda Street
Los Angeles, California 90012
Via email: limartinez@mwdh2o.com

Subject: Biological Resources Assessment for the Prestressed Concrete Cylinder Pipe Rehabilitation Program – Second Lower Feeder Reach 3 Project, Cities of Los Angeles, Torrance, Lomita, and Rolling Hills Estates, Carson, and Long Beach, Los Angeles County, California

Dear Ms. Martinez:

This report documents the findings of a Biological Resources Assessment conducted by Rincon Consultants, Inc. (Rincon), for the proposed Prestressed Concrete Cylinder Pipeline (PCCP) Rehabilitation Program - Second Lower Feeder (SLF) Reach 3 Project (project). The project is located along the alignment of the Metropolitan Water District of Southern California's (Metropolitan) Second Lower Feeder water distribution pipeline within the cities of Los Angeles, Torrance, Lomita, Rolling Hills Estates, Carson, and Long Beach and a section of the Sepulveda Feeder in the cities of Los Angeles and Torrance. The assessment was completed to document existing site conditions via desktop analysis and field survey, to determine potential impacts to special-status biological resources based upon current project plans, and to compare project impacts to those previously analyzed within Metropolitan's Programmatic Environmental Impact Report (PEIR) (SCH No. 2014121055) (ICF International 2016).

Additional improvements at Station 1565+92, 1569+91, and 1594+15 are located along the existing SLF alignment and are within the PEIR area of analysis. The potential presence of sensitive biological resources in the vicinity of the additional improvements locations was previously evaluated in Addendum No. 3 (Reach 2) to the PEIR (Metropolitan 2019). Site conditions at these stations relevant for biological resources have not changes since the addendum was published.

The proposed project site contains habitat for nesting birds and the project proposes the trimming or removal of trees and vegetation. Therefore, appropriate mitigation (MM BIO-2 and MM BIO-7) as identified in the PEIR is recommended herein to reduce impacts to these sensitive biological resources.

Project Location and Description

The proposed project, Reach 3 of the SLF, covers rehabilitation of portions of a 4.9-mile section of the 78-inch-diameter Second Lower Feeder in the cities of Los Angeles, Torrance, Lomita, Rolling Hills Estates, Carson, and Long Beach and a 300-linear-foot section of the 84-inch-diameter Sepulveda Feeder in the cities of Los Angeles and Torrance (Figure 1). Proposed locations for project elements have been identified, including the contractor's work and storage area, pipe access sites from which the feeder

would be relined, installation of large isolation valves, below ground structures that would be improved, air-release/vacuum valves that would be relocated above grade, air-release/vacuum valves that would be improved, and the construction of a service connection (WB-41).

Ground disturbance in the project area is primarily proposed for Stations 1860, 1864, 1916, 1964, 2015, 2022, 2049, 2098, 2104, and 2109/2114, as well as WB-41. The maximum depth of excavation in these areas would be 20 feet below ground surface. Minor ground disturbance would also occur throughout the project footprint for other project elements (e.g., air-release/vacuum valve relocations). Additional improvements incorporated as part of the project include: the relocation of a vacuum valve to an above ground location within the sidewalk at Station 1565+92 (Reach 2); the relocation of an air release/vacuum valve at Station 1569+91 (Reach 2); and the replacement of an existing 16-inch valve at service connection WB-37 located at Station 1594+15 (Reach 2). All proposed excavation is along the existing pipeline alignment and ground disturbance is expected to remain primarily within disturbed soils.

Existing surface improvements, such as road pavements, sidewalks, and landscaping, would be removed at each excavation area, and soils would be excavated and temporarily removed from the site to expose the existing pipeline. Once rehabilitation is complete, the excavation area would either be backfilled with soils originally excavated or backfilled with slurry, and the surface of each excavation area and surrounding work zone would be restored to existing conditions. This would involve re-paving existing roads, repairing or replacing existing sidewalks, and replanting landscaping.

Rehabilitation activities would take approximately one year, with mobilization of equipment and traffic control setup scheduled to begin as early as October 2021. Water service shutdowns on the Second Lower and Sepulveda Feeders would begin in mid-October 2021, and the proposed project pipeline segment would be returned to service in April 2022. Traffic controls and equipment would be removed by the end of October 2022. The PCCP Program schedule is dependent on risk assessment of the pipeline, thus if inspections reveal another segment is more at risk, the repair schedule will be altered. Shutdowns are primarily scheduled during low water use times (i.e., the optimum time for pipeline shutdowns is winter months when water demand is less than during the summer months).

Previous Environmental Review

The PEIR assessed the potential environmental effects of the PCCP Rehabilitation Program (SCH No. 2014121055) in accordance with the California Environmental Quality Act (CEQA) of 1970 (Public Resources Code [PRC] Section 21000 et seq.) and the Guidelines for Implementation of CEQA (State CEQA Guidelines) published by the Public Resources Agency of the state of California (California Code of Regulations [CCR], Title 14, Section 15000 et seq.). The PEIR analyzed rehabilitation of the PCCP portions of the five pipelines within Metropolitan's service area that were identified as having the highest risk, including the Reach 3 segment of the Second Lower Feeder. The SLF Reach 3 additional improvements are located along the existing SLF alignment (Reach 2) and are within the PEIR area of analysis.

The PEIR identified programmatic impacts associated with thresholds BIO(a), BIO(b), BIO(c), BIO(d) and BIO(f) as potentially significant and unavoidable despite proposed mitigation, noting that the level of impact would need to be determined at the project level. Impacts associated with threshold BIO(e) were identified as less than significant after mitigation.

Methodology

Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special-status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees.

Environmental Statutes

For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- City of Los Angeles Municipal Code
- City of Torrance Municipal Code
- City of Lomita Municipal Code
- City of Rolling Hills Estates Municipal Code
- City of Carson
- City of Long Beach Municipal Code

Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Appendix G Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the proposed project would have a significant effect on biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal areas, etc.) through direct removal, filling, hydrological interruption, or other means.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional or state habitat conservation plan.

Literature Review

A literature review was conducted to establish the environmental and regulatory setting of the proposed project. Specific literature reviewed for the subject analysis is provided in the references section of this document. The reviewed literature also included the United States Department of Agriculture (USDA) Soil Survey for the United States Geological Service (USGS) *Torrance, California* 7.5-minute topographic quadrangle (USDA 2019), and literature detailing the habitat requirements of subject species. Aerial photographs, topographic maps, and soil survey maps were also examined.

Queries of the United States Fish and Wildlife Service (USFWS) Environmental Conservation Online System (ECOS): Information, Planning and Conservation System (IPaC) (USFWS 2019a), USFWS Critical Habitat Portal (USFWS 2019b), USFWS National Wetland Inventory (NWI) (USFWS 2019c), California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2019a), CDFW Biogeographic Information and Observation System (BIOS) (CDFW 2019b) and California Native Plant Society (CNPS) *Online Inventory of Rare, Threatened and Endangered Plants of California* (CNPS 2019) were conducted. The queries were conducted to obtain comprehensive information regarding state and federally listed species, sensitive communities and federally designated critical habitat known to or considered to have potential to occur within the vicinity of the project site.

Field Reconnaissance Survey

The field reconnaissance survey was limited to providing an overview of site biological constraints and the potential presence of sensitive biological resources, including special-status plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, protected trees, wildlife movement, and habitat for nesting birds. The survey area consisted of the approximately 4.9-mile project footprint extending from Second Lower Feeder Station (SLF STA) 1859+80 (located on West 220th Street in the city of Los Angeles) to SLF STA 2116+84 (located adjacent to the Palos Verdes Reservoir in the city of Rolling Hills Estates) and from Sepulveda Feeder Station (SF STA) 2270+35 to SF STA 2273+23, located on Western Avenue in the cities of Torrance and Los Angeles. Site photographs are included in Attachment C.

Rincon biologist Amy Leigh Trost conducted the field reconnaissance survey on September 26, 2019. The survey was performed by walking and driving along the proposed work area to characterize the existing biological resources present (e.g., vegetative communities, potential presence of special-status species and/or habitats, and presence of potentially jurisdictional waters). Where portions of the survey area were inaccessible on foot (e.g., private property and fenced areas), the biologist visually inspected these areas with binoculars (10 x 40). Weather conditions during the survey included an average temperature of 71 degrees Fahrenheit, with winds between 0 and 3 miles per hour and overcast skies.

Existing Conditions

Physical Characteristics

The project site is located within developed/disturbed urbanized areas, primarily within the paved rights-of-way of existing roadways. Based on a review of historic aerial photographs, most of the project site and surrounding areas have been heavily developed and disturbed since at least 1952.

Soils onsite consist of the following soil types, of which Urban land-Thums-Windfetch complex, 0 to 2 percent slopes, and Urban land-Marina complex, 0 to 5 percent slopes, are considered hydric (Attachment B, Figure 2, USDA 2019):

- Urban land-Aquic Xerothents, fine substratum-Cropley complex, 0 to 5 percent slopes
- Urban land-Haploxeralfs complex, 0 to 2 percent slopes
- Urban land-Anthraltic Xerorthents, loamy substratum-Grommet complex, 0 to 5 percent slopes
- Urban land-Typic Xerothents, coarse substratum-Typic Haploxeralfs complex, 0 to 5 percent slopes
- Urban land-Thums-Windfetch complex, 0 to 5 percent slopes
- Urban land-Thums-Windfetch complex, 0 to 2 percent slopes
- Urban land-Marina complex, 0 to 5 percent slopes
- Urban land-Metz-Pico complex, 0 to 2 percent slopes
- Urban land-Windfetch-Sepulveda complex, 2 to 9 percent slopes
- Lunada-Zaca complex, 30 to 75 percent slopes
- Urban land-Dapplegray-Oceanaire complex, 10 to 35 percent slopes
- Pits and Quarries
- Dapplegray-Urban land complex, 10 to 35 percent slopes, terraced

Land use adjacent to the project site consists of developed and urban areas including a mixture of institutional, residential, and commercial uses.

Vegetation

Based on a review of available aerial imagery and the field reconnaissance survey, the project site is primarily characterized by urban and developed land including paved road rights-of-way, and adjacent sidewalks and utility poles. These portions of the project site are devoid of vegetation with the exception of landscaped medians, sidewalks and street trees, which are dominated by ornamental species such as eucalyptus (*Eucalyptus* sp.), large pines (*Pinus* sp.), Peruvian pepper tree (*Schinus molle*), crimson bottlebrush (*Callistemon lanceolatus*), and ornamental palms. Trees located within Palos Verdes Reservoir are primarily large pine trees. Two coast live oak (*Quercus agrifolia*) trees were documented in the work area for SLF STA 2109/2114 in the city of Rolling Hills Estates.

General Wildlife

The urban and developed habitat in the project site supports common urban wildlife. Wildlife species observed directly or detected from calls, tracks, scat, or other sign were documented. The detection of wildlife species was limited by seasonal and temporal factors. Avian species observed/detected on or adjacent to the site include mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*),

European starling (*Sturnus vulgaris*), American crow (*Corvus brachyrhynchos*), and Anna's hummingbird (*Calypte anna*).

Sensitive Biological Resources

Based on review of aerial photographs and the field reconnaissance survey, Rincon evaluated the potential presence of sensitive biological resources on and adjacent to the project site.

Special-Status Species

Local, state, and federal agencies regulate special-status species and generally require an assessment of their presence or potential presence to be conducted prior to the approval of a proposed project. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites in the vicinity of the survey area, and previous reports for the project site. The potential for each special-status species to occur in the survey area was evaluated according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

The CNDDB has records for 21 special-status plant species and 21 special-status wildlife species within five miles of the project site (Attachment D). One sensitive plant community, southern coastal bluff scrub, was identified within five miles of the project site. Special-status plant and wildlife species typically have very specific habitat requirements, which are not found on the project site.

Special-Status Plant Species

The project site is located within highly developed/disturbed urbanized areas, and primarily within the paved rights-of-way of existing roadways. Because of historic and existing disturbance from high levels of anthropogenic activities, the site is not suitable for special-status plant species.

Special-Status Wildlife Species

The project site is located within highly developed/disturbed urbanized areas, and primarily within the paved rights-of-way of existing roadways. Because of historic, existing disturbance from high levels of

anthropogenic activities, and the lack of specific coastal habitats or suitable substrates, the site is not suitable for most special-status wildlife species.

Low quality or marginal foraging and/or roosting habitat for three special-status wildlife species occurs within and adjacent to the project site:

- Southern California legless-lizard (*Anniella stebbinsi*); CDFW Species of Special Concern (SSC)
- Western mastiff bat (*Eumops perotis californicus*); CDFW SSC
- San Diego desert woodrat (*Neotoma lepida intermedia*); CDFW SSC

The project site is dominated by landscaped areas containing ornamental trees with low buildings that may potentially serve as habitat for southern California legless lizard (SCLL), San Diego desert woodrat (SDDW), and roosting western mastiff bat. The habitat surrounding Palos Verdes Reservoir and SLF STA 2109/2114 has the greatest potential to support special-status species; however, these areas are regularly disturbed. SLF STA 2109/2114 contains some woody shrubs and is located directly adjacent to the George F. Canyon Nature Preserve where there is some potentially suitable habitat for SCLL and SDDW. Palos Verdes Reservoir was developed in the 1960s and portions of the property have returned to a semi-natural habitat with suitable understory for both SCLL and SDDW. Therefore, potential for occurrence of these species is low. The project site has a history of frequent disturbance and is surrounded by existing development and heavily traveled transportation corridors. These factors reduce the potential for occurrence for most wildlife species mentioned.

Nesting Birds

Ornamental shrubs and trees that could provide suitable nesting habitat for several common avian species occur throughout the project site. Nesting birds are protected by CFGC 3503 and the MBTA.

Sensitive Plant Communities

No sensitive plant communities as defined by the CNDDB or local ordinances are present on the project site.

Jurisdictional Waters and Wetlands

Based on aerial review, including review of the USFWS NWI Wetland Mapper (USFWS 2019c), and the reconnaissance field survey, no potentially jurisdictional drainages or wetlands are present within any designated work areas. A riparian corridor is mapped within the work area for SLF STA 2098; however, this feature was not present in the field (Attachment C, Photograph 3). The area is dominated by non-native Peruvian pepper trees and no water source was observed. A length of riverine habitat is also mapped along Palos Verdes Drive East between Oak Street and Club View Lane. This feature was not observed in the field and furthermore, no project work is proposed in this area.

Addendum No. 3 (Reach 2) to the PEIR identified concrete-lined storm water channels, including Dominguez Channel and Los Cerritos Drain. Both channels are potential jurisdictional features, but are located more than 100 feet from the project's additional improvement locations.

Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning

areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

The project site is located within a developed urban area and occurs close to heavily traveled transportation corridors including Interstate (I) 110 and I-405. The closest mapped *Natural Landscape Block* (Spencer et al. 2010) is approximately 22 miles northeast of the project site in the Puente Hills (including the Worsham Open Space Preserve) near the city of Whittier. The project site is separated from these habitat connectivity areas by existing development, major highways, and paved roadways. The project site is located adjacent to the George F. Canyon Nature Preserve, which is located just north of SLF STA 2109/2114 at the southern end of the project site. This area provides for local movement of common wildlife but does not serve as a significant migratory wildlife corridor. Furthermore, the site has been previously disturbed and no work is proposed in the nature preserve. Therefore, the project site does not contain significant migratory wildlife corridors.

Resources Protected by Local Policies and Ordinances

City of Lomita

The Lomita City Tree Ordinance (9-2.30) states that alteration or removal of any city tree shall require a tree trimming or removal permit, respectively. Furthermore, the ordinance states that all city pine trees in the Lomita Pines neighborhood with a diameter at breast height of twelve inches or greater, shall be given protected tree status. All reasonable efforts to save trees must be exhausted before removal will be allowed. The Lomita Pines neighborhood is generally bordered by Pacific Coast Highway to the north, Western Avenue to the east, Narbonne Avenue to the west, and ends just north of Via Madonna in the city of Lomita.

City of Los Angeles

The city of Los Angeles Protected Tree Relocation or Replacement Ordinance (177404) states that no protected tree may be relocated or removed unless the removal of the tree has been approved by the Advisory Agency. Los Angeles protects all of the following Southern California native tree species, which measure four inches or more in cumulative diameter, four and one-half feet above the ground level at the base of the tree: Oak trees including valley oak (*Quercus lobata*), California live oak (*Quercus agrifolia*), or any other tree of the oak genus indigenous to California but excluding the scrub oak (*Quercus dumosa*), southern California black walnut (*Juglans californica* var. *californica*), western sycamore (*Platanus racemosa*), and California bay (*Umbellularia californica*). Non-protected street trees within Los Angeles require a street tree removal permit.

City of Rolling Hills Estates

The Rolling Hills Estates Street Tree Ordinance (12.20) states that a property owner shall file a written request to the superintendent to initiate removal of street trees from a planting strip or easement.

City of Torrance

The Torrance Tree Ordinance (75.1.1) states that no person may cut, trim, remove, prune, plant, injure, or interfere with any tree upon any street, park, alley, or public place within the City without first obtaining a permit from the Public Works Director.

City of Carson

The City of Carson Municipal Code Chapter 9 states that the Public Works Division shall be responsible for administering and scheduling pruning of all City trees; otherwise all other trimming is prohibited, unless a permit is obtained. All City trees shall be trimmed using professionally accepted standards, as established by the International Society of Arboriculture (ISA) Best Management Practice and ANSI Pruning Standards, whichever is more protective of tree preservation. All City trees shall be pruned in a manner that will encourage good development while preserving their health, structure, and natural appearance. Shearing, topping, heading back, stubbing, lion tailing, or pollarding of public trees is prohibited, except in accordance with ISA standards (City of Carson 2020).

City of Long Beach

The City of Long Beach Municipal Code Section 14.28 states that tree trimming and removal of any City-owned street tree will be conducted by the Public Works Department following submittal of an application for a no-fee permit (City of Long Beach 2006, 2013).

California Department of Transportation

The portion of the project site that occurs within the California Department of Transportation (Caltrans) right-of-way includes the length of the project along Western Avenue (California State Route 213). This segment will require coordination with Caltrans prior to tree removal in this area.

Conservation Plans

The proposed project is not located within the jurisdiction of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Impact Analysis and Mitigation Measures

Special-Status Species

Twenty one special-status plant species and 21 special-status wildlife species are known to occur within a five-mile radius of the project site. Due to the historic and existing disturbed/developed condition of the project site, the site is not suitable for any special-status plant species; therefore, no impacts to special-status plant species would occur. The severity of the impact would be less than that identified in the PEIR.

Of the 21 special-status wildlife species identified, three species have low potential to occur onsite: southern California legless-lizard, western mastiff bat, and San Diego desert woodrat.

The project proposes the removal or trimming of trees which may provide low-quality foraging habitat as well as daytime or nighttime roosts for the western mastiff bat, as well as low-quality habitat for SCLL and SDDW. As such, the project may result in loss of low quality habitat for these species, as well as potential injury or death to individuals. It should be noted that these species are not geographically restricted to the vicinity of the project area and the loss of low quality habitat would not significantly affect the species. Given the low potential for occurrence onsite and the location of the proposed project adjacent to disturbed/developed areas, the proposed project would not have population-wide negative effects on these species. Impacts would be less than significant and no further actions are recommended. The severity of the impact would be less than that identified in the PEIR.

As described above, the project site contains ornamental shrubs and trees that could provide suitable nesting habitat for several common avian species. Implementation of MM BIO-2 as identified in the PEIR would reduce impacts to a less than significant level. The severity of the impact would be equal to that identified in the PEIR.

> **MM BIO-2: Impacts on Nesting Birds.** For any projects within the program that require vegetation removal during the nesting season for sensitive species protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Section 3503, including street trees and other landscaping, a qualified biologist will inspect the vegetation to be removed no more than 10 days prior to tree/ vegetation removal to determine whether nesting birds are present. If a nest is found, the biologist will determine the site-specific measures necessary to avoid disturbing the nest until nesting activity has ceased. Nothing in this mitigation measure precludes the use of deterrent measures to prevent bird nesting.

Sensitive Plant Communities

The project site does not contain riparian habitat or other sensitive natural communities. Therefore, no impacts are expected and the severity of the impact would be less than that identified in the PEIR.

Jurisdictional Waters and Wetlands

The project site does not contain any jurisdictional drainages or wetlands. A riparian corridor is mapped within the work area for SLF STA 2098; however, this feature was not present in the field (Attachment C, Photograph 3). The area is dominated by non-native Peruvian pepper trees and no water source was observed. A band of riverine habitat is also mapped along Palos Verdes Drive East between Oak Street and Club View Lane. This feature was not observed in the field and furthermore, no work areas are proposed at this location. Therefore, no impacts to jurisdictional waters and wetlands are expected.

Wildlife Movement

As discussed above, the project site is located within a developed urban area and occurs close to heavily traveled transportation corridors including I-110 and I-405. The closest mapped *Natural Landscape Block* (Spencer et al. 2010) is approximately 22 miles northeast of the project site in the Puente Hills (including the Worsham Open Space Preserve) near the city of Whittier. The project site is separated from these habitat connectivity areas by existing development, major highways, and paved roadways. The project site is located adjacent to the George F. Canyon Nature Preserve. The site has been previously disturbed and no work is proposed in the nature preserve. The project site does not contain significant migratory wildlife corridors; therefore, no impacts are expected and the severity of the impact would be less than that identified in the PEIR.

Local Policies and Ordinances

As described above, trees and vegetation are proposed to be trimmed or removed in order to complete the project. Implementation of MM BIO-7 as identified in the PEIR would reduce impacts to a less than significant level. The severity of the impact would be equal to that identified in the PEIR.

> **MM BIO-7: Conflicts with Local Policies Related to Biological Resources.** For any projects within the program that require vegetation removal, Metropolitan will determine if there are any applicable local policies related to biological resources and, if so, coordinate with the affected jurisdiction, as necessary, to determine appropriate requirements for vegetation removal and replacement. The contractor will be required to comply with any applicable requirements. Nothing in this mitigation

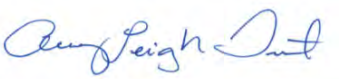
will require the contractor to make improvements beyond the existing condition prior to construction.

Conservation Plans

The proposed project is not located within the jurisdiction of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur and the severity of the impact would be less than that identified in the PEIR.

Thank you for the opportunity to provide this Biological Resources Assessment. Please contact the undersigned with any questions.

Sincerely,
Rincon Consultants, Inc.



Amy Leigh Trost
Associate Biologist

Brenna Vredeveld
Senior Biologist/Project Manager

Steven J. Hongola
Principal Biologist

Attachments

Attachment A References
Attachment B Figures
Attachment C Site Photographs
Attachment D Special-Status Species Potential to Occur

Attachment A

References

References

California Department of Fish and Wildlife (CDFW). 2019a. California Natural Diversity Database, Rarefind V. 5 (October 8, 2019).

_____. 2019b. Biogeographic Information and Observation System (BIOS). Retrieved from: http://bios.dfg.ca.gov (October 8, 2019).

California Native Plant Society (CNPS). 2019. *Inventory of Rare and Endangered Plants*. (online edition, v8-03.39). California Native Plant Society, Sacramento, CA. Retrieved from: http://www.rareplants.cnps.org (October 8, 2019).

Carson, City of. 2020. Municipal Code. Chapter 9 - City Tree Preservation and Protection. Retrieved from: http://www.codepublishing.com/CA/Carson/html/Carson03/Carson030900.html . (July 15, 2020).

ICF International. 2016. Prestressed Concrete Cylinder Pipe Rehabilitation Program Final Programmatic Environmental Impact Report. December. Prepared for Metropolitan Water District of Southern California.

Lomita, City of. 2019. City Tree Ordinance. Retrieved from: https://library.municode.com/ca/lomita/codes/code_of_ordinances (October 3, 2019).

Long Beach, City of. Public Works Department. 2006. Tree Maintenance Policy. Retrieved from: http://www.longbeach.gov/globalassets/pw/media-library/documents/services/services/street-trees/tree-maintenance-policy (July 15, 2020).

___. 2013. Municipal Code. Section 14.28 – Trees and Shrubs. Retrieved from: http://longbeach-ca.elaws.us/code/muco_voli_title14_ch14.28_sec14.28.010 (July 15, 2020).

Los Angeles, City of. 2019. Protected Tree Ordinance. Retrieved from: http://clkrep.lacity.org/onlinedocs/2003/03-1459-s1_ord_177404.pdf (October 3, 2019).

The Metropolitan Water District of Southern California (Metropolitan). 2019. Addendum #3 to the Programmatic Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program Second Lower Feeder Reach 2. April 2019.

Rolling Hills, City of. 2019. Street Tree Ordinance. Retrieved from: https://library.municode.com/ca/rolling_hills_estates/codes/code_of_ordinances?nodeId=TIT12STSIPUPL_CH12.20STTR_12.20.010DE (October 3, 2019).

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California*. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

Torrance, City of. 2019. Street Tree Ordinance. Retrieved from: https://www.codepublishing.com/CA/Torrance/#!/Torrance07/Torrance0705.html (October 3, 2019).

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey. Retrieved from: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (October 8, 2019).

United States Fish and Wildlife Service (USWFS). 2019a. Information for Planning and Conservation (IPaC). Retrieved from: http://ecos.fws.gov/ipac/ (October 8, 2019).

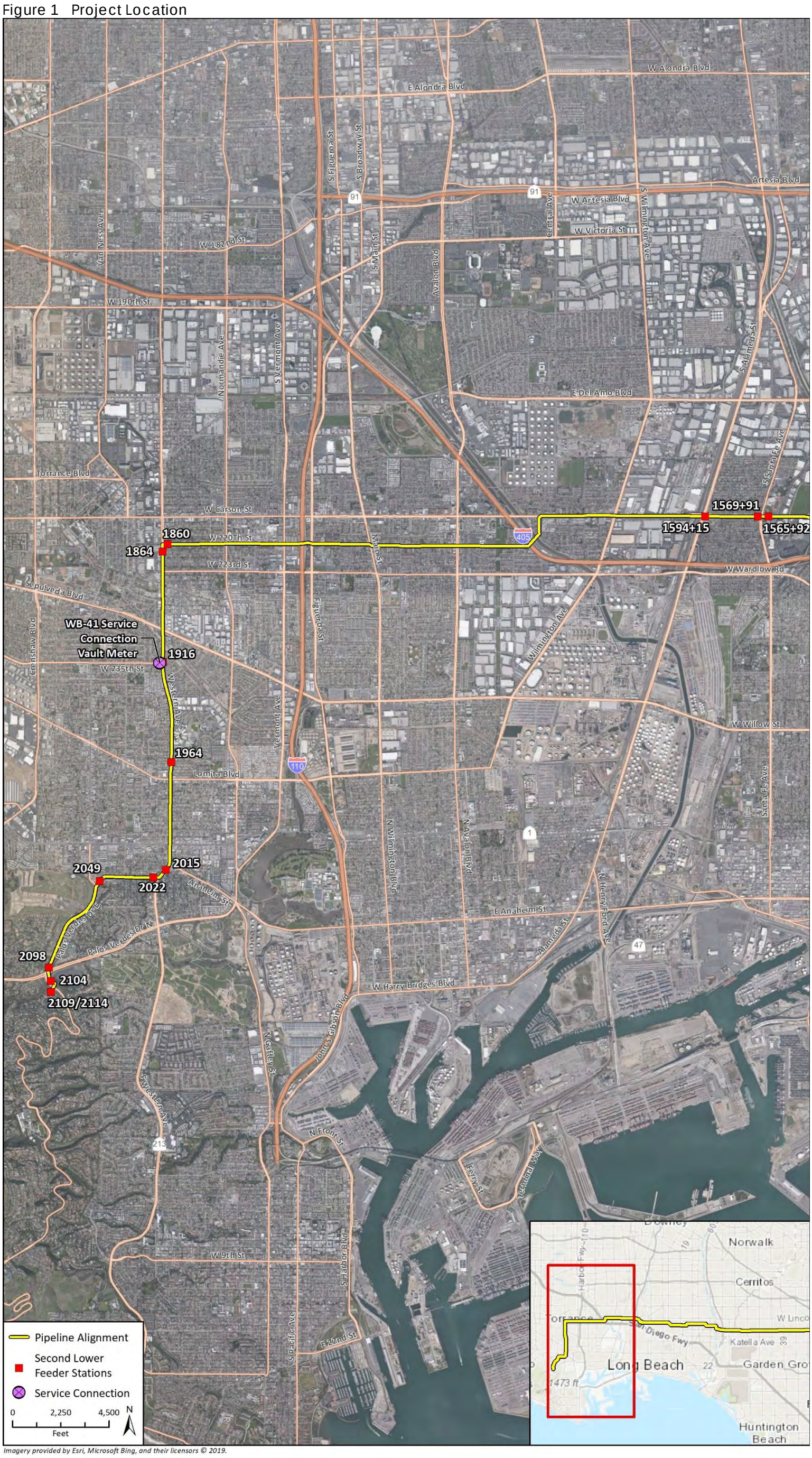
_____.2019b. Critical Habitat Portal. Retrieved from: http://criticalhabitat.fws.gov (October 8, 2019).

_____.2018c. National Wetlands Inventory. Retrieved from: http://www.fws.gov/wetlands/ (October 8, 2019).

Attachment B

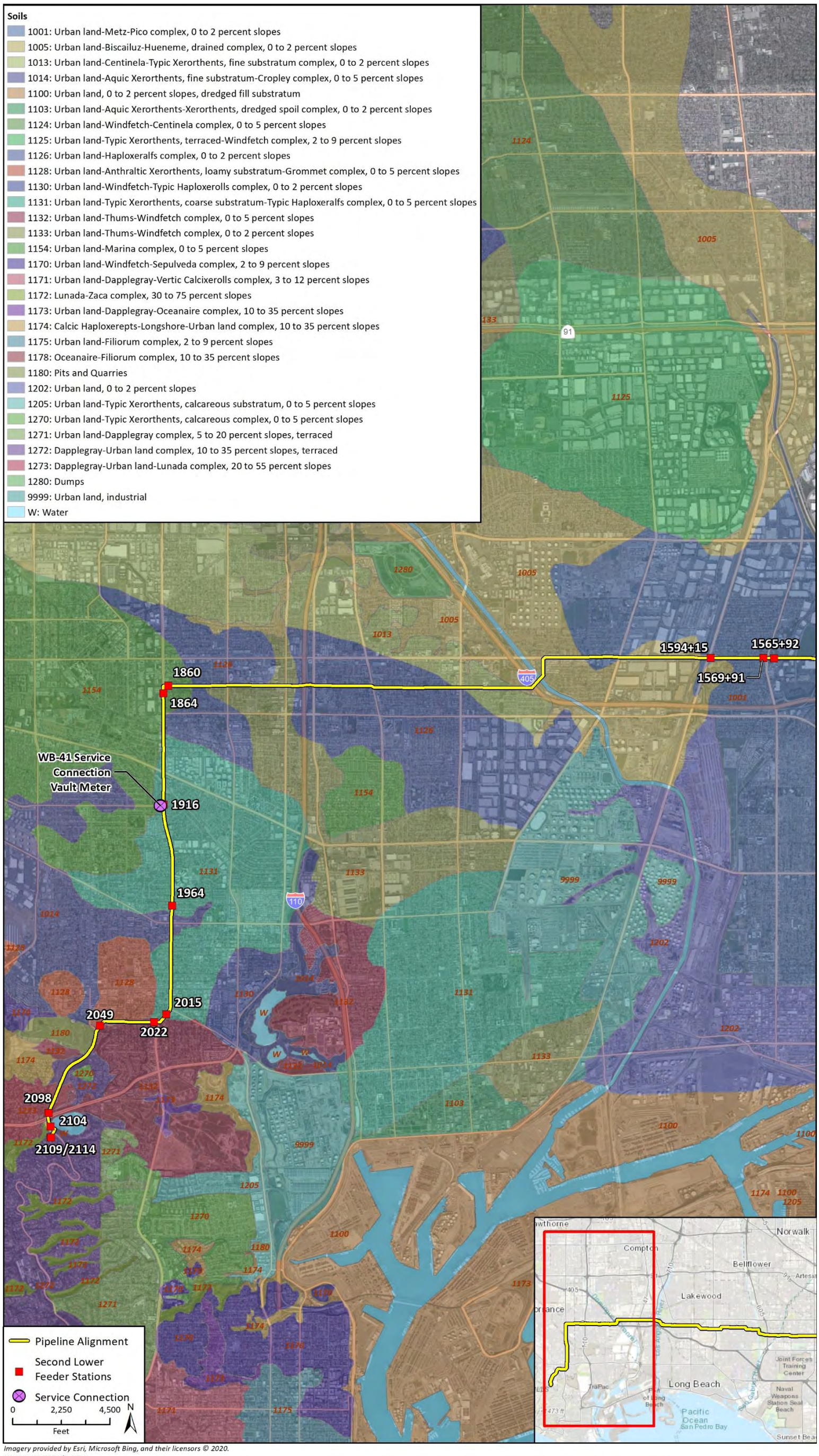
Figures

Figure 1 Project Location



Imagery provided by Esri, Microsoft Bing, and their licensors © 2019.

Figure 2 Mapped Soil Units in the Project Vicinity



Imagery provided by Esri, Microsoft Bing, and their licensors © 2020.
NRCS SSURGO Soils, 2020.

Attachment C

Site Photographs

Photograph 1. SLF STA 2109/2114, facing northeast.

Photograph 2. SLF STA 2104 within Palos Verdes Reservoir, facing north.

Photograph 3. SLF STA 2098, facing west.

Photograph 4. Metro Park adjacent to SLF STA 2049, facing west.

Photograph 5. Project site with street trees proposed for trimming/removal, facing south.

Photograph 6. Project site along Western Avenue, facing north.

Attachment D

Special-status Species Potential to Occur

Special-Status Species in the Regional Vicinity of the Project Site

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Plants and Lichens				
Aphanisma blitoides aphanisma	None/None 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub. On bluffs and slopes near the ocean in sandy or clay soils. 3-305 m. annual herb. Blooms Feb-Jun	None	No coastal scrub habitats occur along the site.
Atriplex coulteri Coulter's saltbush	None/None 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland. Ocean bluffs, ridgetops, as well as alkaline low places. Alkaline or clay soils. 2-460 m. perennial herb. Blooms Mar-Oct	None	No coastal scrub or grassland habitats occur along the site.
Atriplex pacifica south coast saltscale	None/None 1B.2	Coastal scrub, coastal bluff scrub, playas, coastal dunes. Alkali soils. 1-400 m. annual herb. Blooms Mar-Oct	None	No coastal scrub habitats or playas occur along the site.
Atriplex parishii Parish's brittlescale	None/None 1B.1	Vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils. 5-1420 m. annual herb. Blooms Jun-Oct	None	No vernal pools or scrub habitats occur along the site.
Atriplex serenana var. *davidsonii* Davidson's saltscale	None/None 1B.2	Coastal bluff scrub, coastal scrub. Alkaline soil. 0-460 m. annual herb. Blooms Apr-Oct	None	No coastal scrub habitats occur along the site.
Centromadia parryi ssp. *australis* southern tarplant	None/None 1B.1	Marshes and swamps (margins), valley and foothill grassland, vernal pools. Often in disturbed sites near the coast at marsh edges; also in alkaline soils sometimes with saltgrass. Sometimes on vernal pool margins. 0-975 m. annual herb. Blooms May-Nov	None	No marshes or swamps, grasslands, or vernal pools occur along the site.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Centromadia pungens ssp. *laevis* smooth tarplant	None/None 1B.1	Valley and foothill grassland, chenopod scrub, meadows and seeps, playas, riparian woodland. Alkali meadow, alkali scrub; also in disturbed places. 5-1170 m. annual herb. Blooms Apr-Sep	None	No grassland, scrub, meadows, playas, or riparian habitats occur along the site.
Chloropyron maritimum ssp. *maritimum* salt marsh bird's-beak	FE/FE 1B.2	Marshes and swamps, coastal dunes. Limited to the higher zones of salt marsh habitat. 0-10 m. annual herb (hemiparasitic). Blooms May-Oct (Nov)	None	No marshes or swamps, or dunes occur along the site.
Crossosoma californicum Catalina crossosoma	None/None 1B.2	Chaparral, coastal scrub. On rocky sea bluffs, wooded canyons, and dry, open sunny spots on rocky clay. 5-535 m. perennial deciduous shrub. Blooms Feb-May	None	No chaparral, scrub, canyons, or clay soils occur along the site.
Dudleya virens ssp. *insularis* island green dudleya	None/None 1B.2	Coastal bluff scrub, coastal scrub. Rocky soils. 0-275 m. perennial herb. Blooms Apr-Jun	None	No coastal scrub habitats occur along the site.
Horkelia cuneata var. *puberula* mesa horkelia	None/None 1B.1	Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. 15-1645 m. perennial herb. Blooms Feb-Jul(Sep)	None	No chaparral, scrub, or woodland habitats occur along the site.
Isocoma menziesii var. *decumbens* decumbent goldenbush	None/None 1B.2	Coastal scrub, chaparral. Sandy soils; often in disturbed sites. 1-915 m. perennial shrub. Blooms Apr-Nov	None	No chaparral or scrub habitats occur along the site.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	None/None 1B.1	Coastal salt marshes, playas, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-1375 m. annual herb. Blooms Feb-Jun	None	No salt marshes, playas, or vernal pools occur along the site.
Lycium brevipes var. *hassei* Santa Catalina Island desert-thorn	None/None 3.1	Coastal bluff scrub, coastal scrub. Coastal bluffs and slopes. 30-95 m. perennial deciduous shrub. Blooms Jun (Aug)	None	No coastal scrub habitats occur along the site.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Nama stenocarpa mud nama	None/None 2B.2	Marshes and swamps. Lake shores, river banks, intermittently wet areas. 5-500 m. annual / perennial herb. Blooms Jan-Jul	None	No marhes, swamps, or other natural aquatic habitats occur along the site.
Navarretia prostrata prostrate vernal pool navarretia	None/None 1B.2	Coastal scrub, valley and foothill grassland, vernal pools, meadows and seeps. Alkaline soils in grassland, or in vernal pools. Mesic, alkaline sites. 3-1235 m. annual herb. Blooms Apr-Jul	None	No scrub or grassland habitats, or vernal pools, meadows or seeps occur along the site.
Nemacaulis denudata var. *denudata* coast woolly-heads	None/None 1B.2	Coastal dunes. 0-100 m. annual herb. Blooms Apr-Sep	None	No coastal dunes occur along the site.
Pentachaeta lyonii Lyon's pentachaeta	FE/FE 1B.1	Chaparral, valley and foothill grassland, coastal scrub. Edges of clearings in chaparral, usually at the ecotone between grassland and chaparral or edges of firebreaks. 30-630 m. annual herb. Blooms (Feb)Mar-Aug	None	No chaparral, grassland, or scrub habitats occur along the site.
Phacelia stellaris Brand's star phacelia	None/None 1B.1	Coastal scrub, coastal dunes. Open areas. 3-370 m. annual herb. Blooms Mar-Jun	None	No coastal scrub or dune habitats occur along the site.
Suaeda esteroa estuary seablite	None/None 1B.2	Marshes and swamps. Coastal salt marshes in clay, silt, and sand substrates. 0-80 m. perennial herb. Blooms (May)Jul-Oct (Jan)	None	No marshes or swamps occur along the site.
Symphyotrichum defoliatum San Bernardino aster	None/None 1B.2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 2-2040 m. perennial rhizomatous herb. Blooms Jul-Nov	None	No meadows or seeeps, woodlands or forests, grassland, or scrub habitats occur along the site.
Invertebrates				

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Bombus crotchii Crotch bumble bee	None/SC	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	None	No suitable food plant species occur along the site.
Cicindela gabbii western tidal-flat tiger beetle	None/None	Inhabits estuaries and mudflats along the coast of Southern California. Generally found on dark-colored mud in the lower zone; occasionally found on dry saline flats of estuaries.	None	No estuaries or mudflats occur along the site.
Cicindela hirticollis gravida sandy beach tiger beetle	None/None	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico. Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	None	No coastal areas occur along the site.
Cicindela latesignata latesignata western beach tiger beetle	None/None	Mudflats and beaches in coastal Southern California.	None	No mudflats or beaches occur along the site.
Danaus plexippus pop. 1 monarch - California overwintering population	None/None	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	None	Eucalyptus trees occur along the site; however, these areas are sparse and would not provide suitable roosting sites.
Euphilotes battoides allyni El Segundo blue butterfly	FE/None	Restricted to remnant coastal dune habitat in Southern California. Host plant is *Eriogonum parvifolium*; larvae feed only on the flowers and seeds; used by adults as major nectar source.	None	No suitable host plant species occur along the site.
Glaucopsyche lygdamus palosverdesensis Palos Verdes blue butterfly	FE/None	Restricted to the cool, fog-shrouded, seaward side of Palos Verdes Hills, Los Angeles County. Host plant is Astragalus trichopodus var. lonchus (locoweed).	None	No suitable host plant species occur along the site.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Streptocephalus woottoni Riverside fairy shrimp	FE/None	Endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	None	No vernal pools occur along the site.
Tryonia imitator mimic tryonia (=California brackishwater snail)	None/None	Inhabits coastal lagoons, estuaries and salt marshes, from Sonoma County south to San Diego County. Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.	None	No lagoons, estuaries, or salt marshes occur along the site.
Fish				
Siphateles bicolor mohavensis Mohave tui chub	FE/FE FP	Endemic to the Mojave River basin, adapted to alkaline, mineralized waters. Needs deep pools, ponds, or slough-like areas. Needs vegetation for spawning.	None	No pools or ponds occur along the site.
Reptiles				
Anniella stebbinsi southern California legless lizard	None/None SSC	Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	Low	Potentially suitable habitat for this species occurs within Palos Verdes Reservoir and SLF STA 2109/2114; however, these areas are regularly subject to maintenance and other disturbance.
Phrynosoma blainvillii coast horned lizard	None/None SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	None	No sandy soils occur along the site.
Birds				

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Agelaius tricolor tricolored blackbird	None/FT SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	None	No suitable open water habitats with nesting substrate occurs along the site.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	None	No riparian habitat occurs along the site.
Polioptila californica californica coastal California gnatcatcher	FT/None SSC	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	None	No coastal sage scrub occurs along the site.
Riparia riparia bank swallow	None/ST	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	None	No riparian habitat or vertical banks or cliffs occur along the site.
Sternula antillarum browni California least tern	FE/SE FP	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, land fills, or paved areas.	None	No beaches, alkali flat, or other suitable habitats occur along the site.
Mammals				
Eumops perotis californicus western mastiff bat	None/None SSC	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Low	Potentially suitable roost trees for this species occur within Palos Verdes Reservoir; however, this area is regularly subject to maintenance and other disturbance.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Neotoma lepida intermedia San Diego desert woodrat	None/None SSC	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops, rocky cliffs, and slopes.	Low	Potentially suitable habitat for this species occurs within Palos Verdes Reservoir and SLF STA 2109/2114; however, this area is regularly subject to maintenance and other disturbance.
Nyctinomops femorosaccus pocketed free-tailed bat	None/None SSC	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	None	No rocky areas with high cliffs occur along the site for roosting.
Perognathus longimembris pacificus Pacific pocket mouse	FE/None SSC	Inhabits the narrow coastal plains from the Mexican border north to El Segundo, Los Angeles County. Seems to prefer soils of fine alluvial sands near the ocean, but much remains to be learned.	None	No alluvial sands occur along the site.
Sensitive Natural Communities				
Southern Coastal Bluff Scrub Southern Coastal Bluff Scrub	None/None		None	This natural community does not occur along the project site.

Regional Vicinity refers to within a 5-mile search radius of site.

FE = Federally Endangered FT = Federally Threatened FC = Federal Candidate Species

SE = State Endangered ST = State Threatened SC = State Candidate SR = State Rare

SSC = CDFW Species of Special Concern

CRPR (CNPS California Rare Plant Rank):

1A=Presumed Extinct in California

1B=Rare, Threatened, or Endangered in California and elsewhere

2A=Plants presumed extirpated in California, but more common elsewhere

2B=Plants Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension:

.1=Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2=Fairly endangered in California (20-80% occurrences threatened)

.3=Not very endangered in California (<20% of occurrences threatened)

Appendix C
Cultural Resources Study

Revised July 16, 2020
Rincon Project No: 17-04026

Lilia Martínez
Senior Environmental Specialist
The Metropolitan Water District of Southern California
Environmental Planning Section
700 North Alameda Street
Los Angeles, California 90012
Via email: limartinez@mwdh2o.com

Subject: **Cultural Resources Study for the Prestressed Concrete Cylinder Pipe Rehabilitation Program – Second Lower Feeder Reach 3 Project, cities of Los Angeles, Torrance, Lomita, Rolling Hills Estates, Carson, and Long Beach, Los Angeles County, California.**

Dear Ms. Martínez:

Rincon Consultants, Inc. (Rincon) was retained by HELIX Environmental Planning, Inc. on behalf of The Metropolitan Water District of Southern California (Metropolitan) to conduct a cultural resources study for the Prestressed Concrete Cylinder Pipeline (PCCP) Rehabilitation Program – Second Lower Feeder (SLF) Reach 3 Project (project) in the cities of Los Angeles, Torrance, Lomita, Rolling Hills Estates, Carson, and Long Beach, Los Angeles County, California. This letter report presents the results of a cultural resources records search review and field survey completed for the proposed project. This cultural resources study has been completed in accordance with the requirements of Mitigation Measures (MM) CUL-1: Historic Resources Protection Program, CUL-2: Avoidance or Monitoring of Archaeological Sites, and CUL-5: Archaeological Survey of Non-Pipeline Area in Metropolitan's Programmatic Environmental Impact Report (PEIR) Volume 2: Findings of Fact, Mitigation Monitoring and Reporting Program (MMRP; SCH No. 2014121055), and Statement of Overriding Considerations for cultural resources (Metropolitan 2016).

Project Location and Description

The proposed project, Reach 3 of the SLF, covers rehabilitation of portions of a 4.9-mile-long section of the 78-inch-diameter Second Lower Feeder in the cities of Los Angeles, Torrance, Lomita, Rolling Hills Estates, Carson, and Long Beach and a 300-linear-foot section of the 84-inch-diameter Sepulveda Feeder in the cities of Los Angeles and Torrance. Proposed locations for project elements have been identified, including the contractor's work and storage areas, pipe access sites from which the feeder would be relined, installation of large isolation valves, below ground structures that would be improved, air-release/vacuum valves that would be relocated above grade, air-release/vacuum valves that would be improved, and the construction of a service connection (WB-41).

Ground disturbance in the project area is primarily proposed for Stations 1860, 1864, 1916, 1964, 2015, 2022, 2049, 2098, 2104, and 2109/2114, as well as WB-41. The maximum depth of excavation in these

areas would be 20 feet below ground surface. Minor ground disturbance would also occur throughout the project footprint for other project elements (e.g., air-release/vacuum valve relocations). Additional improvements incorporated as part of the project include: the relocation of a vacuum valve to an above ground location within the sidewalk at Station 1565+92 (Reach 2); the relocation of an air release/vacuum valve at Station 1569+91 (Reach 2); and the replacement of an existing 16-inch valve at service connection WB-37 located at Station 1594+15 (Reach 2). All proposed excavation is along the existing pipeline alignment and ground disturbance is expected to remain primarily within disturbed soils.

Existing surface improvements, such as road pavements, sidewalks, and landscaping, would be removed at each excavation area, and soils would be excavated and temporarily removed from the site to expose the existing pipeline. Once rehabilitation is complete, the excavation area would either be backfilled with soils originally excavated or backfilled with slurry, and the surface of each excavation area and surrounding work zone would be restored to existing conditions. This would involve re-paving existing roads, repairing or replacing existing sidewalks, and replanting landscaping.

Rehabilitation activities would take approximately one year, with mobilization of equipment and traffic control setup scheduled to begin as early as October 2021. Water service shutdowns on the Second Lower and Sepulveda Feeders would begin in mid-October 2021, and the proposed project pipeline segment would be returned to service in April 2022. Traffic controls and equipment would be removed by the end of October 2022. The PCCP Program schedule is dependent on risk assessment of the pipeline, thus if inspections reveal another segment is more at risk, the repair schedule will be altered. Shutdowns are primarily scheduled during low water use times (i.e., the optimum time for pipeline shutdowns is winter months when water demand is less than during the summer months).

Regulatory Setting

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC] §21084.1). A historical resource is one listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR), a resource included in a local register of historical resources, or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be *historically significant* (State CEQA Guidelines §15064.5[a][1-3]).

A resource shall be considered *historically significant* if it meets any of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2. Is associated with the lives of persons important in our past
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4. Has yielded, or may be likely to yield, information important in prehistory or history

Generally, a cultural resource must be at least 50 years old to be considered for listing on the CRHR. Resources that have achieved significance within the past 50 years may also be eligible for inclusion in

the CRHR, provided that enough time has elapsed to obtain a scholarly perspective on the events or individuals associated with the resource (Office of Historic Preservation 2011:3).

If it can be demonstrated a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to allow any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC §21083.2[a], [b]).

PRC §21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person

City of Torrance

The City of Torrance General Plan Community Resources Element contains the following objective and policies pertaining to cultural resources and relevant to the current project:

Objective CR.12: Preservation of sites of local historical or cultural importance

Policy CR.12.1: Encourage the preservation of public and private buildings which are of local, historical, or cultural importance.

Policy CR.12.2: Support the work of local historic groups to identify and preserve local structures and sites of historical interest and importance.

The City of Torrance Historic Preservation Ordinance provides criteria for the designation of “landmarks” and “landmark districts” per the Torrance Municipal Code Section 91.50.010. A cultural resource may be designated as a landmark if it meets one of the following criteria:

A. It is associated with events that have made a significant contribution to the broad patterns of local, regional, state, or national history, or the cultural heritage of the City, California, or the United States;
B. It is associated with an important person or persons who made a significant contribution to the history, development, and/or culture of the City, region, state, or nation;
C. It embodies the distinctive characteristics of a type, period, style, or method of construction;
D. It is representative of the work of a master;
E. It possesses high artistic or aesthetic values;
F. It has yielded or has the potential to yield information important to the prehistory or history of the city, region, state, or nation;
G. It is among the last, best remaining examples of an architectural or historical type or specimen.
H. In addition to having significance, a property or area must demonstrate integrity for the time period in which it is significant. Integrity is defined by seven aspects: location, design, setting,

materials, workmanship, feeling, and association. A property or area need not possess all seven aspects, but must retain enough to convey the reason for its significance.

City of Lomita

The City of Lomita General Plan (1998) includes the following policy regarding cultural resources:

> **Cultural Resources Management:** "This regulation requires that, should archaeological or paleontological resources be uncovered during excavation and grading activities, all work would cease until appropriate salvage measures are established Appendix K of the CEQA Guidelines shall be followed for excavation monitoring and salvage work that may be necessary. The Conservation Element indicates those areas with a "high potential" for cultural sensitivity. Notification that resources have been encountered (notification may come from field monitors, construction crews, etc. Salvage will be undertaken pursuant to Appendix K requirements outlined in CEQA".

City of Rolling Hills Estates

The City of Rolling Hills Estates General Plan Conservation Element contains the following goals and policies pertaining to cultural resources:

Goal 3: Promote the preservation of cultural, historical and natural resources within the City.

> Policy 3.1 Implement General Plan guidelines for the protection of sites of paleontological, archaeological, historical or culturally valuable significance.
>
> > 3.1.1 Implementation Measure: New development in areas designated as having a high cultural sensitivity will be required to have archaeological surveys and on-site monitoring when deemed necessary. All development shall be subject to the provisions of Appendix K in the CEQA Law and Guidelines.

The City of Rolling Hills Estates Cultural Heritage Commission Ordinance provides criteria for the designation of "landmarks" and "landmark districts" per Los Angeles Municipal Code Section 17.38.040. A cultural resource may be designated as a landmark if it meets one of the following criteria:

A. Structures, sites or areas particularly representative of a distinct style, region or way of life;
B. Structures, sites or areas connected with a business or use which was once common but now rare;
C. Buildings and/or associated structures of greater age than surrounding structures;
D. Buildings and/or associated structures containing original materials or workmanship which are valued in themselves;

One or more of the following criteria may be considered in measuring the appropriateness of a potential landmark overlay designation:

E. Buildings and/or associated structures which are preserved or capable of being restored to their former condition;
F. Buildings and/or associated structures particularly well related to their site or area;
G. Buildings and/or associated structures expressing their function well;
H. Structures, sites or areas visible or accessible to the public;
I. Buildings and/or associated structures existing in appropriate settings (trees, walls, yard, etc.);

J. Structures, sites or areas surrounded by land use significant for preservation of the structure, site or area.

City of Los Angeles

The City of Los Angeles Cultural Heritage Commission Ordinance provides criteria for the designation of "landmarks" and "landmark districts" per Los Angeles Municipal Code Section 22.171.7. A cultural resource may be designated as a landmark if it meets one of the following criteria:

A. Is identified with important events of national, state, or local history or exemplifies significant contributions to the broad cultural, economic or social history of the nation, state, city or community;
B. Is associated with the lives of historic personages important to national, state, city, or local history; or
C. Embodies the distinctive characteristics of a style, type, period, or method of construction; or represents a notable work of a master designer, builder, or architect whose individual genius influenced his or her age.

City of Long Beach

The City of Long Beach (City) Cultural Heritage Commission Ordinance provides criteria for the designation of "landmarks" and "landmark districts" per Long Beach Municipal Code Section 2.63.050. A cultural resource may be designated as a landmark if it meets one of the following criteria:

A. It possesses a significant character interest or value attributable to the development, heritage or cultural characteristics of the city, the southern California region, the state or the nation;
B. It is the site of an historic event with a significant place in history;
C. It is associated with the life of a person or persons significant to the community, city, region or nation;
D. It portrays the environment in an era of history characterized by a distinctive architectural style;
E. It embodies those distinguishing characteristics of an architectural type or engineering specimen;
F. It is the work of a person or persons whose work has significantly influenced the development of the city of the southern California region;
G. It contains elements of design, detail, materials, or craftsmanship which represent a significant innovation;
H. It is a part of or related to a distinctive area and should be developed or presented according to a specific historical, cultural or architectural motif;
I. It represents an established and familiar visual feature of a neighborhood or community due to its unique location or specific distinguishing characteristic;
J. It is, or has been, a valuable information source important to the prehistory or history of the city, the Southern California region or the state; or
K. It is one of the few remaining examples in the city, region, state or nation possessing distinguishing characteristics of an architectural or historical type.

City of Carson

The City of Carson General Plan (2006) includes the following policy regarding cultural resources:

Parks and Recreation Element, Policy P-9.2: Encourage all development or redevelopment occurring in areas identified as a potential historic archaeological site to be surveyed for historic archaeological resources prior to initiation of site preparation for development.

Cultural Resources Records Search

In accordance with MM CUL-2, Rincon conducted a search of the California Historical Resources Information System at the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton on November 15, 2017, February 5, 2019, and March 12, 2019. The search was conducted to identify previous cultural resources studies and previously recorded cultural resources within a 0.5-mile radius of the project site. As part of the record search, Rincon also reviewed the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list.

The SCCIC records search identified 38 previously conducted studies within a 0.5-mile radius of the project site (Table 1). Of the 38 previous studies, nine studies (LA-00083, LA-02644, LA-02882, LA-02970, LA-03707, LA-10333, LA-10524, LA-10567, and LA-11150) include portions of the project site.

Table 1. Previously Conducted Studies within 0.5-mile of the Project Site

Report Number	Author	Year	Title	Relationship to Project Site
LA-00083	Rosen, Martin	1975	Evaluation of the Archaeological Resources and Potential Impact of the Joint Outfall System's Improvements on Sewer Treatment Plants and Installation Routes for New Large Diameter Sewers, Los Angeles County	Within
LA-00359	Stickel, Gary and Jerry Howard	1976	*Final Report of a Cultural Resource Survey in Long Beach, California*	Outside
LA-02644	Wlodarski, Robert	1992	The Results of a Phase 1 Archaeological Study for the Proposed Alameda Transportation Corridor Project, Los Angeles County, California	Within
LA-02882	McKenna, Jeanette	1993	Cultural Resources Investigations, Site Inventory, Evaluations, the Cajon Pipeline Project Corridor, Los Angeles and San Bernardino Counties, CA	Within
LA-02950	Unknown	1992	Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project	Outside
LA-02970	Chamberlaine, Pat and Jean Rivers-Council	1992	Cajon Pipeline Project Draft Environmental Impact Statement/Environmental Impact Report	Within

Report Number	Author	Year	Title	Relationship to Project Site
LA-03583	Bucknam, Bonnie M.	1974	The Los Angeles Basin and Vicinity: a Gazetteer and Compilation of Archaeological Site Information	Outside
LA-03695	Maki, Mary K.	1997	Negative Phase I Archaeological Survey Harbor Hills Housing Project, Lomita, Los Angeles County, California	Outside
LA-03707	Clewlow Jr., C. William	1974	Preliminary Report of the Potential Impact on Archaeological Resources of the Proposed Gas Transmission Pipeline from Los Angeles Harbor to Yorba Linda – Southern California Gas Co.: Environmental Analysis	Within
LA-05872	Duke, Curt	2002	Cultural Resource Assessment AT&T Wireless Services Facility No. 05072A-01, Los Angeles County, California	Outside
LA-05984	Duke, Curt	2002	Cultural Resource Assessment for Pacific Bell Wireless Facility SM 011-01, County of Los Angeles, CA	Outside
LA-04985	Duke, Curt	2002	Cultural Resource Assessment for AT&T Wireless Services Facility No. D173d, Los Angeles County, CA	Outside
LA-06199	McKenna, Jeanette A.	2003	A Phase I Cultural Resources Investigation, Paleontological Overview, and Architectural Evaluation of the Cypress Street Water Reservoir, Rolling Hills Estates, Los Angeles County, California	Outside
LA-06220	Unknown	2002	Los Angeles Unified School District Proposed Expansion of Narbonne High School Located at 24300 Western Avenue in Harbor City (in the City of Los Angeles)	Outside
LA-06870	Bell, Heather	2001	NEPA Screening for Wireless Telecommunication Site-Harbor City, 24823 Western Avenue, Lomita, Los Angeles County, California	Outside
LA-07950	Harper, Caprice	2006	Archaeological Survey Report for the Interstate 105 (I-105) Dewatering Wells Beneficial Re-use of Groundwater Project, Cities of Paramount, Compton, Long Beach, and Carson, Los Angeles County, California	Outside
LA-07952	Livingstone, David, McDougall, Dennis, Goldberg, Susan and W. Nettles	2006	Trails to Rails: Transformation of a Landscape: History and Historical Archaeology of the Alameda Corridor, Volume 1	Outside

Report Number	Author	Year	Title	Relationship to Project Site
LA-07971	Tang, Bai and Josh Smallwood	2006	Seismic Retrofit of the Union Pacific Railroad (UPRR) Bridge Over Santa Fe Avenue (State Bridge No. 53C0458), on the Boundary Between the Cities of Long Beach and Carson, Los Angeles County	Outside
LA-08059	McKenna, Jeanette A. and Richard S. Shepard	2006	Results of Phase II Cultural Resources Testing Program at CA-LAN-276, CA-LAN-277, and CA-LAN-3583, Three Prehistoric Sites Identified within the Chandler Ranch/Rolling Hills Country Club Property in the Rolling Hills Estates and Torrance Areas of Los Angeles	Outside
LA-08255	Arrington, Cindy and Nancy Sikes	2006	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and Ii	Outside
LA-08462	Bonner, Wayne H.	2006	Cultural Resources Records Search Results and Site Visit for T-Mobile USA Candidate LA03554a (Barton Properties), 21350 South Alameda Street, Carson, Los Angeles County, California	Outside
LA-10107	McKenna, Jeanette A.	2004	Results of a Phase I Cultural Resources Investigation, Paleontological Overview, and Architectural Evaluation of the Cypress Street Water Reservoir, Rolling Hills Estates, Los Angeles County	Outside
LA-10108	McKenna, Jeanette A.	2006	Results of a Phase I Cultural Resources Investigation and Paleontological Overview of the Chandler Ranch/Rolling Hills Country Club Residential Development, Rolling Hills Estates, Los Angeles County, California	Outside
LA-10333	McKenna, Jeanette A.	2009	Cultural Resource Assessment AT&T Wireless Services Facility No. 05109a, Los Angeles County, California	Within
LA-10524	Horne, Melinda, Hamilton, M. Colleen and Susan Goldberg	2000	Alameda Corridor Project Treatment Plan for Historic Properties Discovered During Project Implementation, Second Draft. Addendum to Finding of Effect (February 21, 1995; October 27, 1998)	Within
LA-10567	Hogan, Michael, Bai “Tom” Tang, Josh Smallwood, Laura Hensley Shaker and Casey Tibbitt	2005	Identification and Evaluation of Historic Properties - West Basin Municipal Water District Harbor- South Bay Water Recycling Project Proposed Project Laterals	Within
LA-10628	McKenna, Jeanette A.	2010	Lomita Reservoir / Cypress Street Archaeological / Paleontological Monitoring	Outside

Report Number	Author	Year	Title	Relationship to Project Site
LA-11063	Losee, Carolyn	2009	Cultural Resources Analysis for Global Tower "Carson, CA" Site, 21136 Wilmington Avenue, Carson, Los Angeles County, CA 90040	Outside
LA-11094	Johnson, B.	2010	Cultural Resources Records Search for T-Mobile USA Inc., LA33771A/Schafer, 1981 E. 213th St, Carson, Los Angeles County, California 90749	Outside
LA-11150	Maxwell, Pamela	2003	West Basin Municipal Water District Harbor/South Bay Water Recycling Project	Within
LA-11227	Hudson, Jonathan	2010	Torrance Hospital, 1808 Abalone Avenue, Torrance, Los Angeles County, CA 90501	Outside
LA-11482	Racer, F.H.	1939	Camp Sites in Harbor District - F.H. Racer	Outside
LA-11551	Maxon, Patrick	2012	Phase I Cultural Resources Assessment, Juanita Millender-McDonald Carson Regional Water Recycling Facility Phase II B Expansion Project, West Basin Municipal Water District, City of Carson, Los Angeles County, California	Outside
LA-12826	Haas, Hannah and Robert Ramirez	2014	Metropolitan Water District of Southern California Palos Verdes Reservoir Upgrades Project	Outside
LA-12870	McKenna, Jeanette A.	n.d.	Cultural Resources Overview and Assessment: The City of Los Angeles, West Carson Transit Oriented District (TOD) Specific Plan Project Area, Los Angeles County, California	Outside
LA-13019	Bonner, Wayne H. and Kathleen A. Crawford	2006	Cultural Resources Records Search and Site Visit Results for T Mobile West, LLC Candidate LA33694A (ATT Switch - Torrance), 1307 Cravens Avenue, Torrance, Los Angeles County, California	Outside
LA-13149	Billet, Loma	2014	New Tower (“NT”) Submission Packet, FCC FORM 620, PROJECT NAME: Wardlow Park, Project Number: EL0238B	Outside
LA-13211	Roland, Jennifer	2016	Phase I Investigation for the Crown Castle LA33771A Antenna Installation Project, Carson, Los Angeles County, California	Outside

Source: South Central Coastal Information Center November 2017, February 2019, March 2019

Twelve previously recorded resources are located within 0.5-mile of the project site and are listed in Table 2 below. None of these resources are located within the project site. The nearest recorded cultural resource is the Palos Verdes Reservoir located approximately 60 feet from the Station 2104. Built in 1939, the reservoir was previously recommended ineligible for listing on the National Register of

Historic Places (NRHP) and the California Register of Historical Resources (CRHR) (Haas and Ramirez 2014). A prehistoric archaeological site (P-19-000281) was also mapped approximately 350 feet northeast of the Station 2109/2114. The site record states P-19-000281 was likely completely destroyed by the construction of the Palos Verdes Reservoir in 1939 (True 1960).

Table 2. Previously Recorded Resources within 0.5-mile of the Project Site

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status	Relationship to Project Site
19-000191	CA-LAN-000191	Multi-component Site	Prehistoric shell midden and historic reservoir	H. Enerhart 1952; D. Brunzell 2003; R.S. Shepard 2010	Unknown	Outside
19-000277	CA-LAN-000277	Prehistoric Site	Lithic scatter	D.L. True 1960; R. Shepard 2005; J. McKenna 2006	Unknown	Outside
19-000278	CA-LAN-000278	Prehistoric Site	Habitation site with lithic scatter	D.L. True 1960	Unknown	Outside
19-000279	CA-LAN-000279	Prehistoric Site	Habitation site with lithic scatter	F.H. Racer 1939; D.L. True 1960	Unknown	Outside
19-000280	CA-LAN-000280	Prehistoric Site	Habitation site	H. Eberhart 1952; D.L. True 1960	Unknown	Outside
19-000281	CA-LAN-000281	Prehistoric Site	Habitation site	D.L. True 1960; L.L. Porras 2017	Unknown	Outside
19-003065	CA-LAN-003065H	Historic Site	Abandoned Railroad Trestle	J. Paniagua and D. Livingstone (2001)	Unknown	Outside
19-003066	CA-LAN-003066H	Historic Site	Septic Tank	J. Paniagua and D. Livingstone (2001)	Unknown	Outside
19-180782	–	Historic Building	Single Family Residence	R. Starzak (1994)	Determined ineligible for listing on the NRHP	Outside
19-187805	–	Historic Structure	Ballona Creek Flood Control Channel & Drainage System	D. Kane (2000); P. Daly (2015)	Recommended ineligible for listing on the NRHP and CRHR	Outside
19-187942	–	Historic Structure	Bridge No. 53C458	J. Smallwood (2006)	Recommended ineligible for listing on the NRHP and CRHR	Outside
19-192333	N/A	Historic Structure	Palos Verdes Reservoir	R. Ramirez 2014	Recommended ineligible for listing on the NRHP or CRHR	Outside

Source: South Central Coastal Information Center November 2017, February 2019, March 2019
NRHP = National Register of Historic Places; CRHR = California Register of Historical Resources

Native American Sacred Lands File Search

In accordance with MM CUL-2, Metropolitan undertook Native American coordination for the PCCP in early 2015 by requesting a Sacred Lands File search from the Native American Heritage Commission. The Sacred Lands File search was completed with negative results for the project site.

Field Survey

Methods

In accordance with MM CUL-5, Rincon staff Tricia Dodds performed a field survey on March 17, 2019 and Mathew Carson and Alondra Garcia performed a field survey of the project site on September 26, 2019. The survey consisted of a pedestrian survey where foot travel could be conducted safely and a windshield survey within paved roadways. During the survey, all exposed ground surfaces were inspected for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). The windshield survey consisted of driving the pipeline alignment to identify any potential cultural resources within or along the margins of the alignment. A windshield survey allows for an inspection of the project area where foot travel is unsafe (e.g., within high traffic roadways). A Global Positioning System was used to maintain locational accuracy throughout the pedestrian and windshield portions of the survey.

Results

No prehistoric or historic period cultural resources have been recorded within the project site and none were observed during the survey of the excavation sites or pipeline alignment. The project site has been previously developed by modern infrastructure and traverses through mixed commercial and residential space. The proposed excavation sites at Stations 1565+92, 1569+91, 1594+15, 1860, 1864, 1916, 1964, 2015, 2022, and 2049, as well as at WB-41, are paved with asphalt and/or concrete and are located within previously developed roadways or sidewalks. The proposed excavation sites at Stations 2098, 2104, and 2109/2114 extend into unpaved areas adjacent to Palos Verdes Drive East and the Palos Verdes Reservoir. All excavations are expected to remain primarily within previously disturbed soils. Although Station 2104 is located near the historic-age Palos Verdes Reservoir, the proposed project is not expected to impact the reservoir. Additionally, extant data indicate that the prehistoric archaeological site of P-19-000281, which is mapped approximately 350 feet northeast from Station 2109/2114, was destroyed by the construction of the Palos Verdes Reservoir (True 1960).

Although structures are located adjacent to the project locations, Rincon determined that a built environment evaluation is not necessary for the current project as most of the project is within the existing paved right-of-way and primarily limited to excavations and below-grade elements. The project site will also be returned to preconstruction conditions upon completion of the project indicating any indirect impacts to the surrounding environment will be temporary in nature. Thus, it is not necessary to undertake any steps required by MM CUL-1 for this project.

Discussion and Recommendations

Rincon did not identify any cultural resources within the project site as a result of the records search or pedestrian and windshield surveys. The Sacred Lands File search completed by Metropolitan did not identify any cultural resources near the project site. Three previous studies intersect portions of the current project site and no cultural resources were identified within the project site. Thus, the findings of this study are consistent with the findings of the PEIR (Metropolitan 2016). Because no archaeological resources have been identified within or immediately adjacent to the project alignment, archaeological monitoring and Native American monitoring required under MM CUL-2 is not necessary for this portion of the project. The project shall adhere to the requirements of MM CUL-3: Preconstruction Meeting for Identifying Cultural Resources by holding a preconstruction meeting that includes a discussion of identifying cultural resources during ground-disturbing activities. In addition, if cultural resources are identified during project-related ground-disturbing activities, the project shall adhere to MM CUL-4: Previously Unidentified Resources Encountered during Ground-Disturbing Activities, which requires halting construction within 50 feet of the resource until it can be evaluated by a qualified cultural resources specialist and impacts can be mitigated, if necessary.

Thank you for the opportunity to support Metropolitan with this important project. Please contact the undersigned with questions regarding this report or any other matters related to our services.

Sincerely,
Rincon Consultants, Inc.

Breana Campbell-King, MA, RPA
Senior Archaeologist

Jennifer Haddow, PhD
Principal Environmental Scientist

Attachment:
Figure 1 Project Location Map

References:

City of Los Angeles

2018 Ordinance No. 185472. Electronic document, online at https://planning.lacity.org/odocument/f740b82d-c0e6-451c-a99f-d36f1ff262a9/Cultural_Heritage_Ordinance_Revised_2018.pdf, accessed July 15, 2020.

City of Long Beach

2017 Chapter 2.63 Cultural Heritage Commisison. Electronic document, online at https://www.laconservancy.org/sites/default/files/community_documents/Long%20Beach%20Historic%20Preservation%20Ordinance.pdf, accessed July 15, 2020.

City of Lomita

1998 General Plan Update – Resource Management Element. Electronic document, online at http://www.lomita.com/cityhall/government/pzbs/generalplan/resource.pdf, accessed July 15, 2020.

City of Rolling Hills Estates

2009 Ordinance No. 652. Electronic document, online at https://www.laconservancy.org/sites/default/files/community_documents/Rolling%20Hills%20Estates%20Historic%20Preservation%20Ordinance.pdf, accessed July 15, 2020.

City of Torrance

2017 Ordinance No. 3822. Electronic document, online at https://www.torranceca.gov/Home/ShowDocument?id=42018, accessed July 15, 2020.

The Metropolitan Water District of Southern California (Metropolitan)

2016 Prestressed Concrete Cylinder Pipe Rehabilitation Program Final Programmatic Environmental Impact Report Volume 2: Findings of Fact, Mitigation Monitoring and Reporting Program, and Statement of Overriding Considerations. Prepared with assistance from ICF International. Report on file, The Metropolitan Water District of Southern California, Los Angeles, California.

Hannah, Haas, and Robert Ramirez

2014 Metropolitan Water District of Southern California Palos Verdes Reservoir Upgrades Project. Report on file at the South Central Coastal Information Center at California State University, Fullerton.

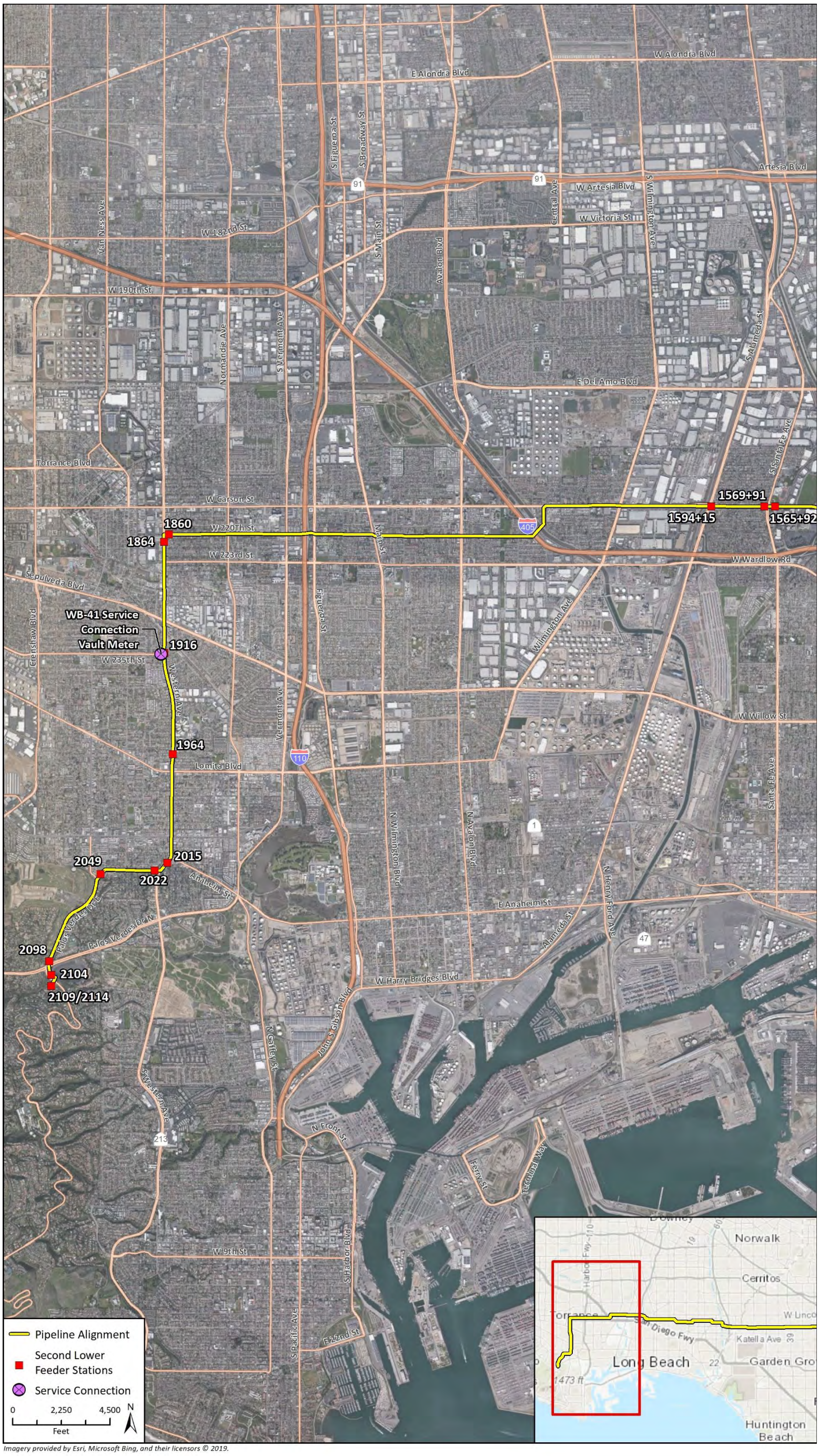
National Park Service (NPS)

1983 Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Electronic document, online at http://www.nps.gov/history/local-law-Arch_Standards.htm, accessed December 6, 2011.

True, Delbert L.

1960 Site Form for P-19-000281. Site record on file at the South Central Coastal Information Center at California State University, Fullerton.

Figure 1 Project Location Map



Imagery provided by Esri, Microsoft Bing, and their licensors © 2019.

Appendix D

Paleontological Resources Impact Mitigation Program

Prestressed Concrete Cylinder Pipe Rehabilitation Program – Second Lower Feeder Reach 3

Paleontological Resources Impact Mitigation Program

prepared for

The Metropolitan Water District of Southern California
Environmental Planning Section
700 North Alameda Street
Los Angeles, California 90012

prepared by

Rincon Consultants, Inc.
250 East 1st Street, Suite 1400
Los Angeles, California 90012

June 2020

Table of Contents

Tables

Figures

Acronyms and Abbreviations

CEQA	California Environmental Quality Act
CGS	California Geological Survey
NHMLAC	Natural History Museum of Los Angeles County
MM	Mitigation Measure
PCCP	Prestressed Concrete Cylinder Pipeline
PEIR	Programmatic Environmental Impact Report
PRC	Public Resource Code
PRIMP	Paleontological Resources Impact Mitigation Program
SLF	Second Lower Feeder
SVP	Society of Vertebrate Paleontology
UTM	Universal Transverse Mercator
WEAP	Worker Environmental Awareness Program

This page intentionally left blank.

1 Introduction

Between 1962 and 1985, 163 miles of Prestressed Concrete Cylinder Pipeline (PCCP) were installed throughout The Metropolitan Water District of Southern California's (Metropolitan) service area. Under certain subsurface conditions, PCCP lines have an elevated risk of failure compared with other types of pipe. In response to this risk of failure, in the late 1990s, Metropolitan inspected and assessed all 163 miles of PCCP within its distribution system. In 2011, Metropolitan initiated a comprehensive program of inspections to evaluate and rank PCCP lines with the highest risk of failure. The data indicate that the following five pipelines represent the highest risk: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder (SLF), and Sepulveda Feeder. The PCCP Rehabilitation Program (PCCP Program) was developed to rehabilitate the PCCP portions of the five subsurface water distribution pipelines (also known as feeders) that were identified as having the highest risk as described above.

A Programmatic Environmental Impact Report (PEIR) was prepared for the PCCP Program and certified by the Metropolitan Board of Directors on January 10, 2017 (SCH No. 2014121055). At the request of Metropolitan, Rincon prepared this Paleontological Resources Impact Mitigation Program (PRIMP) for the Second Lower Feeder – Reach 3 (the project) in accordance with Mitigation Measure (MM) CUL-6: Develop a Program to Mitigate Impacts on Paleontological Resources for Each Contract Package.

1.1 Project Location and Description

The proposed project, Reach 3 of the SLF, covers rehabilitation of portions of a 4.9-mile-long section of the 78-inch-diameter SLF in the cities of Los Angeles, Torrance, Lomita, Rolling Hills Estates, Carson, and Long Beach and a 300-linear-foot section of the 84-inch-diameter Sepulveda Feeder in the cities of Los Angeles and Torrance. Proposed locations for project elements have been identified, including the contractor's work and storage area, pipe access sites from which the feeder would be relined, installation of large isolation valves, below ground structures that would be improved, air-release/vacuum valves that would be relocated above grade, air-release/vacuum valves that would be improved, and the construction of a service connection (WB-41).

Ground disturbance in the project area is primarily proposed for Stations 1860, 1864, 1916, 1964, 2015, 2022, 2049, 2098, 2104, and 2109/2114, as well as WB-41. The maximum depth of excavation in these areas would be 20 feet below ground surface. Minor ground disturbance would also occur throughout the project footprint for other project elements (e.g., air-release/vacuum valve relocations). Additional improvements incorporated as part of the project include: the relocation of a vacuum valve to an above ground location within the sidewalk at Station 1565+92 (Reach 2); the relocation of an air release/vacuum valve at Station 1569+91 (Reach 2); and the replacement of an existing 16-inch valve at service connection WB-37 located at Station 1594+15 (Reach 2). All proposed excavation is along the existing pipeline alignment and ground disturbance is expected to remain primarily within disturbed soils. Existing surface improvements, such as road pavements, sidewalks, and landscaping, would be removed at each excavation area, and soils would be excavated and temporarily removed from the site to expose the existing pipeline. Once rehabilitation is complete, the excavation area would either be backfilled with soils originally excavated or backfilled with slurry, and the surface of each excavation area and surrounding work

zone would be restored to existing conditions. This would involve re-paving existing roads, repairing or replacing existing sidewalks, and replanting landscaping.

Rehabilitation activities would take approximately one year, with mobilization of equipment and traffic control setup scheduled to begin as early as October 2021. Water service shutdowns on the Second Lower and Sepulveda Feeders would begin in mid-October 2021, and the proposed project pipeline segment would be returned to service in April 2022. Traffic controls and equipment would be removed by the end of October 2022. The PCCP Program schedule is dependent on risk assessment of the pipeline, thus if inspections reveal another segment is more at risk, the repair schedule will be altered. Shutdowns are primarily scheduled during low water use times (i.e., the optimum time for pipeline shutdowns is winter months when water demand is less than during the summer months). Figure 1, Regional Location, shows the location of the project area in the region.

1.2 Purpose of the Paleontological Resources Impact Mitigation Program

The purpose of this PRIMP is to provide procedures and protocols to reduce impacts to unique paleontological resources potentially encountered during construction of the project. The PRIMP provides monitoring guidelines that must be implemented during construction, procedures to be followed if paleontological resources are discovered during construction, and the procedures for preparation, conservation and curation of recovered paleontological resources.

1.3 Regulatory Framework

Fossils are remains of ancient, often extinct organisms, and as such are a nonrenewable resource. The fossil record is a document of the evolutionary history of life on earth, and fossils can be used to understand evolutionary pattern and process, rates of evolutionary change, past environmental conditions, and the relationships among modern species (i.e., systematics). The fossil record is considered a valuable scientific and educational resource, and individual fossils are afforded protection under state and federal environmental laws, most notably by California Environmental Quality Act (CEQA) Section 15064.5. Regulations applicable to potential paleontological resources in the project area are summarized below.

1.3.1 State Regulations

Paleontological resources (i.e., fossils) are considered nonrenewable scientific resources because once destroyed, they cannot be replaced. As such, paleontological resources are afforded protection under the following state regulations:

California Environmental Quality Act

In California, unique paleontological resources, sites, and geologic features, particularly with regard to fossil localities, are afforded protection under a number of state environmental statutes, including CEQA. According to Appendix G of the State CEQA Guidelines, a lead agency must determine if the project would result in the direct or indirect destruction of a unique paleontological resource or site or unique geologic feature, and if such impacts would be significant. Public Resources Code (PRC) § 21081.6 requires the CEQA lead agency to ensure that feasible mitigation measures are implemented to reduce impacts to a less-than-significant level. CEQA does not include

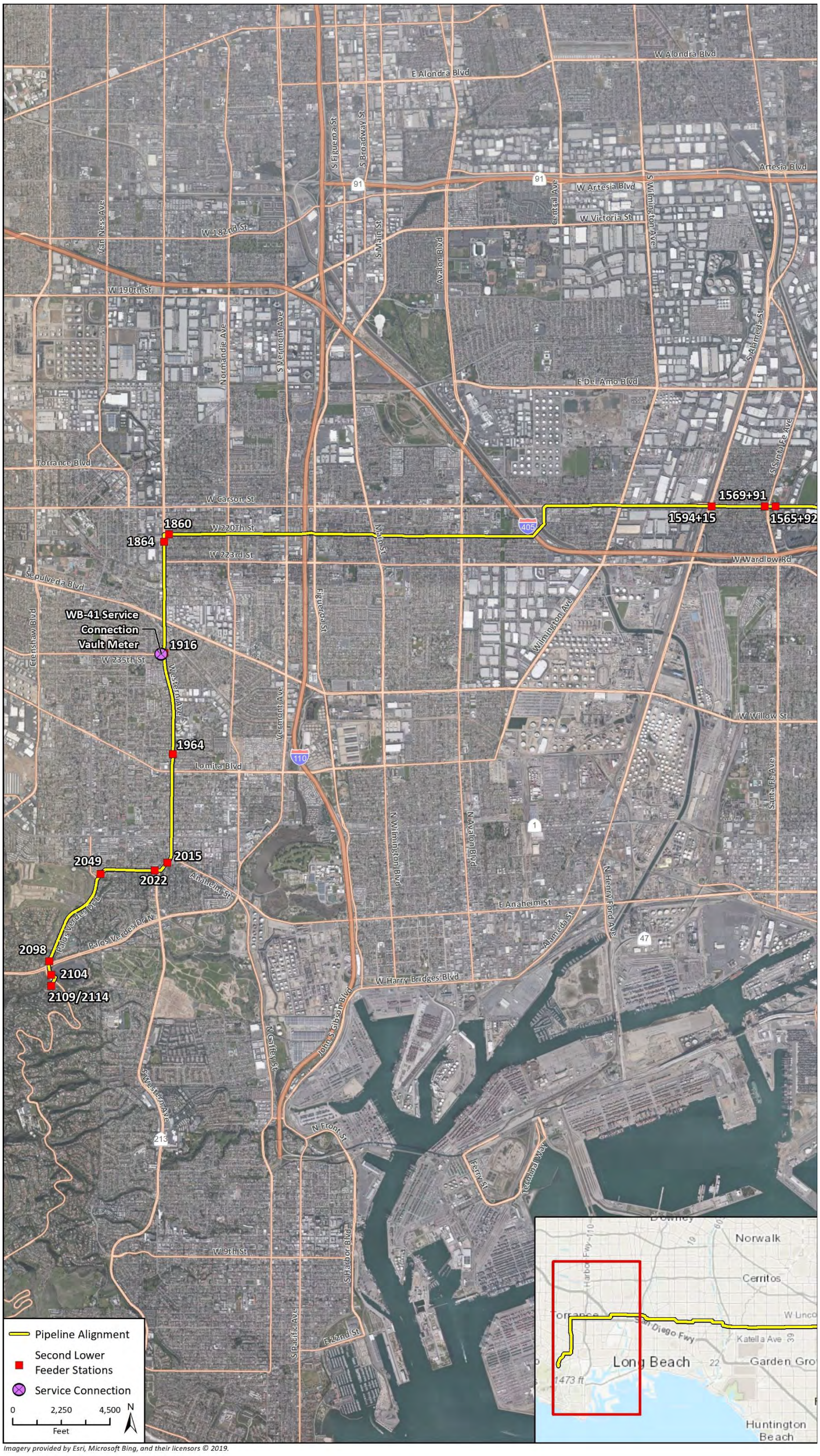
a specific definition of “unique paleontological resource or site,” nor does it establish thresholds for significance.

Public Resources Code Section 5097.5

PRC § 5097.5 prohibits excavation or removal of any vertebrate paleontological site, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on publicly owned lands to preserve or record paleontological resources. Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. Portions of this project fall outside Metropolitan fee property, on public lands; therefore, Metropolitan will coordinate with the appropriate public land owner and comply with this PRC section.

Violation of the previously outlined state regulations is punishable by civil and criminal penalties, including fines and/or imprisonment, and could result in the revocation of project certification and shut-down of the project at the direction of the appropriate lead agency.

Figure 1 Regional Location



This page intentionally left blank.

2 Background

California is divided into 11 geomorphic provinces. These provinces are "naturally defined geologic regions that display a distinct landscape or landform" (California Geological Survey [CGS] 2002). The project is located in the northern Peninsular Ranges Province within the Los Angeles Basin. The Peninsular Ranges trend northwest-southeast and extend 900 miles from the Los Angeles Basin to the tip of Baja California in Mexico. The province varies from 30 to 100 miles wide and is bounded on the east by the Colorado Desert and on the west by the coastal plain and the Gulf of California (Norris and Webb 1990). The regional geology and the geologic units mapped within the project area are described below.

2.1 Regional Geologic Setting

The project area is located in the "petroliferous" Los Angeles Basin, a northwest-trending lowland plain at the northern end of the Peninsular Ranges Province (Yerkes and Campbell 2005). The Los Angeles Basin is approximately 60 miles long and 35 miles wide and is defined by Yerkes et al. (1965) as the region bounded by the northern foothills of the Santa Monica Mountains to the north, the San Jose Hills and the Chino fault on the east, and the Santa Ana Mountains and San Joaquin Hills in the southeast. The Los Angeles Basin is underlain by a structural depression that was the site of extensive accumulation of interstratified fluvial, alluvial, floodplain, shallow marine, and deep shelf deposits on underlying Mesozoic metamorphic and granitic plutonic basement rocks. Sediment accumulation and subsidence has occurred there since the Late Cretaceous and has reached a maximum thickness of more than 20,000 feet (McCulloh and Beyer 2004; Norris and Webb 1990; Yerkes et al. 1965). During that time, transgressions and regressions (rise and fall of relative sea level) related to tectonic uplift, subsidence, and Pleistocene glaciation resulted in both marine and terrestrial sedimentary deposits throughout the Los Angeles Basin (Beyer 1995; McCulloh and Beyer 2004).

The Los Angeles Basin is composed of four structural blocks, designated the southwestern, northwestern, central, and northeastern blocks whose boundaries are formed by major fault zones (Yerkes et al. 1965). The project is located on the southwestern block, a region approximately 28 miles long and 5 to 12 miles wide and defined as bounded by the Santa Monica fault to the north and Newport-Inglewood fault to the south. Significant geologic features in that area include, the Palos Verdes Hills, which consist of low hills and mesas that rise 1,300 feet over the basin floor; the Palos Verdes Fault Zone and Gaffey syncline-anticline; and petroleum-bearing Miocene-Pliocene deposits (Harden 1998; Yerkes et al. 1965). The majority of the southwestern block is immediately underlain by the Monterey Formation, the San Pedro Formation, the Palos Verdes Sand, Quaternary non-marine terrace deposits, and Quaternary alluvial fan, flood plain, and eolian and beach sand deposits (Saucedo et al. 2003; Schoellhamer et al. 1954; Woodring et al. 1946).

2.2 Geologic Units in the Project Area

The geology of the project area is mapped at a scale of 1:100,000 by Saucedo et al. (2016). The project includes six geologic units mapped at ground surface, including younger Quaternary (Holocene to late Pleistocene) alluvium (Qya_2), younger Quaternary (Holocene to late Pleistocene) alluvial fan deposits (Qyf_2), older Quaternary (late to middle Pleistocene) alluvium (Qoa), older

Quaternary (Pleistocene) eolian deposits (Qoe), Pleistocene San Pedro Formation (Qsp, Qspl), and Miocene Monterey Formation (Tma). The surficial geologic units in the project area are described below and depicted in Figure 2, Geologic Units in the Project Area.

Younger Quaternary Alluvium (Qya_2)/Younger Quaternary Alluvial Fan Deposits (Qyf_2)

Younger Quaternary alluvium unit 2 (Qya_2) is mapped at the surface within the northeastern segment of the project area, including SLF Stations 1594+15, 1569+91, and 1565+92. Younger Quaternary alluvial fan deposits, unit 2 (Qyf_2) are mapped at the surface within the southwestern segment of the project area, near SLF Station 2049 (Saucedo et al. 2016). Holocene alluvial sediments were deposited during the latest Pleistocene to the Holocene and are composed of slightly to poorly consolidated clay, silt, sand, and silty sand. These deposits may be obscured at the surface by a slightly to moderately developed soil profile (Saucedo et al. 2016).

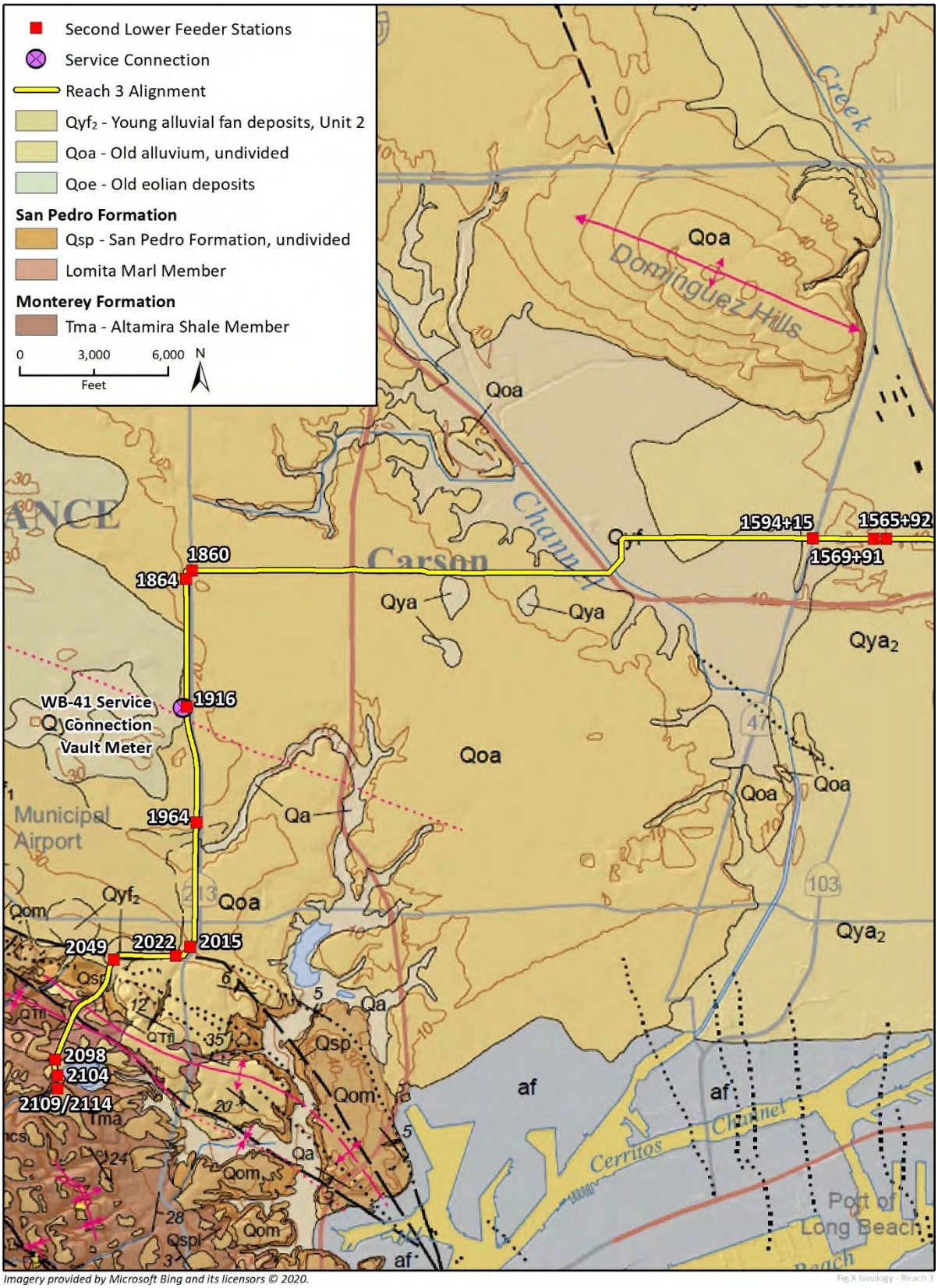
Holocene alluvial deposits at the surface are too young to preserve fossil resources but at unknown depths, sediments may transition from too young to support fossils, to early Holocene or late Pleistocene in age in which unique paleontological resources could occur. Pleistocene alluvial deposits have a well-documented record of abundant and diverse vertebrate fauna throughout California. Existing information (Department of Water Resources 1961) discusses the general range of geologic unit thicknesses in various areas of the Los Angeles Basin; however, specific information on the depth at which Holocene units mapped at the surface become old enough to preserve paleontological resources is not available. While the precise depth of older, fossil yielding deposits is unknown, it may be as few as five feet below ground surface (Maguire and Holroyd 2016; Savage 1951).

Older Quaternary Eolian Deposits (Qoe)/Older Quaternary Alluvium (Qoa)

Near the northernmost segment of the project area, between SLF Stations 1864 and 1916, older Quaternary eolian deposits (Qoe) are exposed at the surface. Locally, these Pleistocene wind-blown deposits, composed of poorly-consolidated, well-sorted, fine- to coarse-grained sand and silty sand, may be interfingered with older alluvial sediments of Pleistocene age. Older Quaternary (late to middle Pleistocene) alluvium (Qoa), which are mapped throughout most of the project area, consist of unconsolidated to moderately consolidated, poorly-sorted, gravel to coarse-grained sand, with slightly to moderately dissected surfaces and moderate soil development (Saucedo et al. 2016; Yerkes and Campbell 2005).

Alluvial sediments of Pleistocene age have a well-documented record of abundant and diverse vertebrate fauna throughout California, especially within the Los Angeles Basin. Fossil specimens of whale, sea lion, horse, ground sloth, bison, camel, mammoth, dog, pocket gopher, turtle, ray, bony fish, shark, and bird have been reported (Agenbroad 2003; Bell et al. 2004; Jefferson 1985, 1989, 1991; Maguire and Holroyd 2016; Merriam 1911; Reynolds et al. 1991; Savage 1951; Savage et al. 1954; Scott and Cox 2008; Springer et al. 2009; Tomiya et al. 2011; Wilkerson et al. 2011; Winters 1954; University of California Berkeley Museum of Paleontology [UCMP] 2018). Significant invertebrate and plant fossils have also been recovered from Pleistocene alluvial deposits, providing important paleoecologic information on the environmental setting of the Pleistocene.

Figure 2 Geologic Units in the Project Area



San Pedro Formation (Qsp, Qspl)

The Pleistocene San Pedro Formation is mapped in the Los Angeles Basin in the southwestern project area, just south of SLF Station 2049, and is divided into three formal members, from oldest to youngest: the Lomita Marl, Timms Point Silt, and San Pedro Sand (Jacobs 2005; LaFollette 2009; Woodring et al. 1946). Only the San Pedro Sand (Qsp) and Lomita Marl (Qspl) members are mapped in the project area (Yerkes and Campbell 2005). The Lomita Marl consists of unconsolidated carbonate gravel and marl, with localized induration resulting from secondary calcareous cementation. The San Pedro Sand is approximately 100 to 300 feet thick and is predominately composed of horizontally- and cross-bedded fine- to medium-grained sand, with subordinate subrounded fine to coarse pebbles, and common silt. Fossiliferous beds of marine shells are widespread, with isolated dense lens concentrations. Secondary limonite is common throughout the unit (Woodring et al. 1946; Powell and Stevens 2000).

The San Pedro Formation has yielded an abundant and diverse marine fauna within Los Angeles County. Numerous invertebrate localities have been recorded within the San Pedro Formation, which yielded several hundred different taxa of gastropods, pelecypods, scaphopods, arthropods, bryozoans, crustaceans, echinoids, and foraminifera (DeBusk and Corsetti 2011; Jacobs 2005; Powell and Stevens 2000). Mollusks are by far the most abundant fossil in the San Pedro Formation and as many as 242 species of mollusk have been recovered from one locality within the San Pedro Sand member (DeBusk and Corsetti 2011). Marine vertebrates have also been recovered from the San Pedro Formation, including whale, bony fish, rays, and sharks. In addition, terrestrial vertebrates including horse, bison, camel, saber-toothed tiger, ground sloth, elephant, rodent, turtle, and numerous specimens of birds have been discovered in the San Pedro Sand, including fossil specimens of ducks, gull, sea eagle, and quail. Between 2007 and 2008, during excavations and construction activities in the San Pedro Sand deposits near Knoll Hill and Pacific Street in San Pedro (less than five miles southeast of the project area), over 15,000 invertebrate and 450 vertebrate fossil were recovered, including specimens of bony fish, shark, ray, amphibian, snake, turtle, bird, rodent, horse, hare, rabbit, gopher, vole, deer, squirrel, and mollusk (DeBusk et al. 2009).

Monterey Formation (Tma)

The Miocene Monterey Formation is mapped in the southernmost segment of the project area, and is divided into three formal members, from oldest to youngest: the Altamira Shale, Valmonte Diatomite, and Malaga Mudstone (Saucedo et al. 2003). These Miocene deposits are typically recognized by its pale buff to white fine-grained deposits, dark brown to black siliceous laminations, and common fossils (Berndmeyer et al. 2012). Only the Altamira Shale (Tma), the thickest of the three members, is mapped in the project area and consists of siliceous shale, silty and sandy shale, cherty shale, chert, siltstone, diatomaceous shale, diatomite, phosphatic shale, and tuffaceous shale (Woodring et al. 1946; Bramlette 1946).

The Monterey Formation is well exposed along coastal California from San Francisco south to Los Angeles. Numerous vertebrate localities have been documented from the Monterey Formation, which yielded specimens of large sea turtles, whale, dolphins, sea lions, shark bones and teeth, sea cows, desmostylians, fish, birds, and many other fauna (Bramlette 1946; Harden 1998; Koch et al. 2004).

2.3 Paleontological Resource Assessment

Rincon evaluated the paleontological resource potential of the geologic units present in the project area based on the results of a paleontological locality search at the Natural History Museum of Los Angeles County (NHMLAC) and review of existing information in the primary literature on known fossils within those geologic units. Rincon reviewed geologic maps and primary literature including: Agenbroad 2003; Bell et al. 2004; CGS 2002; Jacobs 2005; Jefferson 1985, 1989, 1991; Maguire and Holroyd 2016; Merriam 1911; Powell and Stevens 2000; Reynolds et al. 1991; Saucedo et al. 2003; Savage et al. 1954; Scott and Cox 2008; Springer et al. 2009; Tomiya et al. 2011; Wilkerson et al. 2011; Winterer and Durham 1962; Winters 1954. Following the records search and literature review, Rincon assigned a paleontological sensitivity to each geologic unit within the project area.

2.3.1 Locality Search

A search of the paleontological collections records at the NHMLAC resulted in no previously recorded fossil localities within the project boundary; however, at least 11 vertebrate localities were identified within San Pedro Formation, Monterey Formation, and older Quaternary alluvial deposits in the general vicinity of the project (McLeod 2015). The NHMLAC reports several vertebrate localities, including LACM 3805, LACM 3823, and LACM 1839, were identified near the Harbor Freeway (I-110) from older Quaternary deposits. Near the intersection of Sepulveda Boulevard and Figueroa Street, approximately 1.5 miles to the east of the WB-41, LACM 3823 produced a specimen of fossil camel (*Camelops*) at a depth of 12 to 14 feet. LACM 3805 yielded fossil specimens of eagle ray (Myliobatiformes) and dolphin (Delphinidae) near the intersection of Main Street and Lomita Boulevard, less than two miles east of SLF Station 1964. To the west of the Harbor Freeway (I-110), near the intersection of Crenshaw Boulevard and 236th Street, LACM 1839 produced a fossil specimen of horse (*Equus*) at approximately 35 feet below ground surface.

NHMLAC reports four additional fossil localities within Pleistocene alluvial deposits near the southern segment of the project area. Less than a mile east of SLF Station 2098, LACM 1228 yielded fossil specimens of camel (Camelidae) and bison (*Bison*) from older alluvial deposits. Farther to the east, in Green Hills Memorial Park, LACM 3200 produced fossil specimens of ground sloth (*Paramylodon*) and bison (*Bison*). Immediately to the west of this portion of the project area, LACM 1087 and 1277 yielded various marine and terrestrial fossil specimens from Pleistocene alluvial deposits including loon (*Gavia*), geese (*Chendytes lawi* and *Chendytes milleri*), grebe (*Aechmophorus occidentalis*), sloth (Pilosa), mastodon (*Mammut americanum*), mammoth (*Mammuthus*), sea lion (*Eumetopias*), horse (*Equus occidentalis*), tapir (*Tapirus* californicus), whale (Cetacea), camels (*Tanupolama* and *Camelops*), and bison (*Bison*).

Approximately 0.2 mile southwest of SLF Station 2049, LACM 1053 and 3065 yielded several marine fossil specimens from the Lomita Marl Member, including bony fish (Teleostei), common loon (*Gavia immer*), sea cow (Hydrodarnalinae), sea lion (*Allodesmus*), and whale (Cetacea). Less than 0.25 mile west of SLF Station 2098, LACM 1099 produced fossil specimens from the Altamira Shale Member, including mackerel (*Thyrsocles*), and an extinct marine quadruped (*Desmostylus Hesperus*). Further to the southwest, south of Palos Verdes Drive North and east of Portuguese Bend Road, LACM 1098 yielded a nearly complete skull and skeleton holotype of a fossil sea lion (*Allodesmus courseni*) from the Altamira Shale Member (McLeod 2015). The results of the museum records search are summarized in Table 1.

Table 1 Museum Records Search Results

Locality No.	Geologic Unit	Age	Taxa	Depth of Recovery (below ground surface)
LACM 1839, LACM 3805, LACM 3823	Qoa	Pleistocene	Camel (*Camelops*), eagle ray (Myliobatiformes), dolphin (Delphinidae), horse (*Equus)*	12 to 35 feet
LACM 1228	Qoa	Pleistocene	Camel (Camelidae), bison (*Bison*)	Unreported
LACM 3200	Qoa	Pleistocene	Ground sloth (*Paramylodon*), bison (*Bison*)	Unreported
LACM 1087, LACM 1277	Qoa	Pleistocene	Loon (*Gavia*), geese (*Chendytes lawi* and *Chendytes milleri*), grebe (*Aechmophorus occidentalis*), sloth (Pilosa), mastodon (*Mammut americanum*), mammoth (*Mammuthus*), sealion (*Eumetopias*), horse (*Equus occidentalis*), tapir (*Tapirus californicus*), whale (Cetacea), camels (*Tanupolama* and *Camelops*), bison (*Bison*)	Unreported
LACM 1053, LACM 3065	Qspl	Pleistocene	Bony fish (Teleostei), common loon (*Gavia immer*), sea cow (Hydrodarnalinae), sea lion (*Allodesmus*), whale (Cetacea)	Unreported
LACM 1098-1099	Tma	Miocene	Snake mackerel (*Thyrsocles*), extinct marine quadruped (*Desmostylus Hesperus*), sea lion (*Allodesmus courseni*)	Unreported

Source: McLeod 2015

2.3.2 Paleontological Significance and Sensitivity

Evaluating Paleontological Significance

Guidance for evaluating paleontological significance can be found in Scott and Springer (2003). Those authors stated that significant paleontological resources include "fossil remains of large to very small aquatic and terrestrial vertebrates, remains of plants and animals previously not represented in certain portions of the stratigraphy, and fossils that might aid stratigraphic correlations, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, paleoclimatology, and the relationships of aquatic and terrestrial species" (2003:6). Furthermore, they also advised that impacts might be considered less than significant if dense concentrations of plant and/or invertebrate fossil remains were "so locally abundant that the impacts to the resources do not appreciably diminish their overall abundance or diversity" (2003:6).

More recent guidance has been developed by the Society for Vertebrate Paleontology (SVP 2010), which defines significant paleontologic resources as:

> Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years). (p. 11)

Therefore, any identifiable vertebrate fossil remains would be considered unique under CEQA, and direct or indirect impacts on such remains would be considered significant. Identifiable invertebrate

and plant fossils would be considered unique if they meet the criteria presented above. Determinations should take into account the abundance and densities of fossil specimens or newly and previously recorded fossil localities in exposures of the rock units present at a project area.

Classifying Paleontological Sensitivity

The SVP (2010) describes sedimentary rock units as having high, low, undetermined, or no potential for containing significant nonrenewable paleontological resources. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. While these standards were specifically written to protect vertebrate paleontological resources, all fields of paleontology have adopted these guidelines:

I. **High Potential (sensitivity).** Rock units from which significant vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered are considered to have a high potential for containing significant non-renewable fossiliferous resources. These units include but are not limited to, sedimentary formations and some volcanic formations which contain significant nonrenewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. Sensitivity comprises both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, or botanical and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, ecologic, or stratigraphic data. Areas which contain potentially datable organic remains older than Recent, including deposits associated with nests or middens, and areas which may contain new vertebrate deposits, traces, or trackways are also classified as significant.

II. **Low Potential (sensitivity)**. Sedimentary rock units that are potentially fossiliferous, but have not yielded fossils in the past or contain common and/or widespread invertebrate fossils of well-documented and understood taphonomic, phylogenetic species and habitat ecology. Reports in the paleontological literature or field surveys by a qualified vertebrate paleontologist may allow determination that some areas or units have low potentials for yielding significant fossils prior to the start of construction. Generally, these units will be poorly represented by specimens in institutional collections and will not require protection or salvage operations. However, as excavation for construction gets underway it is possible that significant and unanticipated paleontological resources might be encountered and require a change of classification from Low to High Potential and, thus, require monitoring and mitigation if the resources are found to be significant.

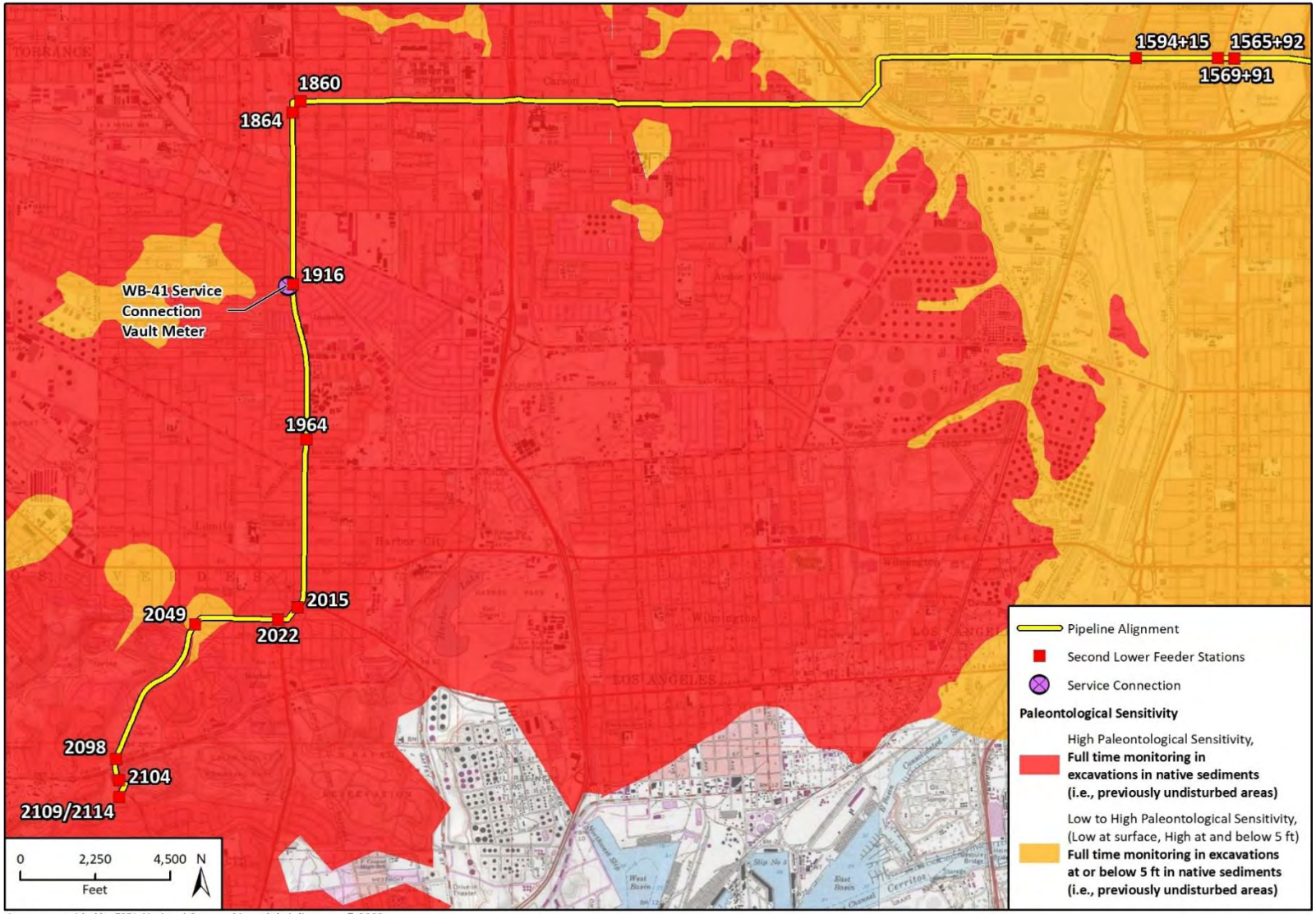
III. **Undetermined Potential (sensitivity)**. Specific areas underlain by sedimentary rock units for which little information is available are considered to have undetermined fossiliferous potentials. Field surveys by a qualified vertebrate paleontologist to specifically determine the potentials of the rock units are required before programs of impact mitigation for such areas may be developed.

IV. **No Potential.** Rock units of metamorphic or igneous origin are commonly classified as having no potential for containing significant paleontological resources.

2.3.3 Paleontological Resource Potential of the Project Area

Consistent with SVP (2010) resource assessment guidelines, Rincon determined the paleontological sensitivity of the project area based on a comprehensive literature review and museum locality search. The results of the study indicate that the geologic units underlying the project area have a paleontological sensitivity ranging from low to high. The older Quaternary alluvium, older Quaternary eolian deposits, San Pedro Formation, and Monterey Formation immediately underlying most of the project area are all assigned a high paleontological sensitivity because they have proven to yield vertebrate fossils near the project area and throughout the Los Angeles Basin. Holocene surficial alluvial deposits ($Qya_{2,}$ Qyf_2), underlying the northeastern project area and a small segment of the southwestern project area, have a low paleontological sensitivity at the surface because they are too young to preserve fossilized remains. At shallow depth, the Holocene alluvial deposits overlie sensitive Pleistocene age deposits across the project area. Therefore, the paleontological sensitivity of the Holocene deposits is determined to be low to high, increasing at a depth of about five feet below ground surface. Refer to Figure 3 for a map showing the paleontological sensitivity of the project area.

Figure 3 Paleontological Sensitivity of the Project Area



Imagery provided by ESRI, National Geographic and their licensors © 2020;
Additional data provided by Saucedo, et al., Geologic Map of Long Beach, 2016.

Fig 3 Paleo Sensitivity_Reach 3

3 Paleontological Resources Impact Mitigation Program

This PRIMP complies with mitigation measure (MM) CUL-6 *Develop a Program to Mitigate Impacts on Paleontological Resources for Each Contract Package* identified in the PEIR for the PCCP Program (Metropolitan 2016), elements of SVP Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (SVP 2010), and Conditions of Receivership for Paleontologic Salvage Collections (SVP 1996).

3.1 Retention of a Qualified Paleontologist

Prior to the start of ground disturbance Metropolitan will retain an experienced Qualified Paleontologist to implement this PRIMP and assign a Paleontological Monitor to be present during ground disturbance within *in situ* paleontologically sensitive strata (i.e., geologic deposits that are determined to have a high paleontological sensitivity and that have not been previously disturbed). A Qualified Paleontologist is defined by the SVP standards as an individual preferably with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, preferably southern California, and who has at least two years of experience as a paleontological mitigation project supervisor (SVP 2010). The Qualified Paleontologist will be responsible for the following tasks:

- **Worker Environmental Awareness Program (WEAP):** Supervise implementation of the WEAP training and conduct initial training session, or as directed by Metropolitan.
- **Implementation of PRIMP:** Ensure that the PRIMP is implemented in compliance with the approved mitigation measures and SVP (1996, 2010) standard guidelines.
- **Salvage Operations:** Be available for consultation with field monitors and Metropolitan staff on salvage operations, particularly when equipment and additional temporary monitors are needed to speed up fossil recovery.
- **Monitor Scheduling:** Coordinate and communicate with Metropolitan staff to determine the schedule for work in areas where disturbance will require a Paleontological Monitor (i.e., areas underlain by sediments that have been assigned a high paleontological sensitivity and that have not been previously disturbed).
- **Paleontological Oversight:** Directly oversee monitoring to ensure the collection of a representative sample of fossils when and if uncovered by ground-disturbing activities.
- **Locality and Site Data:** Ensure the proper documentation of associated specimen/sample data and corresponding geologic and geographic site data and the plotting of fossil/sample sites on maps.
- **Sediment Sampling:** Direct field and laboratory processing of sediment samples for microvertebrate fossils.
- **Fossil Identification:** Oversee and/or ensure the identification of fossils and the determination of significance (this may require consultation with other paleontological experts).
- **Curation:** Ensure that a proper curation facility is identified and a curation agreement is implemented. Ensure that all fossils and pertinent associated data are properly transferred to the curatorial institution.

- **Reporting:** Ensure preparation and Quality Assurance/Quality Control of the draft and final monitoring

The Paleontological Monitor(s) will be assigned by the Qualified Paleontologist and will meet the minimum qualifications per standards set forth by the SVP (2010), which include a B.S. or B.A. degree in geology or paleontology and one year of monitoring experience. The Paleontological Monitor(s) will be responsible for the following tasks.

- **WEAP Training:** Conduct initial training session in accordance with the WEAP, or as directed by Metropolitan.
- **Paleontological Monitoring:** Conduct day-to-day monitoring of all earth-moving activities in any area underlain by sediments that have been assigned a high paleontological sensitivity and that have not been previously disturbed.
- **Fossil Discoveries:** Flag newly discovered fossil sites and temporarily divert ground-disturbing equipment around the site, as necessary, until the fossil(s) has been evaluated and, if warranted, salvaged.
- **Fossil Salvage:** Salvage fossils uncovered by ground-disturbing activities.
- **Sediment Samples:** Collect potentially fossiliferous sediment samples to recover microfossils.
- **Log Construction Activity:** Document project-related ground-disturbing activities, their location, and other relevant information including a photographic record.
- **Fossil Data:** Take accurate and detailed field notes and photographs, and record associated specimen/sample and corresponding geologic and geographic site data including Universal Transverse Mercator (UTM) coordinate data.
- **Field Preparation:** Conduct initial (field) processing of fossiliferous sediment samples for microvertebrate fossils.
- **Fossil Preparation:** If directed, prepare fossils to the point of identification.
- **Reporting:** If directed, assist with the preparation of the draft and final reports.

3.2 Worker Environmental Awareness Program

Prior to construction, a WEAP presentation will be prepared and used to train site personnel prior to the start of work. The WEAP will include at a minimum the following information:

1) Review of local, state, and federal laws and regulations pertaining to paleontological resources.
2) The types of fossils that could be encountered during ground-disturbing activity.
3) Photos of example fossils for reference.
4) The paleontological monitoring that will be required during the project (including the types, depths and locations of ground-disturbing activity that will require paleontological monitoring or spot checking).
5) Instructions on the procedures to be implemented should unanticipated fossils be encountered during construction, including stopping work in the vicinity of the find and contacting a qualified professional paleontologist (Qualified Paleontologist).

In addition to these instructions, the Resident Engineer and Inspectors will also receive a list and contact info of the paleontological specialists and other environmental specialist associated with paleontological resources for this project.

3.3 Curation Agreement

Prior to the commencement of construction, Metropolitan, in coordination with the Qualified Paleontologist, should obtain a curation agreement with an accredited museum repository.

Conditions of acceptance of recovered fossils will be spelled out in a letter from the designated repository. In addition to the specimens, the repository must maintain "a complete set of GPS data, field notes, photographs, locality forms, and stratigraphic sections." Also, "specimens must be stored in a fashion that allows retrieval of specific, individual specimens by future researchers." An appropriate institution for curation of unique paleontological resources from this project area would preferentially be the NHMLAC.

3.4 Monitoring Earth Moving

Monitoring guidelines will follow procedures established by the SVP (2010). Paleontological monitoring is only required in areas that have not been previously disturbed. While it is anticipated that the majority of ground-disturbing activity would not disturb intact native geologic units due to the extensive previous development (e.g., residential, industrial, roads, etc.), project-related excavations that exceed previously disturbed areas in width or depth would require paleontological monitoring as detailed below and in Table 2.

All construction activities that disturb intact native sediments within areas of high paleontological sensitivity at the ground surface (i.e., Qoa, Qoe, Qsp, Qspl, Tma) will be monitored on a full-time basis by a qualified Paleontological Monitor. All construction activities that disturb intact native sediments at a depth greater than five feet below ground surface within areas of low-to-high paleontological sensitivity (i.e., Qya_2 and Qyf_2) will be monitored on a full-time basis by a qualified Paleontological Monitor.

Table 2 Paleontological Sensitivity Summary and Monitoring Locations of Excavation Areas

Geologic Unit(s)	Paleontological Sensitivity	Monitoring Recommendation and Duration	Excavation Areas (SLF Station #)
Quaternary younger alluvium (Qya_2 Qyf_2)	Low (surface), High (below 5 feet)	Full time in excavations below 5 feet in native sediments (i.e., previously undisturbed areas)	1594+15 (WB-37), 1569+91, 1565+92, 2049
Older Quaternary eolian deposits (Qoe)	High	Full time excavation in native sediments (i.e., previously undisturbed areas)	N/A
Older Quaternary alluvium (Qoa)	High	Full time excavation in native sediments (i.e., previously undisturbed areas)	1860, 1864, 1916, 1964, 2015, 2022, 2104, 2109/2114, WB-41
San Pedro Formation (Qsp, Qspl)	High	Full time excavation in native sediments (i.e., previously undisturbed areas)	2098
Monterey Formation (Tma)	High	Full time excavation in native sediments (i.e., previously undisturbed areas)	N/A

Full-time monitoring is defined as during 100% of earth-moving activities. If, no fossils of any kind have been discovered after 50% of excavations are complete in an excavation area, then the level of monitoring may be reduced or suspended, at the Qualified Paleontologist's discretion.

The SVP (2010) guidelines recommend paleontologists who monitor excavations must be experienced in locating and salvaging fossils and collecting necessary associated critical data. The Paleontological Monitor must be able to document the stratigraphic context of fossil discovery sites. Paleontological Monitors must be properly equipped with tools and supplies to allow rapid removal of specimens (see Section 3.5). The monitor must also be empowered to temporarily halt or redirect the excavation equipment away from fossils to be salvaged, including the implementation a 50-foot safety buffer and equipment exclusion zone around the area of a fossil discovery and salvage. The Qualified Paleontologist will consult with Metropolitan on salvage operations, particularly regarding the need for extra equipment and operator(s) to accelerate salvage operations.

Excavation methods will vary depending on the type of fossil and the nature of the surrounding matrix. Many macrofossils are easily recognized and removed by hand or with small hand tools. Some may be fragile and require treatment with a hardener before salvage. Others may require encasement within a plaster jacket. Specimens representing all or much of a skeleton may require removal as a whole or in large blocks. Such specimens typically require additional time to excavate and stabilize before removal. Construction schedules will be considered during the recovery of unique fossils, with the goal of reducing or avoiding construction delays.

After excavating the specimen or specimens, the Paleontological Monitor will assign a unique field number to each fossil specimen, fossil locality or sediment sample and record the field number and associated specimen/sample data (identification by taxon and element, sample size, etc.), corresponding geologic data (particularly lithology, stratigraphic unit, stratigraphic level within the unit, inferred age, etc.), and geographic site data (UTM coordinate location, elevation, etc.) in the field notes. Each field number and fossil/sampling site will be plotted on both a 1:24,000-scale topographic map and a measured section of the exposed stratigraphic sequence (if sufficiently exposed). Fossils will be prepared to the point of identification and identified to the lowest possible taxonomic level by a paleontologist who specializes in the appropriate taxonomic group (this may require outside consultation on fossil identifications). Specimen salvage and/or sediment sample

collection and recording of associated data will be completed as quickly as possible to minimize potential delays to excavation activities.

Immediately after the salvage of the specimen or collection of the sample(s), the Paleontological Monitor will remove all materials from the exclusion zone and notify Metropolitan of the status of the salvage operation. Upon receiving approval from Metropolitan and the Qualified Paleontologist, the Paleontological Monitor will communicate to the Construction Manager/Heavy Equipment Operator that earth moving can proceed. Provisions will be made for additional Paleontological Monitors to monitor or help in removing large or abundant fossils to reduce potential delays to excavation schedules.

3.5 Equipment and Supplies

Each Paleontological Monitor will be equipped with hand tools and supplies (e.g., geological hammer, shovel, pick, chisels, whisk broom, buckets, specimen bags, field notebook, daily monitoring report forms, pens, markers, and glue) to allow for the rapid salvage of fossil remains. Additional equipment and supplies (e.g., plaster, burlap, screens, wash tubs, hoses) for stabilizing and salvaging delicate fossil specimens and field processing of fossiliferous sediment samples will be kept on hand and made available when and if required to properly salvage fossil discoveries. The Construction Contractor may be requested to supply heavy equipment (typically a front-end loader) and an operator to assist in the rapid removal of a large fossil specimen(s) or sediment sample(s). Equipment and supplies for preparing fossil specimens, laboratory processing of screened matrix generated by field processing of sediment samples, and for temporary storage of all salvaged fossil specimens will be available via the Qualified Paleontologist.

3.6 Bulk Matrix Sampling

In accordance with MM CUL-6, bulk matrix sampling may be necessary to recover small invertebrates or microvertebrates from within sensitive Pleistocene deposits. SVP (2010) provides clear guidelines for the volume of bulk samples to be collected during construction monitoring activities. Fine-grained sedimentary horizons (e.g., mudstones and paleosols) can contain fossils that are too small to be readily visible within the sedimentary matrix and are referred to as "microvertebrates". These microvertebrates may be unique (e.g., small mammal, bird, reptile, amphibian, or fish remains) or may be associated with non-vertebrate paleoenvironmental indicators (e.g., foraminifers, small gastropods, and plant seeds) that can only be recovered through a process of bulk matrix sampling followed by screen washing through mesh screens. If indicators of potential microvertebrate fossils are found (e.g., plant debris, abundant mollusks, clay clasts, carbonate-rich paleosols, or mudstones), screening of a "test sample" (0.4 cubic yard/meter, ~600 lbs) may produce significant returns and indicate whether or not a larger sample needs to be screen washed. If a test sample returns unique fossils, a “standard sample” (4.0 cubic yards/meters, ~6,000 lbs or 2,500 kg) of matrix from each site, horizon, or paleosol should be collected and screen washed. However, the uniqueness of the microvertebrate fossils recovered may justify screen washing even larger amounts. With this possibility in mind, two standard samples (~8.0 cubic yards/meters) or more as determined by the Qualified Paleontologist should be collected when the discovery is first made and set aside in case processing of a larger sample is later determined to be necessary.

To avoid construction delays, samples of matrix may need to be removed from the project area and processed elsewhere. Chemicals (e.g., detergents, weak acids, orange oil, etc.) may be necessary to facilitate the breakdown of matrix. In some cases, the concentrate will need to be further processed using heavy liquids (e.g., zinc bromide, polytungstate, or tetrabromide) to remove mineral grains and create a concentrate enriched with microvertebrate bones and teeth. The concentrate should be directly examined under a microscope to locate and remove individual microfossils.

When warranted, sediment samples will be obtained and stored for potential future analysis by scientists. Such samples may include fine-grained sediment for pollen analysis; organic-rich sediments that may yield important scientific information on the age, paleoecology, or depositional environment of sedimentary units exposed by construction excavations; samples for paleomagnetic or radiometric analysis; and coarse sediment for clast source analysis. The Qualified Paleontologist will determine what samples should be collected during the construction excavation; however, these decisions should be made in the context of reasonable expectations that sample collection will yield valuable results that will add to the scientific record of the geologic units from which samples are collected. Reasonable expectations of positive results might include such evidence as abundant macrofossil discoveries in the immediate vicinity, the presence of abundant fragmentary fossils and lithology indicators of potentially fossiliferous units.

3.7 Laboratory Preparation and Curation

Fossil remains collected during monitoring will be sorted/picked, identified, and catalogued. Once collected, preparation of fossil specimens may involve removal of extraneous and concealing sedimentary matrix from specimens using simple hand tools (e.g., hammers, chisels, X-acto knives, brushes, dental picks, and pin vises), and stabilization with glues or consolidants (e.g., butvar). Once sorted, prepared and stabilized, individual fossils will then be identified to the lowest taxonomic level possible (e.g., class, family, genus, species). Descriptions of fossil localities, including geographic, stratigraphic, geologic, and taphonomic data, will be compiled and stored electronically for submission at the time of curation. Curation would require placement of fossils into archival specimen trays with labels containing relevant curatorial information. Field collection and preparation of fossil specimens will be performed by the Qualified Paleontologist with further preparation as needed by an accredited museum repository institution at the time of curation.

Following preparation, fossils will be temporarily stored in an appropriate storage space within the office of the Qualified Paleontologist until they can be properly accessioned at the designated curatorial institution for permanent storage. All fossil resources collected on private property are the property of the land owner. Fossils collected on public lands remain the property of the public entity responsible for those lands (i.e., State, County, City, etc.).

3.8 Report of Findings

Following the completion of paleontological monitoring for the project, a final technical report of findings will be prepared under the direction of the Qualified Paleontologist and will include the results of the paleontological monitoring. The final report will include or discuss the following (as applicable):

1) Presentation of background for the project's paleontological monitoring program.
2) Discussion of the geology and stratigraphy of units exposed during excavations.

3) Discussion of mitigation methods, including fossil treatment, and recommendations for additional work.
4) Discussion of the uniqueness and importance of salvaged fossil remains (if any).
5) Presentation of the results and findings of analyses conducted on the fossil remains (if any) including all associated locality data included as an appendix.
6) Discussion of the research questions that were resolved or raised as a result of the analyses.
7) Faunal list of any fossils collected.
8) Brief statement of the significance and relationship of the site to similar fossil localities.
9) A complete set of field notes.
10) Geological maps.
11) Stratigraphic sections.
12) Photographs.
13) A list of identified specimens, if recovered.
14) Locality data, including United States Geological Survey standard 1:24,000-scale topographic map showing each locality from which a significant fossil was collected and a measured stratigraphic section or sections, as appropriate, should be included as a *Confidential Appendix*.

The final report, together with its accompanying documents, constitutes the final objective of the PRIMP. Copies of the final report will be deposited with Metropolitan and with the designated museum repository, if applicable. Acceptance of the final report by Metropolitan and accession of any fossil remains discovered into an accredited museum repository will confirm that the project has caused less-than-significant impacts to unique paleontological resources and will signify completion of the mitigation program for the project.

4 Conclusions

As detailed above, paleontological monitoring will only be necessary when construction activity results in ground disturbances within previously undisturbed intact (native) geologic units (refer to Table 2 and Figure 3). This includes full-time monitoring for excavations of intact (native) sediments in older Quaternary alluvium, older Quaternary eolian deposits, San Pedro Formation, and Monterey Formation (i.e., SLF Stations 1860, 1864, 1916, 1964, 2015, 2022, 2098, 2104, 2109/2114, and WB-41) and when ground disturbance exceeds five feet in younger Quaternary alluvium (i.e., SLF Stations 1594+15 (WB-37), 1569+91, 1565+92, 2049). Full implementation of and compliance with the mitigation measures in this PRIMP will reduce adverse impacts to paleontological resources to a less than significant level as required under CEQA.

5 Preparers

David Daitch, Ph.D., serves as a Principal Investigator with Rincon Consultants. Mr. Daitch received a bachelor's degree in Biology from the Evergreen State College, Olympia Washington, a master's degree in Paleontology from the University of Colorado Boulder, and a Doctorate in Evolutionary Biology from the University of Colorado, Boulder. During his 22-year tenure as a professional consulting paleontologist he has successfully completed hundreds of projects throughout California, Nevada, Utah, New Mexico, Colorado, Wyoming, Idaho and South Dakota. Dr. Daitch has routinely directed paleontological field surveys and assessments, evaluated impacts to paleontological resources under CEQA and NEPA, conducted and overseen mitigation monitoring of construction activities, fossil salvage and collection, as well as laboratory preparation and analysis of micro- and macrofossils. He has experience with museum curation and conducted a wide range of technical reporting. Dr. Daitch has field and laboratory experience in plant, invertebrate and vertebrate paleontology.

Jorge L. Mendieta, B.A., serves as an Associate Paleontologist/Geologist with Rincon Consultants. Mr. Mendieta received a bachelor's degree in geology from Hamilton College. He has three years of paleontological consulting experience performing geologic and paleontological assessments, including field work, construction monitoring, preparation of CEQA environmental documents, fossil salvage, and geologic mapping. Mr. Mendieta has conducted field work on federal, state, and private land throughout California for a variety of project types including water delivery infrastructure, transportation, renewable energy, power generation and transmission, and residential and commercial developments.

6 References

Agenbroad, L.D. 2003. New localities, chronology, and comparisons for the pygmy mammoth (Mammuthus exilis). In J. Reumer (ed.): Advances in Mammoth Research, Proceedings of the 2nd International Mammoth Conference, Rotterdam, the Netherlands. DEINSEA 9:1-16.

Bell, C.J., E.L. Lundelius, Jr., A.D. Barnosky, R.W. Graham, E.H. Lindsay, D.R. Ruez, Jr., H.A. Semken, Jr., S.D. Webb, and R.J. Zakrzewski. 2004. The Blancan, Irvingtonian, and Rancholabrean Mammal Ages. In Woodburne, M.O. (ed.) Late Cretaceous and Cenozoic Mammals of North America: Biostratigraphy and Geochronology. Columbia University Press, New York, pp. 232-314.

Berndmeyer, C., Birgel, D., Brunner, B., Wehrmann, L.M., Jöns, N., Bach, W., Arning, E.T., Föllmi, K.B., and Peckmann, P. 2012. The Influence of Bacterial Activity on Phosphorite Formation in the Miocene Monterey Formation, California. Palaeogeography, Palaeoclimatology, Palaeoecology 317, 171-181.

Beyer, Larry, A. 1995. Los Angeles Basin Province (014). In National Assessment of United States Oil and Gas Resources—Results, Methodology, and Supporting Data, edited by D. Gautier, G. L. Dolton, K. I. Takahashi, K. L. Varnes. U.S. Geological Survey Digital Data Series 30. Reston, Virginia.

Bramlette, M. N. 1946. The Monterey Formation of California and the Origin of its Siliceous Rocks. U.S. Geological Survey Professional Paper 212.

California Geological Survey (CGS). 2002. California Geomorphic Provinces, Note 36.

DeBusk, J.L., Strauss, J.J., and Corsetti, C. 2009. Final Paleontological Resources Monitoring and Mitigation Report, Knoll Hill Drive Project, ADP #090325752, San Pedro, Los Angeles County, California. Prepared for CDM by SWCA Environmental Consultants.

Department of Water Resources. 1961. Appendix A Ground Water Geology, in. Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County. State of California Department of Water Resources Bulletin No. 104. 188pp., 26 plates.

Harden, Deborah R. 1998. California Geology. Upper Saddle River, N.J., Prentice Hall.

Jacobs, S. 2005. The Pleistocene of the Palos Verdes Peninsula. Los Angeles Basin Geological Society Newsletter, January Meeting.

Jefferson, G.T. 1985. Review of the Late Pleistocene avifauna from Lake Manix, central Mojave Desert, California. Contributions in Science, Natural History Museum of Los Angeles County, 362:1-13.

----------. 1989. Late Cenozoic tapirs (Mammalia: Perissodactyla) of western North America. Natural History Museum of Los Angeles County, Contributions in Science, 406:1-22.

----------. 1991. A catalogue of late Quaternary vertebrates from California. Part two, mammals. Natural History Museum of Los Angeles County Technical Report, 7:1-129.

Koch, A.L., Santucci, V.L., and Weasma, T.R. 2004. Santa Monica Mountains National Recreation Area Paleontological Survey. U.S. Department of Interior, National Park Service, Geologic Resources Division, Technical Report NPS/NRGRD/GRDTR-04/01.

LaFollette, P.I. 2009. Pleistocene Mollusca from Knoll Hill, San Pedro, California – Including a Unique Lagoon Fauna in J. L. DeBusk, J. J. Strauss, and C. Corsetti, eds., Final Paleontological Resources Monitoring and Mitigation Report, Knoll Hill Drive Project, ADP #090325752, San Pedro, Los Angeles County, California. Prepared for CDM by SWCA Environmental Consultants.

Maguire, K.C. and P.A. Holroyd. 2016. Pleistocene vertebrates of Silicon Valley (Santa Clara County, California). PaleoBios 33(1):1-14.

Merriam, J.C. 1911. The Fauna of Rancho La Brea; Part I: Occurrence. Memoirs of the University of California, 1(2):197-213.

McCulloh, T. H., and L. A. Beyer. 2004. Mid-Tertiary isopach and lithofacies maps for the Los Angeles region, California: templates for palinspastic reconstruction to 17.4 Ma: United States Geological Survey, Professional Paper 1690, p. 1–32.

McLeod, Samuel A. 2015. Paleontological Resources for the proposed Second Lower Feeder of the Metropolitan Water District of Southern California PCCP Project. Letter Report from the Natural History Museum of Los Angeles County, 8 April 2015.

Norris, Robert M., and Robert W. Webb. 1990. Geology of California. John Wiley & Sons, New York.

Powell, C. L., and Stevens, D. 2000. Age and Paleoenvironmental Significance of mega-invertebrates from the San Pedro Formation in the Coyote Hills, Fullerton and Buena Park, Orange County, Southern California. U.S. Geological Survey Open-file Report 00-319.

Reynolds, R.E., R.L. Reynolds, and A.F. Pajak, III. 1991. Blancan, Irvingtonian, and Rancholabrean(?) land mammal age faunas from western Riverside County, California. In Inland southern California: the last 70 million years. M.O. Woodburne, R.E. Reynolds, and D.P. Whistler (eds.) San Bernardino County Museum Association Quarterly, 38(3-4):37-40.

Saucedo, G.J., Greene, H.G., Kennedy, M.P., and Bezore, S.P. 2003. Geologic map of the Long Beach 30' x 60' quadrangle, California: A digital database. California Geological Survey, Preliminary Geologic Maps, scale 1:100,000.

----------. 2016. Geologic Map of the Long Beach 30’x60’ Quadrangle, California. Department of Conservation, California Geologic Survey, Regional Geologic Map Series, scale 1:100,000.

Savage, D.R. 1951. Late Cenozoic vertebrates of the San Francisco Bay region. University of California Publications, Bulletin of the Department of Geological Sciences, 28:215-314.

Savage, D.E., T. Downs, and O.J. Poe. 1954. Cenozoic land life of southern California in R.H. Jahns ed., Geology of Southern California. California Division of Mines and Geology, 170, Ch. III, pp. 43-58.

Scott, E. and S.M. Cox. 2008. Late Pleistocene distribution of Bison (Mammalia; Artiodactyla) from the Mojave Desert of southern California and Nevada. In X. Wang and L.G. Barnes (eds.) Geology and vertebrate paleontology of western and southern North America: Contributions in Honor of David P. Whistler. Natural History Museum of Los Angeles County, Science Series, 41:359-82.

Scott, E., and K. Springer. 2003. CEQA and Fossil Preservation in California. The Environmental Monitor Fall 2003. Association of Environmental Professionals, Sacramento, California.

Schoellhamer, J. E., D. M. Kinney, R. F. Yerkes, and J. G. Vedder. 1954. Geologic map of the northern Santa Ana Mountains, Orange and Riverside Counties, California. U.S. Geological Survey Oil and Gas investigations Map OM 154.

Society of Vertebrate Paleontology (SVP). 1996. Conditions of Receivership for Paleontologic Salvage Collections. Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee. Society of Vertebrate Paleontology News Bulletin 166:31-32, February 1996.

----------. 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Society of Vertebrate Paleontology Impact Mitigation Guidelines Revision Committee.

Springer, K., E. Scott, J.C. Sagebiel, and L.K. Murray. 2009. The Diamond Valley Lake local fauna: Late Pleistocene vertebrates from inland southern California. In Albright, L.B. III (ed.), Papers on Geology, Vertebrate Paleontology, and Biostratigraphy in Honor of Michael O. Woodburne. Museum of Northern Arizona Bulletin, 65:217-36.

The Metropolitan Water District of Southern California (Metropolitan). 2016. Final Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. SCH No. 2014121055. Metropolitan Report No. 1527

Tomiya, S., J.L. McGuire, R.W. Dedon, S.D. Lerner, R. Setsuda, A.N. Lipps, J.F. Bailey, K.R. Hale, A.B. Shabel, and A.D. Barnosky. 2011. A report on late Quaternary vertebrate fossil assemblages from the eastern San Francisco Bay region, California. PaleoBios 30(2):50-71.

University of California Museum of Paleontology (UCMP) Online Database. 2017. UCMP specimen search portal, http://ucmpdb.berkeley.edu/.

Wilkerson, G., T. Elam, and R. Turner. 2011. Lake Thompson Pleistocene mammalian fossil assemblage, Rosamond. In Reynolds, R.E. (ed.) The Incredible Shrinking Pliocene: The 2011 Desert Symposium Field Guide and Proceedings. California State University Desert Studies Consortium, Pp. 88-90.

Winters, H.H. 1954. The Pleistocene fauna of the Manix Beds in the Mojave Desert, California. Master's Thesis, California Institute of Technology. 71 pp.

Woodring, W. P., M. N. Bramlette, and W. S. W. Kew. 1946. Geology and Paleontology of Palos Verdes Hills, California. U.S. Geological Survey Professional Paper 207. U.S. Department of the Interior, Washington, D.C.

Yerkes, R. F., and R. H. Campbell. 2005. Preliminary geologic map of the Los Angeles 30´ x 60´ quadrangle, southern California: United States Geological Survey, Open-File Report OF-97-254, scale 1:24,000.

Yerkes, R.F., J. E. McCulloh, J. E. Schoellhamer, and J. G. Vedder. 1965. Geology of the Los Angeles Basin California-An Introduction, United States Department of the Interior, Geology Survey, Professional Paper 420-A

Appendix E
Construction Noise Technical Report

Second Lower Feeder Reach 3 Project

Construction Noise Technical Report

December 2021 | 00501.00024.003

Prepared for:

The Metropolitan Water District
of Southern California
Environmental Planning Team
700 North Alameda Street
Los Angeles, CA 90012

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

Second Lower Feeder Reach 3 Project

Construction Noise Technical Report

Prepared for:

The Metropolitan Water District
of Southern California
Environmental Planning Section
700 North Alameda Street
Los Angeles, CA 90012

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

December 2021 | 00501.00024.003

TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS (cont.)

LIST OF APPENDICES

LIST OF FIGURES

TABLE OF CONTENTS (cont.)

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

ADT	average daily traffic
ANSI	American National Standards Institute
CadnaA	Computer Aided Noise Abatement
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibel
Defra	Department of Environment, Food and Rural Affairs (United Kingdom)
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
in/sec	inches per second
kHz	kilohertz
L_{DN}	Day-Night level
L_{EQ}	equivalent sound level
Metropolitan	The Metropolitan Water District of Southern California
mPa	micro-Pascals
NSLU	noise-sensitive land use
PCCP	Prestressed Concrete Cylinder Pipeline
PEIR	Programmatic Environmental Impact Report
RCNM	Roadway Construction Noise Model
SF	Sepulveda Feeder
SLF	Second Lower Feeder
SPL	sound pressure level
S_{WL}	sound power level
USDOT	U.S. Department of Transportation

EXECUTIVE SUMMARY

This noise impact report assesses the potential acoustical impacts from construction of The Metropolitan Water District of Southern California's (Metropolitan) Second Lower Feeder Reach 3 of the Prestressed Concrete Cylinder Pipeline (PCCP) Rehabilitation Program (project). A Programmatic Environmental Impact Report (PEIR) was prepared for the PCCP Rehabilitation Program and it concluded that noise impacts from project construction would be significant and unavoidable at some locations. The PEIR, therefore, requires subsequent project-specific noise analyses to be conducted for future construction activities located in close proximity to noise-sensitive land uses (NSLUs) such as residences or schools. This report identifies ambient noise levels, construction-related noise levels at specific noise-sensitive locations (receptors), and measures that can be used to reduce noise levels (as appropriate).

The project's pipeline alignment traverses the cities of Los Angeles, Torrance, Lomita, Rolling Hills Estates, Long Beach, and Carson. The project would reline approximately 26,000 linear feet (4.9 miles) of PCCP in the Second Lower Feeder and approximately 300 linear feet in the Sepulveda Feeder with prefabricated coiled steel liner, and upgrade additional components associated with the pipeline.

Vibration from construction is not anticipated to cause significant impacts to nearby receptors.

Construction activity would generate elevated noise levels at each pipe access site and at multiple locations along the alignment for additional infrastructure improvements, such as manholes, isolation valves, and service connections. Elevated noise levels would lead to significant impacts at multiple locations during both daytime and nighttime hours. The PEIR requires the implementation of mitigation measures (MM) NOI-1 to reduce vibration levels, and MM NOI-2 through MM NOI-4 to reduce noise levels.

To comply with PEIR MM NOI-3, additional project-specific measures are required to attenuate noise levels (see Section 4.4.4 for MM NOI-3.1 through MM NOI-3.4). Mitigation measure NOI-3.1 would require construction activity to comply with the thresholds of each jurisdiction, as feasible. Mitigation measure NOI-3.2 would require noise-reduction measures for excavation at pipe access sites and for pipeline relining activities, including noise attenuation devices/modifications to construction equipment, limiting hours of operation, or erecting construction noise barriers. To reduce noise levels, MM NOI-3.3 would require setback distances for mobile operations along the pipeline alignment. Mitigation measure NOI-3.4 would require implementation of a Nighttime Construction Management Plan for proposed nighttime construction activity.

Even with implementation of project-specific measures (MM NOI-3.1 through MM NOI-3.4), construction-related noise levels may not be reduced to local standards during daytime and nighttime hours, and impacts would remain potentially significant and unavoidable. The severity of impacts, however, would be the same as that identified in the PEIR.

This page intentionally left blank

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

In December 2016, a Programmatic Environmental Impact Report (PEIR) was prepared for The Metropolitan Water District of Southern California's (Metropolitan) Prestressed Concrete Cylinder Pipeline (PCCP) Rehabilitation Program (SCH #2014121055). The PEIR concluded that noise impacts from project construction would be significant and unavoidable at some locations. PEIR MM NOI-3 from the PEIR requires project-level noise studies to be conducted for construction activities located near noise-sensitive land uses or NSLUs (such as residences or schools).

This report satisfies the requirements of PEIR MM NOI-3 by providing project-level analysis of potential construction-related noise impacts associated with construction of Reach 3 of the Second Lower Feeder (project). The analysis identifies ambient noise levels, construction-related noise levels at specific noise-sensitive locations (receptors), and measures that can be used to reduce noise levels (as appropriate).

1.2 PROJECT DESCRIPTION

The proposed project covers rehabilitation of a 4.9-mile section of the 78-inch-diameter Second Lower Feeder in the city of Los Angeles (Los Angeles), city of Torrance (Torrance), city of Lomita (Lomita), and city of Rolling Hills Estates (Rolling Hills Estates) and a 300-linear-foot section of the 84-inch-diameter Sepulveda Feeder in Los Angeles and Torrance (see Figure 1, *Regional Location*, and Figure 2, *Project Components*).

The proposed project would reline approximately 26,000 linear feet (4.9 miles) of PCCP along the Second Lower Feeder and approximately 300 linear feet along the Sepulveda Feeder with prefabricated coiled steel liner, extending from Second Lower Feeder (SLF) Station 1860+10 (located at the intersection of Western Avenue and 220th Street in the Los Angeles) to SLF Station 2116+84 (located adjacent to the Palos Verdes Reservoir in Rolling Hills Estates) and from Sepulveda Feeder (SF) Station 2270+46 to SF Station 2273+29 (located along Western Avenue between 219th Street and 220th Street in Torrance and Los Angeles). Rehabilitation activities would occur throughout the project footprint including air release/ vacuum valve relocations, valve replacements, pumpwell air vent installations, maintenance hole enlargements, incorporation of new maintenance holes, and other minor work.

Construction within the pipelines would occur over three phases referred to as Phase 3a, Phase 3b, and Phase 3c. Each of the three phases would include a four-month shut down period (January to April 2023 for Phase 3a, January to April 2024 for Phase 3b, and January to April 2025 for Phase 3c). During these shut downs, the Second Lower Feeder would be shutoff and dewatered from Station 1475+25 (located on Bixby Road west of Long Beach Boulevard in the city of Long Beach) to Station 2116+84 (located adjacent to the Palos Verdes Reservoir in the city of Rolling Hills Estates) and the Sepulveda Feeder would be shut down and dewatered from Station 1927+65 (located on Van Ness Avenue at El Segundo Boulevard in the city of Gardena) to Station 2273+36 (located on Western at 220th Street in the city of Torrance). Construction activities would include:

- Approximately 21 months of mobilization and traffic control work, including 12 months of pipeline rehabilitation activities as follows: Beginning in December 2022, equipment would be mobilized, and traffic control would be set up. Water service shutdowns would begin in

January 2023 and the pipelines returned to service the end of April 2023. Traffic controls and equipment would be removed by the end of June 2023. In December 2023, equipment would again be mobilized, and traffic control set up. Water service shutdowns would begin in January 2024, and the pipelines returned to service in April 2024. Traffic controls and equipment would be removed by the end of June 2024. In December 2024, equipment would again be mobilized for a third time, and traffic control would be set up. Water service shutdowns would begin in January 2025 and the pipelines returned to service in April 2025. Traffic controls and equipment would be removed by the end of June 2025.

- Dewatering activities, as well as pipeline relining activities and ventilation would generally occur 24 hours per day, Monday through Sunday. Other construction activities, such as excavation, would generally be limited to 7:00 a.m. to 7:00 p.m. Monday through Friday, and on Saturdays when necessary and with prior approval of the Engineer in accordance with local cities and municipalities. Noise attenuation measures would be implemented where needed, consistent with the PEIR, and appropriate jurisdictional permits will be obtained.

- After all rehabilitation activities have been completed, for a period of five to ten days, the Second Lower Feeder and Sepulveda Feeder would be disinfected in accordance with American Water Works Association (AWWA) and American National Standards Institute (ANSI) standards. After disinfection, both feeders would be returned to service.

The following sections describe the components of the PCCP Program generally and how those components would be implemented as part of the proposed project.

1.2.1 Project Components

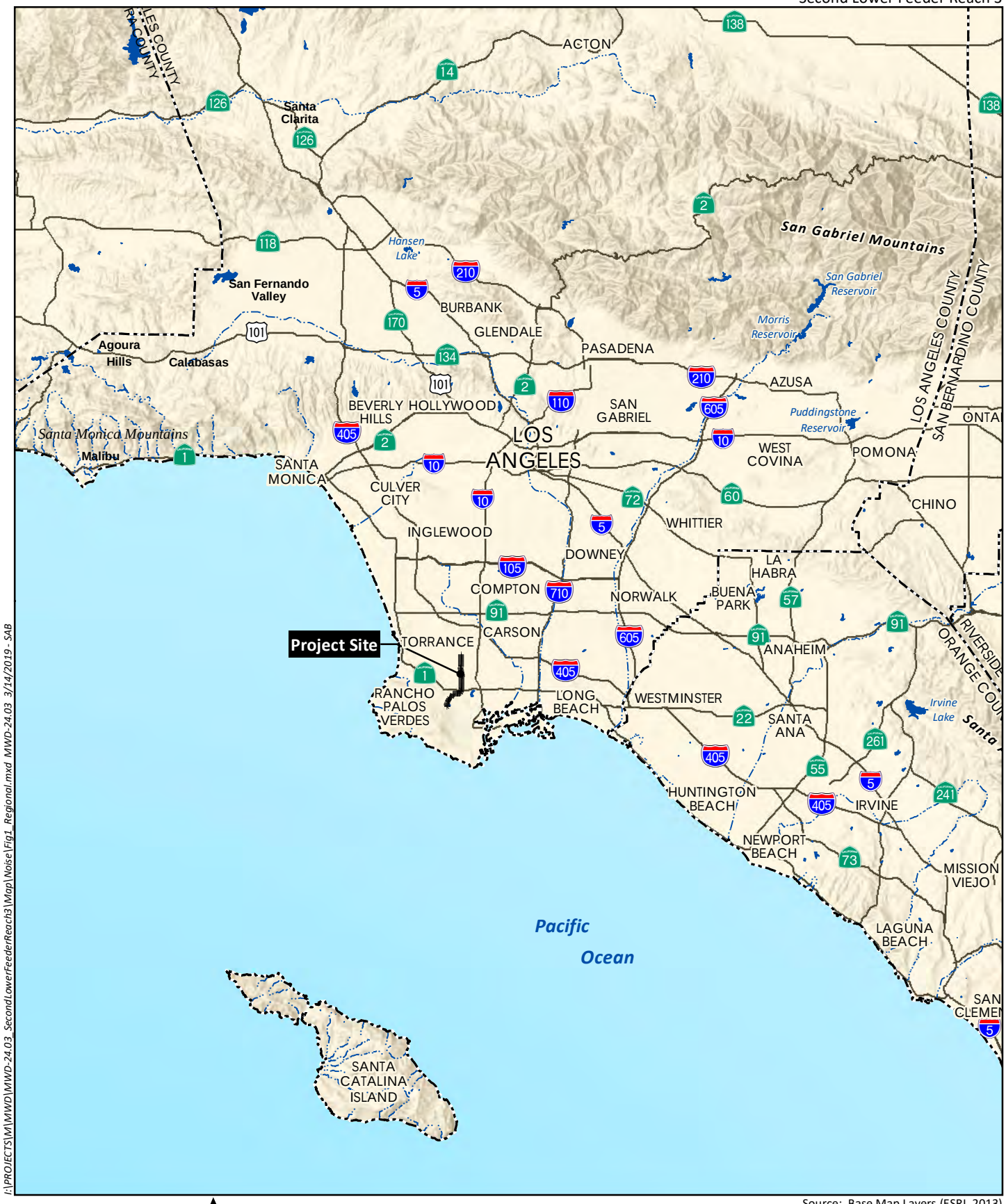
As discussed in the PEIR, rehabilitation of PCCP can be categorized as primary, secondary, and associated temporary construction components. These components and the various methods needed to construct, install, and operate the pipeline are summarized below and would be used as appropriate for rehabilitation efforts under the proposed project.

- Primary components include the different methods of rehabilitation considered for segments of the pipelines under the PCCP Program. The rehabilitation method that would be used for this proposed project would be steel cylinder relining with coiled pipe.

- Secondary components include permanent appurtenant structures. These appurtenant structures include buried (underground) structures and aboveground enclosures. Buried structures include vaults that house piping such as those at interconnections and equipment such as valves, meters, service connections, and blow-offs. Above ground enclosures, typically located on sidewalks or median strips, house air release/vacuum valves and air vents.

- Temporary construction components include pipe access sites, structure excavation sites, contractor work areas, and equipment staging areas.

Second Lower Feeder Reach 3



HELIX Environmental Planning

Regional Location

Figure 1

Second Lower Feeder Reach 3

Second Lower Feeder Project Alignment
Sepulveda Feeder Project Alignment
Pipe Access Site
City Boundary

1863
1860
1916
1964
2022
2015
2034
2098
2109
2114

Western Ave
223rd St
W 223rd St
Plaza Del Amo
Maple Ave
Sepulveda Blvd
Arlington Ave
Cabrillo Ave
W 228th St
W Sepulveda Blvd
235th St
Los Angeles Unincorporated
Lomita Blvd
Torrance
Los Angeles
Torrance
Lomita
Narbonne Ave
Skypark Dr
Normandie Ave
Eshelman Ave
Lomita Blvd
W Lomita Blvd
Crenshaw Blvd
Pacific Coast Hwy
Western Ave
S Vermont Ave
Lomita
Lomita
Los Angeles
W Anaheim St
Torrance
Rolling Hills Estates
Rolling Hills Estates
N Gaffey St
Palos Verdes Dr N
Western Ave
Palos Verdes Dr E
Lomita
Rancho Palos Verdes
Rolling Hills Estates
Rancho Palos Verdes
Rancho Palos Verdes
Los Angeles
Rolling Hills Estates
Rolling Hills

0 1,500 Feet

Source: Aerial (Maxar, 2020)

I:\PROJECTS\M\MetropolitanWaterDistrictCA_00501\MWD-24.03_SecondLowerFeederReach3\Map\Noise\Fig2_ProjectComponents.mxd 00501.24.03 12/3/2021 - SAB

HELIX Environmental Planning

Project Components

Figure 2

1.2.1.1 Primary Project Components

Steel cylinder relining rehabilitation of PCCP would involve the following:

- Inserting coiled steel cylinders into the existing PCCP line;
- Expanding the coiled steel cylinder to fit properly within the PCCP interior;
- Welding the steel cylinder within the PCCP;
- Filling the annular space between the steel cylinder and existing PCCP with concrete grout; and
- Applying a cement mortar lining to the interior surface of the steel cylinder.

Most of the rehabilitation activities would occur within the existing pipeline, and site impacts would occur primarily at the pipe access sites. All the work described above would be done inside the existing pipeline and at pipe access sites along the existing pipeline alignment.

1.2.1.2 Secondary Project Components

Pipeline systems typically include equipment vaults that house water meters, isolation valves, check valves, bypass valves, back-flow preventer valves, pressure-reducing valves, pump wells, service connections, and blow-offs. The top of the structures are typically several feet below ground surface and the structures are accessed via ladders from street-level hatches or maintenance holes.

Maintenance Holes and Aboveground Enclosures

Maintenance holes typically provide access for maintenance and repairs and are spaced at regular intervals along pipelines. Existing maintenance holes would be used for ventilation, as well as for access to the interior of the pipeline for personnel, small equipment, and materials during rehabilitation of other project components (e.g., pipeline relining).

The proposed project would include the following four activities related to maintenance holes: maintenance hole enlargement, maintenance hole refurbishment, relocation of air release and vacuum valves at nine maintenance hole vaults to above-ground location, and installation of new maintenance hole sleeve outlets. Each activity is further described below.

Maintenance hole enlargement would occur at the five existing maintenance holes shown in Table 1, *Maintenance Hole Enlargement Sites*. If determined to be necessary, the five maintenance hole enlargement sites may also be used as pipe access sites. Therefore, in order to provide flexibility during construction, these sites are conservatively assumed to also be used as pipe access sites with an average excavation area of 86 feet by 34 feet.

Table 1
MAINTENANCE HOLE ENLARGEMENT SITES

Site	Location	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)
SLF Sta. 1875+56	Within the center of Western Avenue, immediately south of W 223rd Street	150 x 35
SLF Sta. 1899+76	Within the east side of Western Avenue, north of Sepulveda Boulevard	200 x 40
SLF Sta. 1957+80	Within the Western Ave median adjacent to W 246th Street	20 x 40
SLF Sta. 2034+32	On the north side of 262nd Street, west of Monte Vista Avenue	40 x 15
SLF Sta. 2045+04	Within the grassy parkway on the south side of 262nd Street west of Murad Avenue	20 x 40

Note: For irregularly shaped work areas, the maximum width and length are presented in the table.
SLF = Second Lower Feeder; Sta. = Station Number

California State Water Resources Control Board regulations require that all treated water supply systems be protected from potential contamination. Air release/vacuum valves currently located in vaults along the project pipeline have a potential to introduce contaminants into the Second Lower Feeder. The purpose of these valves is to control air pressure in the mainline by automatically opening to the atmosphere to allow air into or out of the pipeline during dewatering or filling operations. Being located in underground vaults that are susceptible to flooding with rain runoff or seepage water, there is a possibility that as these valves open, they will allow water that has flooded the vault into the pipeline, thereby contaminating it with rain-runoff or seepage water pollutants. Therefore, per the aforementioned regulations, existing air release/vacuum valves in underground vaults along the project will be relocated above ground.

The relocation of air release/vacuum valves from below ground to above ground would involve running new piping from the existing valve connection point in the vault to a nearby above-ground location and installing a new valve above ground. This would require shallow trenching from the existing belowground vault to the parkway location.

For the proposed project, the trench would be approximately two feet wide and about five feet deep. The length of the trench would vary with the size of the street to be crossed, as valves would be moved from their current underground locations within the roadway to a nearby area outside the roadway. In addition, the access structures would be retrofitted with locking manhole covers, and the access structure ring would be removed.

The new above ground air release/vacuum valves would be housed in small enclosures within the public right-of-way in a median or within Metropolitan-owned property. Table 2, *Air Release/Vacuum Valve Relocation Sites*, identifies the locations where air release/vacuum valves would be relocated above ground.

Following the equipment relocation, the remaining equipment in the maintenance vaults would be repainted. Additionally, existing mortar coating would be removed, existing steel pipe coated, and new steel pipe sleeves would be installed in 24 maintenance holes and in two side outlets.

Table 2
AIR RELEASE/VACUUM VALVE RELOCATION SITES

Site	Location	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)
SLF Sta. 1863+24	Within the sidewalk on the east side of Western Avenue south of 220th Street	20 x 40
SLF Sta. 1910+14	Within the Western Avenue median north of 234th Street	20 x 40
SLF Sta. 1918+31	Within the sidewalk on the west side of Western Avenue south of 235th Street	20 x 40
SLF Sta. 1934+77	Within the Western Avenue median south of 238th Street	20 x 40
SLF Sta. 1957+80	Within the Western Avenue median adjacent to W 246th Street	20 x 40
SLF Sta. 1963+48	Within the east side of Western Avenue adjacent to W 247th Place	20 x 40
SLF Sta. 2034+32	On the north side of 262nd Street, west of Monte Vista Avenue	40 x 14.5
SLF Sta. 2045+04	Within the grass parkway on the south side of 262nd Street west of Murad Avenue	20 x 40
SLF Sta. 2101+17	Within the dirt parkway on Palos Verdes Drive E south of Palos Verdes Drive N	20 x 40

Note: For irregularly shaped work areas, the maximum width and length are presented in the table.
SLF = Second Lower Feeder; Sta. = Station Number

Pumpwells and Blow-off Structures

As discussed in the PEIR, pumpwells and blow-off structures along pipelines are used to dewater the pipeline into natural creeks, channels, waterways, and storm drains when a shutdown of the pipeline is necessary. Pumpwells allow temporary pumps to be used to dewater a pipeline. Blow-offs allow gravity to dewater the pipelines. Pumpwells and blow-offs also provide access points for routine maintenance or pipeline inspection. These structures are typically located within the buried equipment vaults.

Table 2, *Pumpwell Isolation Valve Replacement and Blow-off Structure Improvement Locations*, identifies the location and improvements that would occur at the one pumpwell and three blowoff isolation structures within the project limits.

Table 3
PUMPWELL ISOLATION VALVE REPLACEMENT AND BLOW-OFF STRUCTURE IMPROVEMENT LOCATIONS

Site	Location	Improvement	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)
SLF Sta. 1875+56	Within the sidewalk on the east side of Western Avenue south of 223rd Street	Install new vent stack for pump well structure	50 x 20
SLF Sta. 1920+30	Within the Western Avenue median south of W 235th Street	Modify blow-off structure	140 x 40
SLF Sta. 1961+70	Within the Western Avenue median south of W 247th Street	Modify blow-off structure	140 x 40
SLF Sta. 1973+18	Within the southbound lanes of Western Avenue on the southwest corner of Western Avenue and Lomita Boulevard	Modify blow-off structure	140 x 40

Note: For irregularly shaped work areas, the maximum width and length are presented in the table.
SLF = Second Lower Feeder; Sta. = Station Number

Isolation Valves and Flow Meters

The proposed project would involve the removal of three existing and installation of three new mainline isolation valves, including rehabilitation of the existing valve vault structures and replacement of appurtenances. The work also includes removal of two existing flow meters within the valve vault structures, and replacement of both meters within the new pipe sections. The proposed project also includes removal of one existing and installation of one new stand-alone meter within Oak Street. The three new isolation valves would require structural modifications to the existing large reinforced concrete vault structures within existing developed streets, including mechanical, electrical, instrumentation, and controls equipment. Table 4, *Sectionalizing Valve Vault and Flow Meter Vault Structures Improvement Locations*, identifies the location and improvements that would occur at the three isolation valve vaults and two flow meter vault structures within the project limits.

Table 4
SECTIONALIZING VALVE VAULT AND FLOW METER VAULT STRUCTURES
IMPROVEMENT LOCATIONS

Site	Location	Improvement	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)
SLF Sta. 1859+80	Within westbound lane of 220th Street east of Western Avenue	Isolation valve and flow meter replacement, and modify existing vault structure	230 x 45
SLF Sta. 1865+41	Within the median on Western Avenue south of 220th Street and north of 221st Street	Isolation valve and flow meter replacement, and modify existing vault structure	200 x 40
SLF Sta. 2050+00	In Oak Street south of 262nd Street	Remove existing flow meter and install new flow meter	100 x 40
SLF Sta. 2270+35	Within the median on Western Avenue north of 220th Street and south of 219th Street	Isolation valve and flow meter replacement, and modify existing vault structure	200 x 40

Note: For irregularly-shaped work areas, the maximum width and length are presented in the table.
SLF = Second Lower Feeder; Sta. = Station Number

Other Improvements

In addition to the isolation valve replacements at the improvement locations previously described, multiple other isolation valves and three service connection valves would be replaced.

1.2.1.3 Temporary Construction Components

As discussed in the PEIR, the temporary construction components include pipe access sites, installation of a temporary bulkhead, vault excavation sites, contractor work areas, and equipment staging areas. The temporary construction components would be present during rehabilitation activities only. After construction, these components would be removed, and the sites would be returned to pre-construction conditions.

Bulkhead Installation

As discussed in the PEIR, bulkheads may be required along various sections of the pipelines to isolate one section of the pipeline from another and to ensure continued and reliable water supply delivery to member agencies while rehabilitation is being performed on another section of pipe. For the proposed project, one bulkhead would be installed at SLF Station 1594+20.

Contractor's Work Areas

Contractor's work areas allow for construction activities to occur safely and efficiently within a construction site. Construction activities would include excavation, shoring, pipe removal, pipeline rehabilitation, electrical panel installation, and construction support activities such as ventilation, dewatering, pipe disinfection, and refilling.

Pipe Access Sites

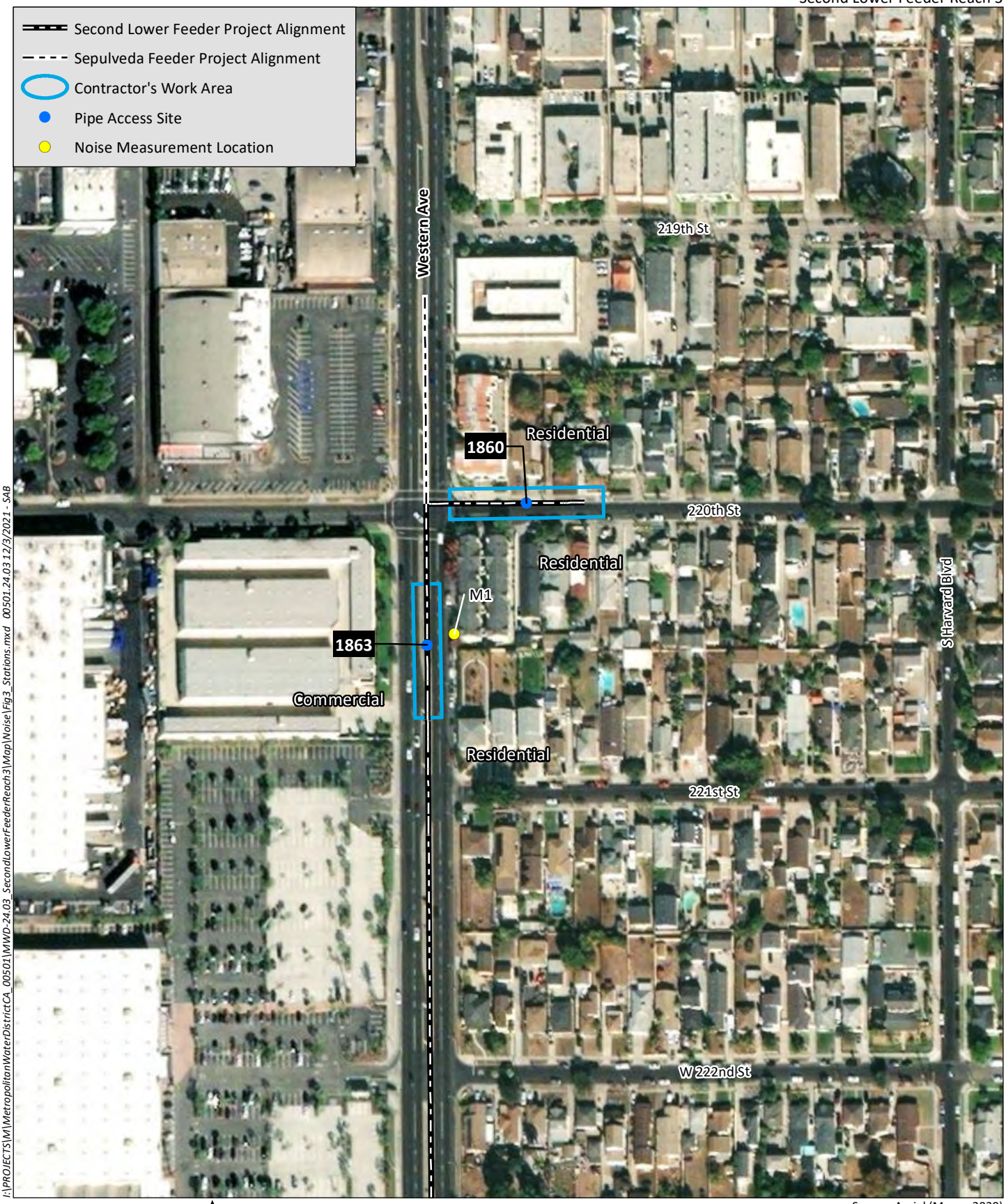
A pipe access site is defined as the entry or exit portal that exposes the underground PCCP section of the pipe or equipment vault to be rehabilitated (i.e., it is the trench from which new coiled steel cylinders, valves, and/or temporary bulkheads would be installed). Each pipe access site would be located within a contractor's work area with space to stage liner pipe prior to installation. Multiple pipe access sites would be needed to rehabilitate the pipelines and buried equipment vaults included in the PCCP Program.

Spacing of pipe access sites would vary based on a number of factors, including the horizontal and vertical bends of the pipe; the locations of valves, vaults, and other equipment; and other factors. The proposed pipe access site locations are identified in Figure 2. The pipe access sites would vary in size but would be up to 20 feet deep for the proposed project. The locations and approximate sizes of the pipe access sites are identified in Table 5, *Proposed Project Pipe Access Sites for PCCP Relining*, and shown on Figures 3a-f. As previously discussed, the five maintenance hole enlargement sites may also be used as pipe access sites. Therefore, in order to provide flexibility during construction, these sites are conservatively assumed to also be used as pipe access sites with an average excavation area of 86 feet by 34 feet.

Table 5
PROPOSED PROJECT PIPE ACCESS SITES FOR PCCP RELINING

SLF Pipe Access Site	Location	Alignment	Approximate Excavation Dimensions (Length x Width x Depth, in feet)	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)	Location Type
1860	On the north side of W 220th Street, east of Western Avenue	East/West	40 x 18 x 20	230 x 45	Public ROW Roadway Utility
1863	Within the median on Western Avenue, south of 220th Street	North/South	40 x 18 x 20	200 x 40	Public ROW Roadway Utility
1916	Within the median on Western Avenue, north of W 235th Street	North/South	40 x 18 x 17	200 x 40	Public ROW Roadway Utility
1964	Within the median on Western Avenue, south of W 247th Place	North/South	40 x 18 x 18	200 x 40	Public ROW Roadway Utility
2015	Within the median on Western Avenue, north of W 261st Street	North/South	40 x 18 x 25	220 x 35	Public ROW Roadway Utility
2022	On the north side of 262nd Street, east of Cayuga Avenue	East/West	40 x 18 x 19	140 x 30	Public ROW Roadway Utility
2034	On the north side of 262nd Street, west of Monte Vista Avenue	East/West	40 x 15 x 18	140 x 30	Public ROW Roadway Utility
2098	On Palos Verdes Drive E north of Palos Verdes Drive N	North/South	40 x 13 x 21.5	215 x 30	Public ROW Roadway Utility

Second Lower Feeder Reach 3



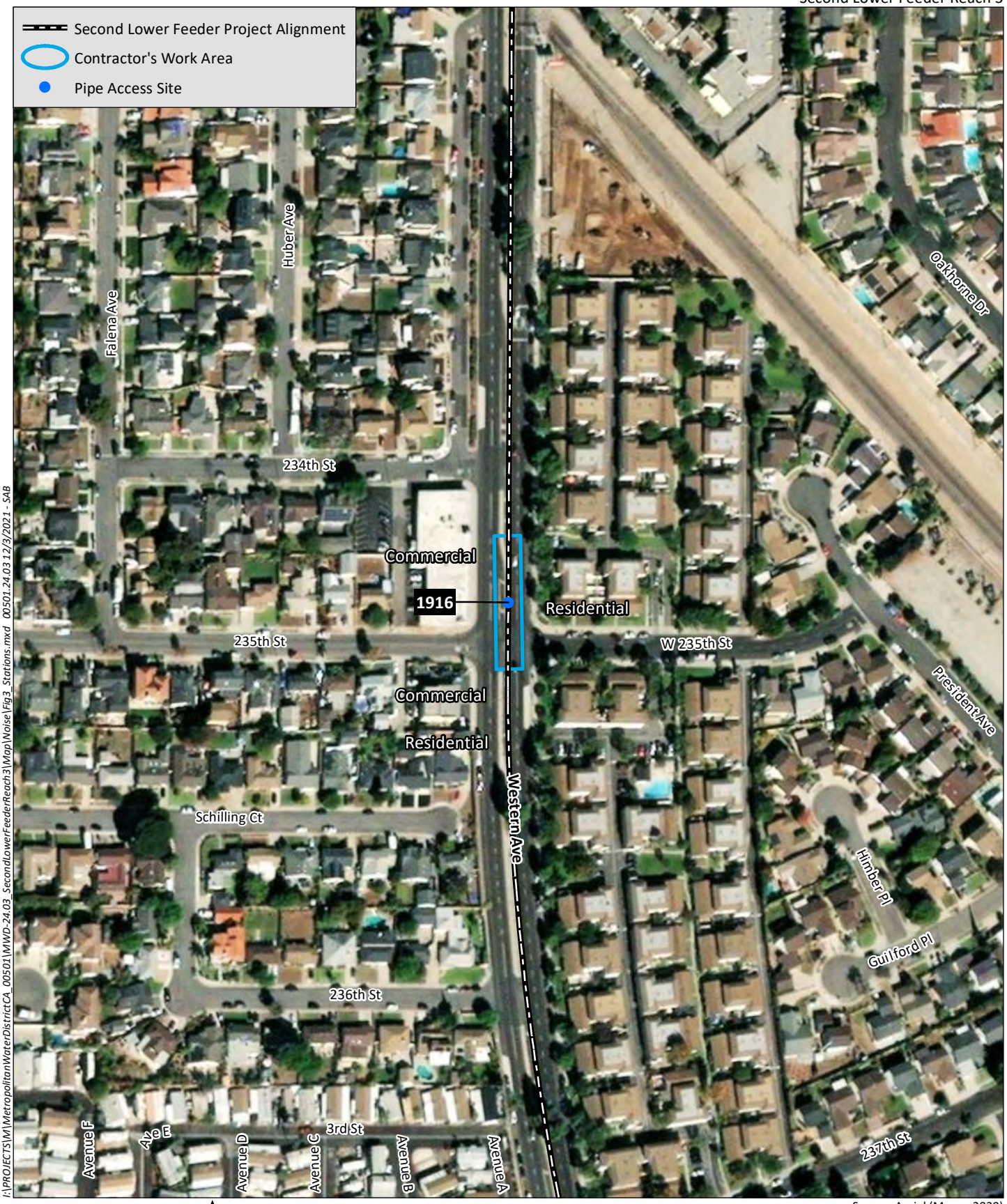
Source: Aerial (Maxar, 2020)

HELIX Environmental Planning

SLF Pipe Access Site 1860 & 1863

Figure 3a

Second Lower Feeder Reach 3

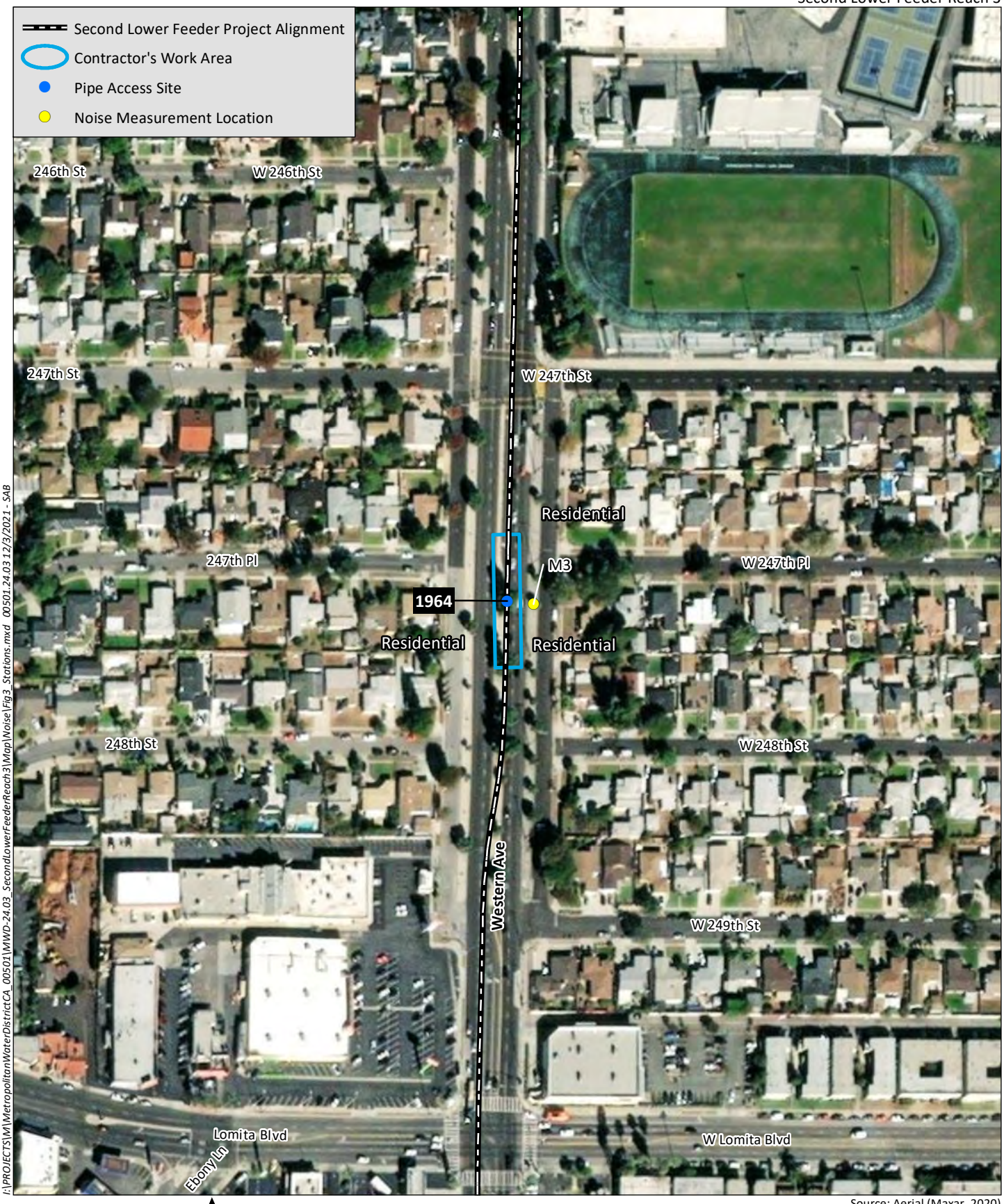


HELIX Environmental Planning

SLF Pipe Access Site 1916

Figure 3b

Second Lower Feeder Reach 3



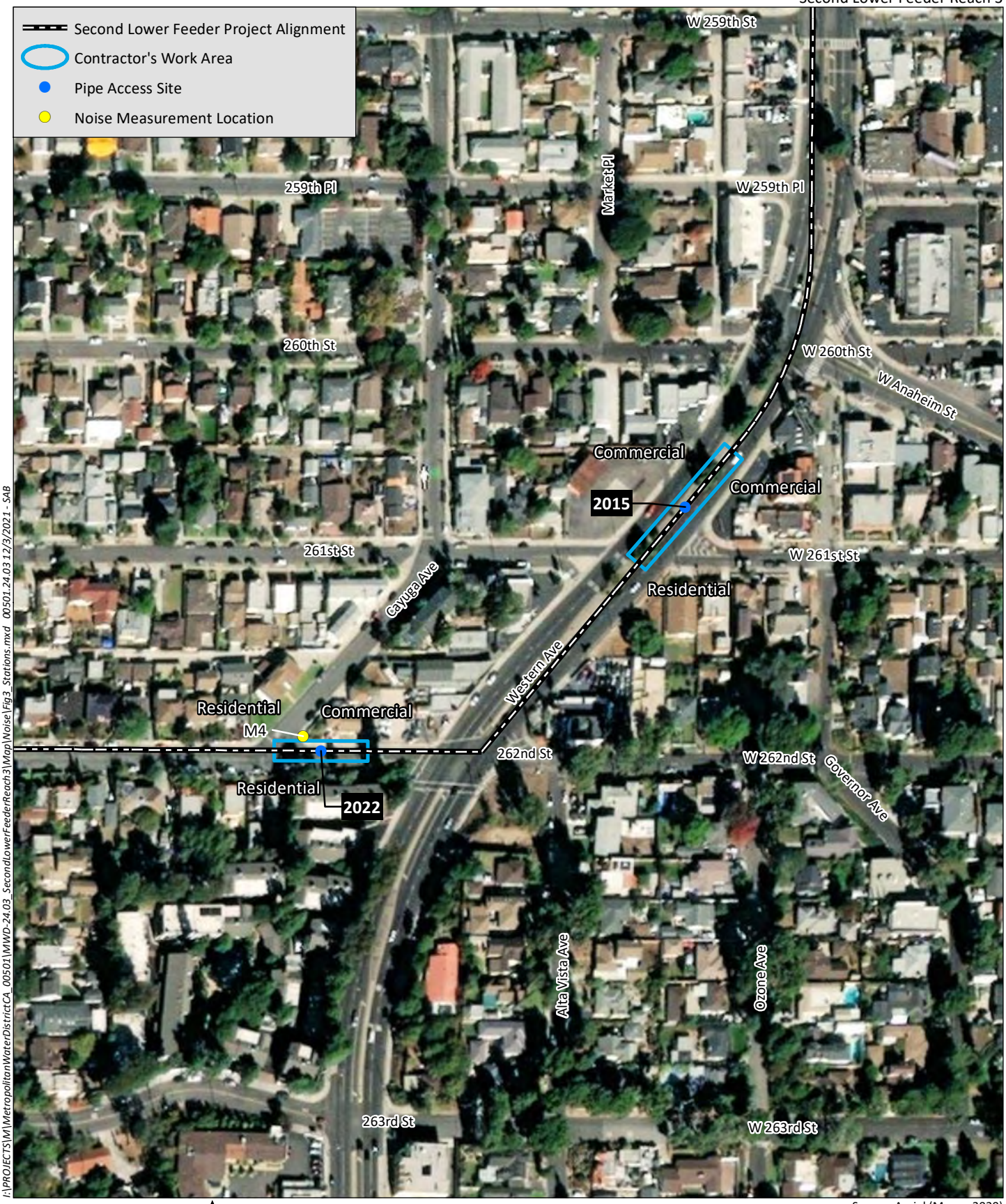
Source: Aerial (Maxar, 2020)

HELIX Environmental Planning

SLF Pipe Access Site 1964

Figure 3c

Second Lower Feeder Reach 3



HELIX Environmental Planning

SLF Pipe Access Site 2015 & 2022

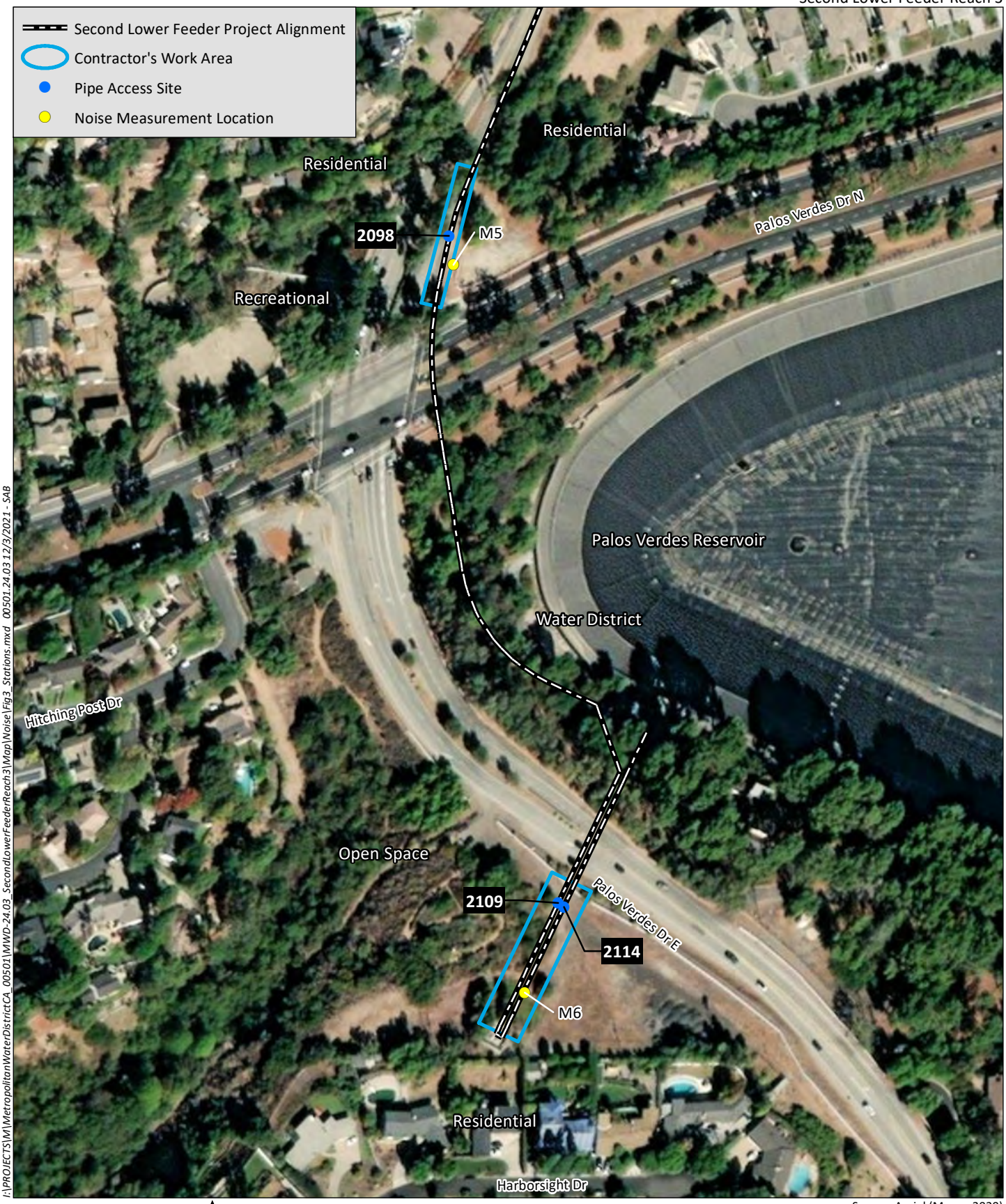
Figure 3d

HELIX Environmental Planning

SLF Pipe Access Site 2034

Figure 3e

Second Lower Feeder Reach 3



I:\PROJECTS\M1\MetropolitanWaterDistrictCA_00501\MWD-24.03_SecondLowerFeederReach3\Map\Noise\Fig3_Stations.mxd 00501.24.03 12/3/2021 - SAB

0 200 Feet

Source: Aerial (Maxar, 2020)

HELIX Environmental Planning

SLF Pipe Access Site 2098, 2109 & 2114

Figure 3f

SLF Pipe Access Site	Location	Alignment	Approximate Excavation Dimensions (Length x Width x Depth, in feet)	Approximate Contractor's Work Area Dimensions (Length x Width, in feet)	Location Type
2109 and 2114	Southwest of Palos Verdes Drive E	North/South	40 x 18 x 15.5	250 x 65	MWD Permanent Easement 1413-22-1 Utility

Note: For irregularly shaped work areas, the maximum width and length are presented in the table.
SLF = Second Lower Feeder; ROW = right-of-way

Existing surface improvements, such as road pavements, sidewalks, and landscaping, would be removed at each pipe access site, and soils would be excavated and temporarily removed from the site to expose the existing pipeline. Tree removal and/or trimming would be required at multiple pipe access sites, and overhead utility line relocation would be required at SLF Station 1859+80. Once rehabilitation is complete, many of the pipe access sites would have maintenance holes installed for future maintenance/repairs and the surrounding area would either be backfilled with soils originally excavated or backfilled with cement slurry, and the surface of each access site and surrounding work zone would be restored to existing conditions with the addition of maintenance hole covers in some locations. This would involve re-paving existing roads, repairing or replacing existing sidewalks, and replanting landscaping.

Pipe Access Sites Ingress/Egress

Pipe access sites within roadways would generally be accessed via the roadway; however, access to Pipe Access Sites 2109 and 2114 would require additional ingress/egress routes. Ingress to the Pipe Access Sites 2109 and 2114 would be achieved by traveling west along Palos Verdes Drive North and then south along Palos Verdes Drive East. Egress would involve a U-turn across Palos Verdes Drive East to exit the area traveling north and then east on Palos Verdes Drive North.

Additionally, ingress to the flow meter vault at SLF Station 2050, located near the southern terminus of Oak Street, would be achieved via Oak Street. Egress would either be achieved via Oak Street or from Oak Street through a Metropolitan-owned property and out to Palos Verdes Drive North.

Contractor Storage Areas

Contractor storage areas provide space to temporarily store liner pipes, construction materials such as shoring boxes and pipe bedding materials, and equipment such as excavators and dump trucks. Space within the contractor's work areas may be used as a temporary staging area; however, space limitations require that most materials and equipment be stored at a larger staging area.

The main contractor staging area would be located at an approximately 12-acre vacant lot at Los Angeles Harbor College, one mile east of the project alignment. Metropolitan would lease the site from Los Angeles Harbor College from February 2020 through January 31, 2023, with the potential for one or two 1-year extensions. In addition to storing equipment, materials, and vehicles at the site, Metropolitan would install temporary office trailers as well as security gates. Metropolitan determined through previous environmental documentation (dated November 2019) that there would be no

potential significant impacts associated with using the Los Angeles Harbor College site as contractor storage areas for the PCCP Program and are therefore not included in the analysis of this document.

Three additional staging areas are proposed along the project alignment. The first would be located in the City of Rolling Hills Estates at the northeast corner of Palos Verdes North and Palos Verdes East. At this location, the project would either use the existing dirt lot as a storage area or would create a laydown area within the street adjacent to the dirt lot. The second staging area would be located in the vacant area immediately southeast of the pipe access site at SLF Station 2109+65, southwest of Palos Verdes Drive East. The third smaller staging area would be located in the City of Torrance on the northeast corner of West 223rd Street and Abalone Avenue. This site would be primarily used for staging during the proposed valve replacement at the intersection of 220th Street and Western Avenue. At this location, existing trees and utilities would be avoided.

Upon completion of construction work on the Second Lower Feeder, the contractor storage and staging areas would be returned to their pre-construction condition, as appropriate and pursuant to any agreements. For example, if the pavement were to be damaged during staging, Metropolitan would re-pave the area.

1.3 PROGRAMMATIC ENVIRONMENTAL IMPACT REPORT

The PEIR identified that noise levels during rehabilitation activities would likely reach very high levels, generally exceeding any set noise-level restrictions. Impacts relating to the exposure of persons to or generating of noise levels in excess of standards would be significant at some locations. The PEIR concluded that implementation of PEIR MM NOI-2 through PEIR MM NOI-4 would reduce impacts, but not to a less-than-significant level.

The PEIR also concluded that vibration from construction activities would not be great enough to result in impacts on vibration-sensitive receptors at most locations. However, at some locations, excavation, concrete-sawing, and other construction activities could generate vibration levels that could affect adjacent activities, such as near performing arts centers or hospitals, or where residences are close to the excavation site. The PEIR concluded that implementation of PEIR MM NOI-1 would reduce vibration impacts to less-than-significant levels.

PEIR MM NOI-1 **Locate Excavation Sites Away from Vibration-Sensitive Uses.** A noise and vibration consultant will be retained during excavation site planning to determine if there are vibration-sensitive land uses that could be affected by construction. Whenever possible, excavation sites will then be located so that vibration impacts would not affect vibration-sensitive land uses or mitigation would be included to reduce vibration levels at vibration-sensitive land uses to less-than-significant levels.

PEIR MM NOI-2 **Locate Excavation Sites Away from Noise-Sensitive Receptors Where Feasible.** A noise consultant will be retained during excavation site planning to determine if there are sensitive receptors that could be affected by construction. Whenever possible, the excavation sites will be located in areas that would not affect sensitive receptors or where receptors can be shielded from construction noise.

PEIR MM NOI-3 **Conduct Project-Level Noise Studies at Each Excavation Site Where Noise-Sensitive Receptors Are Present.** Project-level noise studies will be required at all excavation

sites where sensitive receptors are present, as required in the planning stage by PEIR MM NOI-2. Such noise studies will identify the ambient noise levels, the receptors that would be affected, the noise levels the receptors will experience during construction, and any measures that can be used to reduce noise levels. All feasible mitigation measures identified in this noise study will be implemented.

PEIR MM NOI-4 **Locate Staging Areas Away from Noise-Sensitive Receptors or Provide Noise Attenuation.** Whenever feasible, staging areas will be located in areas that would not affect sensitive receptors or where receptors can be shielded from staging-area noise. Where possible, noise screening will include temporary noise barriers with openings in the barriers kept to the minimum necessary for access.

1.4 NOISE AND SOUND LEVEL DESCRIPTORS AND TERMINOLOGY

1.4.1 Descriptors

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ}, with a specified duration. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. This is similar to the Day Night sound level (L_{DN}), which is a 24-hour average with an added 10 dBA weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on dBA. These metrics are used to express noise levels for both measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

1.4.2 Terminology

1.4.2.1 Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

1.4.2.2 Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

1.4.2.3 Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this wide range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA. The threshold of hearing for the human ear is about 0 dBA, which corresponds to 20 mPa.

Because decibels are logarithmic units, SPL cannot be added or subtracted through standard arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than from one source under the same conditions. For example, if one automobile produces an SPL of 70 dBA when it passes an observer, two cars passing simultaneously would not produce 140 dBA—rather, they would combine to produce 73 dBA. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dBA louder than one source.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1 dBA changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. It is widely accepted, however, that people begin to detect sound level increases of 3 dBA in typical noisy environments. Further, a 5 dBA increase is generally perceived as a distinctly noticeable increase, and a 10 dBA increase is generally perceived as a doubling of loudness.

No known studies have directly correlated the ability of a healthy human ear to discern specific levels of change in traffic noise over a 24-hour period. Many ordinances, however, specify a change of 3 CNEL as the significant impact threshold. This is based on the concept of a doubling in noise energy resulting in a 3 dBA change in noise, which is the amount of change in noise necessary for the increase to be perceptible to the average healthy human ear.

1.5 REGULATORY FRAMEWORK

1.5.1 California Noise Control Act

The California Noise Control Act is a section within the California Health and Safety Code that describes excessive noise as a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

1.5.2 Los Angeles CEQA Thresholds Guide

Los Angeles developed a CEQA Thresholds Guide (Los Angeles 2006) to establish significance thresholds for construction activities. These thresholds would be applicable to construction activities within

500 feet of a noise-sensitive use. A project would normally have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise-sensitive use;
- Construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise-sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA at a noise-sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday.

1.5.3 Torrance Municipal Code

1.5.3.1 Chapter 46.3.1, Construction of Buildings and Projects

It shall be unlawful for any person within Torrance to operate power construction tools, equipment, or engage in the performance of any outside construction or repair work on buildings, structures, or projects in or adjacent to a residential area involving the creation of noise beyond 50 dBA as measured at property lines, except between the hours of 7:30 a.m. and 6:00 p.m. Monday through Friday and 9:00 a.m. to 5:00 p.m. on Saturdays. Construction shall be prohibited on Sundays and holidays observed by City Hall.

1.5.4 Lomita Municipal Code

1.5.4.1 Chapter 4.4.04

It shall be unlawful for any person within Lomita to produce or cause to allow to be produced noise which is received on property occupied by another person within the designated region, in excess of levels shown in Table 6, *Lomita Noise Limits*.

Table 6
LOMITA NOISE LIMITS

Time Period	Residential	Commercial	Manufacturing
Day	65 dBA	75 dBA	80 dBA
Night	55 dBA	70 dBA	75 dBA

Source: City of Lomita Municipal Code Chapter 4.4.04.
dBA = A-weighted decibels

1.5.4.2 Chapter 4.4.11

It shall be unlawful for any person to operate construction equipment or power tools in the performance of any outside construction or repair work on buildings, structures, or project in or adjacent to a residential area, except between the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, except holidays, and 9:00 a.m. to 5:00 p.m. Saturday, Sunday, and holidays. During the lawful times of use, such construction equipment and power tools shall not reach a level of more than 35 dBA for a cumulative period of 15 minutes in any given hour at any receiving property line.

1.5.5 Rolling Hills Estates Municipal Code

1.5.5.1 Chapter 8.32.210, Permitted – Construction Hours and Days

Any person within Rolling Hills is permitted to operate power construction equipment or use tools for the purpose of conducting construction or repair work on buildings, structures or projects between 7:00 a.m. and 5:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturday. Construction activities are not allowed at any time on Sundays and holidays. For the purpose of this chapter, holidays shall consist of New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. Construction shall also not violate the noise standards set forth in Section 8.32.050. A variance shall be required for any type of construction which would violate these noise standards.

1.5.5.2 Chapter 8.32.050, Noise Standards – Exterior

The exterior noise levels shown in Table 7, *Rolling Hills Estates Exterior Noise Limits*, unless otherwise specifically indicated, shall apply to all receptor properties within a designated noise zone and shall constitute the ambient noise level for the purpose of establishing standards.

Table 7
ROLLING HILLS ESTATES EXTERIOR NOISE LIMITS

Time Period	Residential	Commercial	Industrial
7:00 a.m. to 10:00 p.m.	55 dBA	65 dBA	75 dBA
10:00 p.m. to 7:00 a.m.	45 dBA	55 dBA	45 dBA

Source: City of Rolling Hills Estates Municipal Code Chapter 8.32.050.
dBA = A-weighted decibels

1.5.6 Long Beach Municipal Code (Chapter 8.80, Noise)

No person shall operate or permit the operation of any tools or equipment used for construction, alteration, repair, remodeling, drilling, demolition or any other related building activity which produce loud or unusual noise which annoys or disturbs a reasonable person of normal sensitivity between the hours of 7:00 p.m. and 7:00 a.m. the following day on weekdays, Saturdays before 9:00 a.m., Saturdays after 6:00 p.m., and all day on Sundays, except for emergency work authorized by Long Beach. For purposes of this Section, a federal holiday shall be considered a weekday.

1.5.7 Carson Municipal Code (Chapter 5, Noise Control Ordinance)

Carson has adopted the Los Angeles County Noise Control Ordinance, with amendments to the limits on noise from construction activities. The amended construction noise restrictions are listed in Table 8, *Carson Construction Noise Restrictions*.

Table 8
CARSON CONSTRUCTION NOISE RESTRICTIONS

Time Period	Single-Family Residential	Multi-Family Residential
For Short-term operations at Residential Structures[1]		
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60 dBA	64 dBA
For Long-term operations at Residential Structures[2]		
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	65 dBA	70 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	55 dBA	60 dBA

[1] Short-term is defined as non-scheduled, intermittent, short-term operation (20 days or less).
[2] Long-term is defined as repetitively scheduled and relatively long-term operation (periods of 21 days or more).
dBA = A-weighted decibels

2.0 ENVIRONMENTAL SETTING

2.1 EXISTING NOISE ENVIRONMENT

2.1.1 Project Alignment

The project relining alignment begins at SLF Station 1860+10, located near the intersection of Western Avenue and 220th Street in Los Angeles. The alignment travels approximately 220 feet west toward the intersection of Western Avenue and 220th Street. Here it turns both north on Western Avenue for 300 feet along the Sepulveda Feeder and south on Western Avenue for three miles along the Second Lower Feeder in Los Angeles and Torrance to 262nd Street in Lomita. The alignment then travels west for 0.5 mile along 262nd Street to the intersection with Oak Street where it turns off to Palos Verdes Drive East and travels approximately one mile before it turns off to Metropolitan's existing weir structure located west of Palos Verdes Drive East in Rolling Hills Estates. The alignment then turns back to cross Palos Verdes Drive East to end at SLF Station 2116+84 adjacent to Palos Verdes Reservoir.

Land uses surrounding the northern portion of the pipeline alignment, along Western Avenue, consist mainly of single-family and multi-family residences and commercial properties, as well as churches and a library. Narbonne High School is located adjacent to the pipeline alignment on the eastern side of Western Avenue between West 242nd Place and 247th Street. Land uses surrounding the southern portion of the pipeline alignment consist mainly of single-family residences, as well as a country club, an equestrian park, and recreational trails.

The locations of the various pipe access sites are described in Table 9, *Pipe Access Site Noise-sensitive Land Uses.*

Table 9
PIPE ACCESS SITE NOISE-SENSITIVE LAND USES

SLF Pipe Access Site	Approximate Location of Station	Nearby Noise-sensitive Land Uses (NSLUs)	Approximate Distance to Closest NSLU
1860	North side of W 220th Street, east of Western Avenue	Single-family and multi-family residences	10 feet
1863	Within the median on Western Avenue, south of 220th Street	Single-family and multi-family residences	40 feet
1916	Within the median on Western Avenue, north of W 235th Street	Single-family and multi-family residences	40 feet
1964	Within the median on Western Avenue, south of W 247th Place	Single-family residences	100 feet
2015	Within the median on Western Avenue, north of W 261st Street	Single-family residences	90 feet
2022	North side of 262nd Street, east of Cayuga Avenue	Single-family and multi-family residences	20 feet
2034	North side of 262nd Street, west of Monte Vista Avenue	Single-family residences	20 feet
2098	On Palos Verdes Drive E north of Palos Verdes Drive N.	Park; single-family residences	130 feet
2109 and 2114	Southwest side of Palos Verdes Drive E	Single-family residences	200 feet

2.1.2 Noise-Sensitive Land Uses

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors are individual locations that may be affected by noise. In general, the pipeline alignment is located within roadways in urbanized residential and commercial areas. NSLUs in the project vicinity include residences, a school, churches, a library, and equestrian uses.

Most construction work would occur at the pipe access sites. NSLUs surrounding these sites are summarized in Table 8. Refer to Figures 3a through 3f, for the pipe access site locations and surrounding NSLUs.

2.1.3 Vibration-Sensitive Land Uses

Land uses in which ground-borne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations are considered vibration-sensitive (Federal Transit Administration [FTA] 2006). The degree of sensitivity depends on the specific equipment that would be affected by the ground-borne vibration. Excessive levels of ground-borne vibration of either a regular or intermittent nature can result in annoyance to land uses such as residences and buildings where people sleep such as hotels, hospitals, and dormitories. Vibration-sensitive land uses in the vicinity of the pipe access sites are the single-family and multi-family residences identified in Table 7.

2.1.4 Existing Noise Conditions

Site visits along the alignment route were conducted on Friday, December 7, 2018. Ambient noise measurements were conducted at or near six proposed pipe access site locations. These sites were chosen based on the noise generation anticipated to occur at these locations during pipe access excavation activities. Ambient noise measurements ranged from 57.3 to 76.1 dBA L_{EQ}. Roadway traffic was the primary noise source at the six measurement locations. The measured noise levels and nearby land uses are shown in Table 10, *Site Survey Noise Measurement Results,* and on Figures 3a-f.[1] See Appendix A, *Site Survey Measurement Sheets*, for survey notes.

Table 10
SITE SURVEY NOISE MEASUREMENT RESULTS

Site	Location	Time	Nearby Land Uses	Measurement (dBA L_{EQ})
M1	SLF Sta. 1863	11:24 a.m.	Commercial/industrial; multi-family residential	73.7
M2	SLF Sta. 1897	11:05 a.m.	Commercial; single-family residential	76.1
M3	SLF Sta. 1964	10:42 a.m.	Single-family residential	72.3
M4	SLF Sta. 2022	10:18 a.m.	Single-family and multi-family residential	62.3
M5	SLF Sta. 2098	9:51 a.m.	Disturbed land/landscaping; recreational (equestrian park); single-family residential	68.0
M6	SLF Sta. 2114	7:36 a.m.	Disturbed land/landscaping; recreational (open space trails); single-family residential	57.3

Note: Refer to Appendix A for site survey sheets
SLF = Second Lower Feeder; dBA = A-weighted decibels; L_{EQ} = equivalent sound level

3.0 ANALYSIS, METHODOLOGY, AND ASSUMPTIONS

3.1 METHODOLOGY

3.1.1 Ambient Noise Survey

The following equipment was used to measure existing noise levels along the project alignment:

- Larson Davis LxT Noise Meter
- Larson Davis Model CA250 Calibrator
- Windscreen and tripod for the sound level meter

The sound level meter was field-calibrated immediately prior to the noise measurements to ensure accuracy. All sound level measurements conducted and presented in this report were made with a

[1] The noise measurement conducted at SLF Sta. 1897 was done prior to finalization of the pipe access site locations. Because there is no pipe access planned at SLF Sta. 1897, this noise measurement location is not depicted on a figure.

sound level meter that conforms to the ANSI specifications for sound level meters (ANSI SI.4-1983 R2006). All instruments were maintained with National Institute of Standards and Technology traceable calibration per the manufacturers' standards.

3.1.2 Noise Modeling Software

Modeling of the exterior noise environment for this report was accomplished using a computer noise model: Computer Aided Noise Abatement (CadnaA) version 2019. CadnaA is a model-based computer program developed by *DataKustik* for predicting noise impacts in a wide variety of conditions. CadnaA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project-related information, such as noise source data, barriers, structures, and topography to create a detailed model, and uses the most up-to-date calculation standards to predict outdoor noise impacts.

Project construction noise was also analyzed using the Roadway Construction Noise Model (RCNM; USDOT 2008), which utilizes estimates of sound levels from standard construction equipment.

3.2 ASSUMPTIONS

3.2.1 Pipeline Relining Construction Phases and Noise Sources

Construction would require the use of equipment throughout the site for the full term of construction. Table 11, *Construction Assumptions*, summarizes the key noise-generating construction equipment and activities analyzed in this report. Exact planning information cannot be known at this stage in project design. Therefore, equipment types and completion times are estimates and may vary due to differing site conditions.

Table 11
CONSTRUCTION ASSUMPTIONS

Construction Activity	Equipment Types
Pipe Access Site Excavation	Excavator, Dump Truck
Pipeline Relining	Generator, grouting mixer, welder, crane
Ventilation	Generator, Blower, Welder
Maintenance Hole Replacement and Blow-off Structure Improvements	Jackhammer, Welder
Valve Relocation and Replacement	Backhoe, Concrete Saw, Handheld Tools
Dewatering	Generator

Construction equipment may not be used for the entirety of a given hour. Table 12, *Construction Equipment Use Per Hour*, identifies percentages used as a basis for construction equipment noise modeling.

Table 12
CONSTRUCTION EQUIPMENT USE PER HOUR

Typical Equipment	Percentage Used per Hour
Backhoe	50
Excavator	40
Generator	100
Crane or Excavator used as crane	75
Dump Truck	20
Blower/Fan	100
Jackhammer	50
Concrete Saw	100
Grouting Plant and Pump	100
Welding Rig	100

3.2.2 Equipment Noise Levels

Table 13, *Construction Equipment Noise Data*, presents the calculated Sound Power Levels (S_{WL}) for typical equipment used for pipeline relining. This table includes data from the site measurements, the Federal Highway Administration (FHWA) table of construction equipment noise levels (FHWA 2007), and the United Kingdom's Department for Environment, Food and Rural Affairs (Defra) construction noise database (Defra 2005). The calculated S_{WL} are a measure of the total acoustic power radiated from a given sound source; they do not incorporate a distance component.

Table 13
CONSTRUCTION EQUIPMENT NOISE DATA[1]

Source	One-octave Center Band Frequency (Hertz)									Overall A-weighted Value (dBA)
	31.5	63	125	250	500	1,000	2,000	4,000	8,000	
Excavator with Steel Plates	-	63.0	78.3	77.9	77.0	75.3	72.9	69.5	64.7	80.3
Crane	116.7	111.8	103.7	102.9	98.7	96.6	93.5	88.7	80.7	102.0
Annular Grouting Mixer	98.7	113.6	97.8	103.5	104.1	106.5	103.8	98.1	90.3	110.1
Dump Truck	110.3	113.2	115.4	105	103.6	104	101.9	97.4	90	108.9
Concrete Saw	109.7	106.7	123.7	115.7	114.7	114.7	116.7	120.7	119.7	125.3
Jackhammer	124.5	117.7	117.8	115.7	108.3	107.8	110.7	112.9	111.7	118.3
Welder	100.3	95.2	92.7	87.8	88.9	90.9	86.7	82.6	80.7	94.3
Blower/Fan	105.3	106.7	102.5	99.4	95.8	95.5	91.1	85.6	81.4	99.8

Source: FHWA 2007, Defra 2005, and on-site measurements.

[1] All source data for equipment noise presented as Sound Power levels (S_{WL}).

3.2.3 Site-Specific Information

The distances to nearby NSLUs and noise barriers, if needed, were used in the CadnaA noise model or RCNM to determine expected noise levels. These distances are based on the approximate center of the pipeline, station, or typical utilization location for construction equipment. Eleven pipe access sites are to be used during construction.

3.2.4 Vehicular Traffic

Construction would require the use of additional trips for worker vehicles and hauling of materials. The total number of vehicles in use for each site will vary, depending on the nature of the work, time of day, and exact needs of the contractor as construction progresses. A conservative estimate for average daily project traffic (ADT) for each pipe access site work area would be 64 passenger vehicle trips and 40 truck trips, for a total 104 ADT (Linscott, Law & Greenspan, Engineers [LLG] 2019).

3.3 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines and noise regulations of local jurisdictions, implementation of the project would result in a significant adverse impact if it would:

Threshold 1: *Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies.*

Impacts would be significant if operation of the project would generate noise levels above the standards specified in the Los Angeles, Torrance, Lomita, Rolling Hills Estates, Long Beach, and Carson General Plans or Noise Ordinances. Impacts would be significant if construction would expose nearby receptors to noise levels above the levels set in Threshold 4 below.

Threshold 2: *Expose persons to or generation of excessive ground-borne vibration or ground-borne noise levels.*

Excessive ground-borne vibration is defined as equal to or more than 0.2 inch per second (in/sec) peak particle velocity (PPV). Construction activities within 200 feet and pile driving within 600 feet of a vibration-sensitive use would be potentially disruptive to vibration-sensitive operations (Caltrans 2013).

Threshold 3: *Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.*

Impacts would be significant if operation of the project would permanently increase ambient noise levels above the standards specified in the Los Angeles, Torrance, Lomita, Rolling Hills Estates, Long Beach, and Carson General Plans or Noise Ordinances.

Threshold 4: *Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.*

A temporary or periodic increase in ambient noise levels due to construction would be considered significant if:

a. Within the Angeles, noise generated from construction activity exceeds 5 dBA above ambient noise levels for construction lasting more than 10 days in a three-month period (Los Angeles 2006). Ambient noise conditions can be determined by the Presumed Ambient Noise Levels set forth in the Los Angeles Municipal Code. Exhibit I.1-3 in the Los Angeles CEQA Guidelines states that the Municipal Code's presumed ambient noise levels for residential zones is 50 dBA during the day and 40 dBA at night. Therefore, impacts would be significant if noise from construction exceeds noise levels of 55 dBA L_{EQ} during the day or 45 dBA L_{EQ} during the night at a noise-sensitive use;

b. Within Torrance, noise from construction activity exceeds 50 dBA between the hours of 6:00 p.m. and 7:30 a.m. on weekdays, Saturdays before 9:00 a.m. and after 5:00 p.m., and all day on Sundays;

c. Within Lomita, noise from construction exceeds the limits as shown in Table 6, or if construction occurs between the hours of 6:00 p.m. and 7:00 a.m. on weekdays, or before 9:00 a.m. and after 5:00 p.m. on Saturdays, Sundays, or Holidays. It must be noted that Lomita's 35 dBA maximum noise level for construction equipment and power tools, as measured at any receiving property line, is particularly stringent (refer to Section 1.5.4.2). For example, a noise level of 35 dBA is comparable to a soft whisper. Because the 35 dBA standard would be physically infeasible for the project to achieve, the analysis in this report focuses on compliance with Lomita's property line noise limits, as shown in Table 5;

d. Within Rolling Hills Estates, noise from construction exceeds the limits as shown in Table 7, or if construction occurs between the hours of 5:00 p.m. and 7:00 a.m. on weekdays, Saturdays before 9:00 a.m. and after 5:00 p.m., or at any time on Sundays;

e. Within Long Beach, construction noise is generated between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, Saturdays before 9:00 a.m. and after 6:00 p.m., and all day on Sundays; or

f. Within Carson, noise from construction activity exceeds the limits as shown in Table 8.

***Threshold 5*:** *For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public use airport or private airstrip, expose people residing or working in the project area to excessive noise*.

Impacts would be significant if the project would expose people (including temporary construction workers) to excessive noise from aircrafts using nearby public airports or private airstrips.

4.0 IMPACTS

4.1 ISSUE 1: EXCESSIVE NOISE LEVELS

Would operation of the project expose persons to or generate noise levels in excess of standards established by local jurisdictions?

Excessive noise levels due to construction of the project are described under Section 4.4 below. The project involves the relining of an existing underground pipeline, and no new permanent operational noise-generating components would be introduced. Operation of the project would therefore not generate or expose persons to excessive noise levels, and impacts would be less than significant.

4.2 ISSUE 2: EXCESSIVE VIBRATION

Would the project expose persons to or generate excessive ground-borne vibration or noise levels?

Numerous pipe access sites would be within 200 feet of single-family and multi-family residences, with the nearest sensitive use living area approximately 30 feet from Pipe Access Site 1860. PEIR MM NOI-1

has been implemented to locate pipe access sites away from vibration-sensitive uses to the extent feasible. The greatest source of vibration would be from compaction of the soil following relining activities and prior to final paving of each site. Due to the size of the pipe access sites, a small vibratory plate compactor or tamping rammer would likely be used. These are handheld units and would have no measurable vibration beyond 10 to 15 feet. Impacts from excessive vibration would therefore be less than significant.

4.3 ISSUE 3: PERMANENT INCREASE IN AMBIENT NOISE LEVELS

Would the project cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

As noted in Section 4.1 above, operation of the project would not result in noise-generating components that would cause a substantial permanent increase in ambient noise levels. No impact would occur.

4.4 ISSUE 4: TEMPORARY INCREASE IN AMBIENT NOISE

Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

4.4.1 Daytime Construction Operations

4.4.1.1 Pipe Access Sites

Initial construction work to access the PCCP would require excavation at the pipe access sites within Los Angeles, Torrance, Lomita, and Rolling Hills Estates. The five maintenance hole enlargement sites may also be used as pipe access sites. Initial excavation at pipe access sites would require the use of a single excavator and dump truck to deposit soil. These would be used simultaneously and represent the loudest equipment use for short-term construction at the access sites. Noise impacts vary by jurisdiction. Significance criteria for short-term construction were assessed at each pipe access site and are provided in Table 14, *Pipe Access Site Construction Noise*. Noise levels from the combined use of an excavator and dump truck would be elevated at nearby NSLUs at all pipe access sites. Torrance does not set daytime construction noise level limits in its municipal code; therefore, provided that construction excavation activities are conducted between the hours of 7:30 a.m. and 6:00 p.m. on weekdays and between 9:00 a.m. and 5:00 p.m. on Saturdays, impacts would be less than significant. Table 14 also provides noise levels with the incorporation of temporary 12-foot noise barriers, and the resulting noise levels with the inclusions of the barriers. As shown, noise levels at all access sites would remain above applicable thresholds even with use of a 12-foot barrier. A 12-foot barrier would be the maximum feasible barrier height, given the spatial restrictions of the pipe access sites.

Table 14
PIPE ACCESS SITE CONSTRUCTION NOISE

Site	NSLU Jurisdiction	NSLU Type	NSLU Distance	Threshold at NSLU (dBA L_{EQ} [1 hour])	No Barrier		12-foot Barrier	
					Modeled Noise Levels (dBA L_{EQ} [1 hour])	Exceed Standard at NSLU?	Modeled Noise Levels (dBA L_{EQ} [1 hour])	Exceed Standard at NSLU?
Pipe Access Sites								
1860	Los Angeles	Single-family and multi-family residences	10 feet	55	89.1	Yes	85.7	Yes
1863	Los Angeles	Single-family and multi-family residences	40 feet	55	77.1	Yes	73.7	Yes
1916	Los Angeles/ Torrance	Single-family and multi-family residences	40 feet	55 / NA	77.1	Yes / NA	73.7	Yes / NA
1964	Los Angeles	Single-family residences	100 feet	55	69.1	Yes	65.7	Yes
2015	Los Angeles/ Lomita	Single-family residences	90 feet	55 / 65	70.0	Yes	66.6	Yes
2022	Lomita	Single-family and multi-family residences	20 feet	65	83.1	Yes	79.7	Yes
2034	Lomita	Single-family residences	20 feet	65	83.1	Yes	79.7	Yes
2098	Rolling Hills Estates	Park; single-family residences	130 feet	55	66.8	Yes	63.4	Yes
2109 and 2114	Rolling Hills Estates	Single-family residences	200 feet	55	63.1	Yes	59.7	Yes
Maintenance Hole Enlargement Sites (Potential Pipe Access Sites)								
SLF Sta. 1875+56	Los Angeles	Single-family residences	50 feet	55	75.1	Yes	71.7	Yes
SLF Sta. 1899+76	Torrance	Single-family residences	60 feet	NA	73.5	NA	70.1	NA
SLF Sta. 1957+80	Los Angeles	School/Single-family residences	50 feet	55	75.1	Yes	71.7	Yes
SLF Sta. 2034+32	Lomita	Single-family residences	20 feet	65	83.1	Yes	79.7	Yes
SLF Sta. 2045+04	Lomita	Single-family residences	10 feet	65	89.1	Yes	85.7	Yes

NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level
NA = not applicable (Torrance does not have daytime noise level limits for construction activities)

4.4.1.2 Pipeline Relining Activity

Following the initial excavation of each pipe access site, relining work would be conducted within the excavated area within Los Angeles, Torrance, Lomita, and Rolling Hills Estates. Noise generating equipment used for this stage of construction includes a generator, grouting mixer, welder, and crane, and would be located at street level. The loudest equipment types would be a grouting mixer and a generator in use simultaneously.

Noise impacts vary by jurisdiction. Significance criteria for long-term construction were assessed at each excavation location and are provided in Table 15, *Relining Activity Site Construction Noise*. Noise levels from the combined use of a generator and grouting mixer would exceed the thresholds at nearby NSLUs at all pipe access sites. Torrance does not set daytime construction noise level limits in its municipal code; therefore, provided that pipeline relining activities are conducted between the hours of 7:30 a.m. and 6:00 p.m. on weekdays and between 9:00 a.m. and 5:00 p.m. on Saturdays, impacts would be less than significant. Table 15 also provides noise levels with the incorporation of temporary 8-foot and 12-foot noise barriers, and the resulting noise levels with the inclusions of the barriers. As shown, the incorporation of an 8-foot barrier would reduce noise levels to within thresholds at Pipe Access Site 2015 (for noise in Lomita). With a 12-foot barrier, noise from work at Pipe Access Sites 1964, 2098, 2109, and 2114 would be reduced to within thresholds.

Table 15
RELINING ACTIVITY SITE CONSTRUCTION NOISE

Site	NSLU Jurisdiction	NSLU Type	NSLU Distance	Threshold at NSLU (dBA L_{EQ} [1 hour])[1]	No Barrier		8-foot Barrier[2]		12-foot Barrier[2]	
					Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?	Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?	Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?
Pipe Access Sites										
1860	Los Angeles	Single-family and multi-family residences	10 feet	55	92.4	Yes	74.8	Yes	71.5	Yes
1863	Los Angeles	Single-family and multi-family residences	40 feet	55	80.4	Yes	68.6	Yes	62.0	Yes
1916	Los Angeles/ Torrance	Single-family and multi-family residences	40 feet	55 / NA	80.4	Yes	68.6	Yes / NA	62.0	Yes / NA
1964	Los Angeles	Single-family residences	100 feet	55	72.2	Yes	61.3	Yes	54.6	No
2015	Los Angeles/ Lomita	Single-family residences	90 feet	55 / 65	73.2	Yes	62.1	Yes / No[3]	55.5	Yes / No[3]
2022	Lomita	Single-family and multi-family residences	20 feet	65	86.4	Yes	73.0	Yes	66.9	Yes
2034	Lomita	Single-family residences	20 feet	65	86.4	Yes	73.0	Yes	73.0	Yes
2098	Rolling Hills Estates	Park; single-family residences	130 feet	55	69.9	Yes	59.1	Yes	52.5	No
2109 and 2114	Rolling Hills Estates	Single-family residences	200 feet	55	66.0	Yes	55.5	Yes	48.8	No
Maintenance Hole Enlargement Sites (Potential Pipe Access Sites)										
SLF Sta. 1875+56	Los Angeles	Single-family residences	50 feet	55	78.4	Yes	67.0	Yes	60.3	Yes
SLF Sta. 1899+76	Torrance	Single-family residences	60 feet	NA	76.8	NA	65.6	NA	58.9	NA

Site	NSLU Jurisdiction	NSLU Type	NSLU Distance	Threshold at NSLU (dBA L_{EQ} [1 hour])[1]	No Barrier		8-foot Barrier[2]		12-foot Barrier[2]	
					Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?	Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?	Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?
SLF Sta. 1957+80	Los Angeles	School/Single-family residences	50 feet	55	78.4	Yes	67.0	Yes	60.3	Yes
SLF Sta. 2034+32	Lomita	Single-family residences	20 feet	65	86.4	Yes	73.0	Yes	66.9	Yes
SLF Sta. 2045+04	Lomita	Single-family residences	10 feet	65	92.4	Yes	74.8	Yes	71.5	Yes

[1] Relining activity would fall under the Los Angeles standard for construction activity lasting more than 10 days in a three-month period, which is 5 dBA above the 50 dBA ambient noise levels presumed for a residential neighborhood.

[2] Barrier is assumed to be 8 feet from the noise source.

[3] Noise from relining activities at this station would exceed noise thresholds for Los Angeles, but not those for Lomita.

NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level

NA = not applicable (Torrance does not have noise level limits for construction activities)

4.4.1.3 Ventilation

Ventilation and access to support relining work would be conducted along the project alignment within the Los Angeles, Torrance, Lomita, and Rolling Hills Estates at manhole locations, to provide adequate air supply and access for workers and equipment. Expected noise sources at these locations include the use of a fan/blower for ventilation, a generator for power, and a welder for relining activities.

Noise calculations for ventilation activities include the use of a generator, blower, and welder. Together, this equipment generates 80 dBA at approximately 15 feet. Because ventilation equipment would potentially move to different locations along the pipeline alignment as construction proceeds, calculation of noise levels at specific receptor locations is not possible at this time. Instead, the setback distances needed to meet Los Angeles', Lomita's, and Rolling Hills Estates' noise thresholds are provided in Table 16, *Ventilation Location Setback Distances*. Distances are provided without barriers and with the incorporation of 6-foot and 8-foot barriers located 8 feet from the noise-generating equipment.

Table 16
VENTILATION LOCATION SETBACK DISTANCES

Jurisdiction	Threshold at NSLU (dBA L_{EQ} [1 hour]) [1]	Land Use Type	Distance Within Which Noise Levels Would Exceed Threshold		
			No Barrier	With 6-foot Barrier[2]	With 8-foot Barrier[2]
Los Angeles	55	Residential	265 feet	110 feet	70 feet
Torrance	No Limit	Residential	NA	NA	NA
Lomita	65	Residential	90 feet	33 feet	20 feet
	75	Commercial	30 feet	11 feet	6 feet
Rolling Hills Estates	55	Residential	265 feet	110 feet	70 feet
	65	Commercial	90 feet	33 feet	20 feet

Note: Ventilation activity assumes the use of a generator, blower, and welder.

[1] Ventilation activity would fall under the Los Angeles limit for construction activity lasting more than 10 days in a three-month period is 5 dBA above the 50 dBA ambient noise levels presumed for a residential neighborhood.

[2] Barrier is assumed to be approximately 8 feet from the noise source.

NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level

NA = not applicable (the Torrance does not have noise level limits for construction activities)

Ventilation activities conducted within the setback distances from NSLUs in the Los Angeles, Lomita, and Rolling Hills Estates would result in a potentially significant impact. Torrance does not set daytime construction noise level standards in its municipal code, and impacts would therefore be less than significant when conducted between the hours of 7:30 a.m. and 6:00 p.m. on weekdays and between 9:00 a.m. and 5:00 p.m. on Saturdays.

4.4.1.4 Maintenance Hole Refurbishment and Blow-Off Structure Improvements

Refurbishment would be required for 24 maintenance holes, two side outlets, one pumpwell structure, and three blow-off structures within Los Angeles, Torrance, Lomita, and Rolling Hills Estates. A jackhammer would be the loudest equipment type and would be required for access to the manholes, outlets, blow-off structures, and pumpwell structure.

A jackhammer in use for 50 percent of an hour would generate 80 dBA at approximately 100 feet. Because equipment would potentially move to different locations along the pipeline alignment as

construction proceeds, noise levels at specific receptor locations is not possible at this time. Instead, the setback distances needed to meet Los Angeles', Lomita's, and Rolling Hills Estates' noise thresholds are provided in Table 17, *Jackhammer Setback Distances*. Distances are provided without barriers, and with the incorporation of a 6-foot barrier located 8 feet from the noise-generating equipment.

Table 17
JACKHAMMER SETBACK DISTANCES

Jurisdiction	Threshold at NSLU (dBA L_{EQ} [1 hour]) [1]	Land Use Type	Distance Within Which Noise Levels Would Exceed Threshold	
			No Barrier	With 6-foot Barrier[2]
Los Angeles	60	Residential	1,000 feet	180 feet
Torrance	No Limit	Residential	NA	NA
Lomita	65	Residential	550 feet	100 feet
	75	Commercial	180 feet	32 feet
Rolling Hills Estates	55	Residential	1,750 feet	325 feet
	65	Commercial	550 feet	100 feet

[1] Jackhammer use would fall under the Los Angeles standard for construction activity lasting more than one day, but less than 10 days in a three-month period is 10 dBA above the 50 dBA ambient noise levels presumed for a residential neighborhood.
[2] Barrier is assumed to be approximately 8 feet from noise source.
NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level
NA = not applicable (Torrance does not have noise level limits for construction activities)

Jackhammer use within the setback distances from NSLUs in Los Angeles, Lomita, and Rolling Hills Estates would result in a potentially significant impact. Torrance does not set daytime construction noise level standards in its municipal code, and impacts would therefore be less than significant when conducted between the hours of 7:30 a.m. and 6:00 p.m. on weekdays and between 9:00 a.m. and 5:00 p.m. on Saturdays.

4.4.1.5 Valve Relocation and Replacement

Relocation of the underground air release/vacuum valves from below ground to above ground would involve running new piping from the existing valve connection point in the vault to a nearby above-ground location and installing a new vault above ground. This would require shallow trenching from the existing below-ground vault to a parkway location. Shallow trenching would require the short-term use of a concrete saw and backhoe. Similarly, the replacement of and improvements to isolation valves, flow meters, other isolation valves, and service connections would also require shallow trenching, which would require a backhoe and concrete saw. Valve relocation and replacement work is anticipated to be required within Los Angeles, Torrance, Lomita, Rolling Hills Estates, Long Beach, and Carson.

A backhoe in use for 50 percent of an hour would generate 65 dBA within approximately 150 feet and a concrete saw in continuous use for one hour would generate 100 dBA within approximately 20 feet. Because these pieces of equipment would be used at numerous and variable locations along the pipeline alignment, noise levels at specific receptors are not provided. Instead, the setback distances needed to meet Los Angeles', Lomita's, Rolling Hills Estates', and Carson's exterior noise thresholds at land uses located in proximity to anticipated work sites are provided in Table 18, *Backhoe Setback Distances,* and Table 19, *Concrete* Saw *Setback Distances*. Due to the short-term use of a backhoe and the mobile nature of its use, a temporary sound barrier would not likely be used. Distances for the

concrete saw, however, are provided without barriers and with the incorporation of a 6-foot barrier located 8 feet from the noise-generating equipment.

Table 18
BACKHOE SETBACK DISTANCES

Jurisdiction	Threshold at NSLU (dBA L_{EQ} [1 hour])	Land Use Type	Distance Within Which Noise Levels Would Exceed Threshold
Los Angeles	60[1]	Residential	270 feet
Torrance	No Limit	Residential	NA
Lomita	65	Residential	150 feet
	75	Commercial	48 feet
Rolling Hills Estates	55	Residential	480 feet
	65	Commercial	150 feet
Long Beach	No Limit	Residential	NA
Carson	75[2]	Single-family Residential	48 feet
	80[3]	Multi-family Residential	27 feet

[1] Backhoe use would fall under the Los Angeles standard for construction activity lasting more than one day, but less than 10 days in a three-month period is 10 dBA above the 50 dBA ambient noise levels presumed for a residential neighborhood.

[2] Backhoe use would fall under the Carson definition of nonscheduled, intermittent, short-term operation, with a 75 dBA L_{EQ} standard for single-family residences.

[3] Backhoe use would fall under the Carson definition of nonscheduled, intermittent, short-term operation, with an 80 dBA L_{EQ} standard for multi-family-family residences.

NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level

NA = not applicable (Torrance and Long Beach do not set daytime noise level limits for construction activities in their municipal codes)

Table 19
CONCRETE SAW SETBACK DISTANCES

Jurisdiction	Threshold at NSLU (dBA L_{EQ} [1 hour])	Land Use Type	Distance Within Which Noise Levels Would Exceed Threshold	
			No Barrier	With 6-foot Barrier[1]
Los Angeles	60[2]	Residential	2,000 feet	300 feet
Torrance	No Limit	Residential	NA	NA
Lomita	65	Residential	1,150 feet	160 feet
	75	Commercial	350 feet	50 feet
Rolling Hills Estates	55	Residential	3,500 feet	500 feet
	65	Commercial	1,150 feet	160 feet
Long Beach	No Limit	Residential	NA	NA
Carson	75[3]	Single-family Residential	350 feet	50 feet
	80[4]	Multi-family residential	200 feet	30 feet

1 Barrier is assumed to be approximately 8 feet from noise source.
2 Concrete saw use would fall under the Los Angeles standard for construction activity lasting more than one day, but less than 10 days in a three-month period is 10 dBA above the 50 dBA ambient noise levels presumed for a residential neighborhood.
3 Concrete saw use would fall under the Carson definition of nonscheduled, intermittent, short-term operation, with a 75 dBA L_{EQ} standard for single-family residences.
4 Concrete saw use would fall under the Carson definition of nonscheduled, intermittent, short-term operation, with an 80 dBA L_{EQ} standard for multi-family-family residences.
NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level
NA = not applicable (Torrance and Long Beach do not set daytime noise level limits for construction activities in their municipal codes)

Backhoe or concrete saw use within the setback distances from NSLUs in Los Angeles, Lomita, Rolling Hills Estates, and Carson would result in a potentially significant impact. Torrance does not set daytime construction noise level standards in its municipal code, and impacts would therefore be less than significant when conducted between the hours of 7:30 a.m. and 6:00 p.m. on weekdays and between 9:00 a.m. and 5:00 p.m. on Saturdays. Similarly, Long Beach does not set daytime construction noise level standards in its municipal code, and impacts would therefore be less than significant when conducted between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and between 9:00 a.m. and 6:00 p.m. on Saturdays.

4.4.1.6 Dewatering

Dewatering would be required prior to excavation and relining activity. The exact dewatering locations are not known at this time, but may occur within Los Angeles, Torrance, Lomita, Rolling Hills Estates, Long Beach, and Carson. Dewatering would require the use of a submersible pump and generator to power the pump. The only audible equipment would be the generator. Dewatering would occur 24 hours per day for up to seven days.

A generator in continuous use for one hour would generate 75 dBA within approximately 12 feet. Because equipment would potentially move to different locations along the pipeline alignment as dewatering proceeds, calculation of noise levels at specific receptor locations is not possible at this time. Instead, the setback distances needed to meet Los Angeles', Lomita's, Rolling Hills Estates', and Carson's

noise thresholds are provided in Table 20, *Generator Setback Distances*. Distances are provided without barriers, and with the incorporation of a 6-foot barrier located 8 feet from the noise-generating equipment.

A generator used within the setback distances from NSLUs in Los Angeles, Lomita, Rolling Hills Estates, and Carson would result in a potentially significant impact. Torrance does not set daytime construction noise level limits in its municipal code, and impacts would therefore be less than significant provided that it is conducted between the hours of 7:30 a.m. and 6:00 p.m. on weekdays and between 9:00 a.m. and 5:00 p.m. on Saturdays. Similarly, Long Beach does not set daytime construction noise level standards in its municipal code, and impacts would therefore be less than significant when conducted between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and between 9:00 a.m. and 6:00 p.m. on Saturdays.

Table 20
GENERATOR SETBACK DISTANCES

Jurisdiction	Threshold at NSLU (dBA L_{EQ} [1 hour])	Land Use Type	Distance Within Which Noise Levels Would Exceed Threshold	
			No Barrier	With 6-Foot Barrier[1]
Angeles	60[2]	Residential	75 feet	25 feet
Torrance	No Limit	Residential	NA	NA
Lomita	65	Residential	40 feet	14 feet
	75	Commercial	12 feet	5 feet
Rolling Hills Estates	55	Residential	120 feet	45 feet
	65	Commercial	40 feet	14 feet
Long Beach	No Limit	Residential	NA	NA
Carson	75[3]	Single-family Residential	12 feet	5 feet
	80[4]	Multi-family residential	7 feet	3 feet

1 Barrier is assumed to be approximately 8 feet from noise source.
2 Generator use would fall under the Los Angeles standard for construction activity lasting more than one day, but less than 10 days in a three-month period is 10 dBA above the 50 dBA ambient noise levels presumed for a residential neighborhood.
3 Generator use would fall under the Carson definition of nonscheduled, intermittent, short-term operation, with a 75 dBA L_{EQ} standard for single-family residences.
4 Generator use would fall under the Carson definition of nonscheduled, intermittent, short-term operation, with an 80 dBA LEQ standard for multi-family-family residences.
NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level
NA = not applicable (Torrance and Long Beach do not have noise level limits for construction activities)

4.4.2 Nighttime Construction Operations

The noise-producing construction activities that would require nighttime work would be dewatering, pipeline relining, and ventilation to support relining work. While pipeline relining and ventilation would occur only within Los Angeles, Torrance, Lomita, and Rolling Hills Estates, dewatering may occur within these four cities as well as within Long Beach and Carson. In the City of Los Angeles CEQA Thresholds Guide, nighttime hours are defined as between 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, and at any time on Sunday. Nighttime construction noise is limited to 45 dBA for residential zones in Los Angeles, which is 5 dBA above the 40 dBA nighttime

ambient noise level presumed for residential zones. In the Torrance Municipal Code, nighttime hours are defined as between 6:00 p.m. and 7:30 a.m. Monday through Friday, before 9:00 a.m. and after 5:00 p.m. on Saturday, and at any time on Sunday. Nighttime construction noise is limited to 50 dBA for residential zones in Torrance. In the Lomita Municipal Code, nighttime hours are defined as between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday, and before 9:00 a.m. and after 5:00 p.m. Saturday, Sunday, and Holidays. In the Rolling Hills Estates Municipal Code, nighttime hours are defined as between 5:00 p.m. and 7:00 a.m. Monday through Friday, before 9:00 a.m. and after 5:00 p.m. on Saturday, and at any time on Sunday. In the Long Beach Municipal Code, nighttime hours are defined as between 7:00 p.m. and 7:00 a.m. on weekdays, before 9:00 a.m. and after 6:00 p.m. on Saturdays, and all day on Sundays. In the Carson Municipal Code, nighttime hours are defined as between 8:00 p.m. and 7:00 a.m. or any time on Sundays or holidays. Nighttime noise limits in Carson are shown above in Table 7.

Dewatering would involve the use of a submersible pump that would not be audible and a generator. Dewatering would take place for approximately four to seven days at each dewatering location. Exceedances of nighttime limits for dewatering activities are shown with and without barriers in Table 21, *Generator Setback Distances – Nighttime Hours*. For relining activities, exceedances of nighttime noise limits with and without barriers are shown in Table 22, *Relining Activity Site Construction Noise – Nighttime Hours*. For the use of ventilation equipment to support nighttime relining activities, exceedances of nighttime thresholds are shown with and without barriers in Table 23, *Ventilation Location Setback Distances – Nighttime Hours*.

Table 21
GENERATOR SETBACK DISTANCES – NIGHTTIME HOURS

Jurisdiction	Threshold at NSLU (dBA L_{EQ} [1 hour])	Land Use Type	Distance Within Which Noise Levels Would Exceed Threshold	
			No Barrier	6-foot Barrier[1]
Los Angeles	45	Residential	380 feet	135 feet
Torrance	50	Residential	215 feet	80 feet
Lomita	No construction allowed	Residential	NA	NA
	No construction allowed	Commercial	NA	NA
Rolling Hills Estates	No construction allowed	Residential	NA	NA
	No construction allowed	Commercial	NA	NA
Long Beach	No construction allowed	Residential	NA	NA
Carson	60[2]	Single-family Residential	65 feet	25 feet
	64[3]	Multi-family Residential	45 feet	15 feet

[1] Barrier is assumed to be approximately 8 feet from the noise source.
[2] Generator use would fall under the Carson definition of nonscheduled, intermittent, short-term operation, with a 60 dBA L_{EQ} standard for single-family residences.
[3] Generator use would fall under the Carson definition of nonscheduled, intermittent, short-term operation, with a 64 dBA L_{EQ} standard for multi-family-family residences.
NA = not applicable.
NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level

Table 22
RELINING ACTIVITY SITE CONSTRUCTION NOISE – NIGHTTIME HOURS

Site	NSLU Jurisdiction	NSLU Type	NSLU Distance	Threshold at NSLU (dBA L_{EQ} [1 hour]) [1]	No Barrier		8-foot Barrier[1]		12-foot Barrier[1]	
					Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?	Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?	Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?
Pipe Access Sites										
1860	Los Angeles	Single-family and multi-family residences	10 feet	45	92.4	Yes	74.8	Yes	71.5	Yes
1863	Los Angeles	Single-family and multi-family residences	40 feet	45	80.4	Yes	68.6	Yes	62.0	Yes
1916	Los Angeles/ Torrance	Single-family and multi-family residences	40 feet	45 / 50	80.4	Yes	68.6	Yes	62.0	Yes
1964	Los Angeles	Single-family residences	100 feet	45	72.2	Yes	61.3	Yes	54.6	Yes
2015	Los Angeles/ Lomita	Single-family residences	90 feet	45 / No construction allowed	73.2	Yes / NA	62.1	Yes / NA	55.5	Yes / NA
2022	Lomita	Single-family and multi-family residences	20 feet	No construction allowed	86.4	NA	73.0	NA	66.9	NA
2034	Lomita	Single-family residences	20 feet	No construction allowed	86.4	Yes	73.0	Yes	73.0	Yes
2098	Rolling Hills Estates	Park; single-family residences	130 feet	No construction allowed	69.9	NA	59.1	NA	52.5	NA
2109 and 2114	Rolling Hills Estates	Single-family residences	200 feet	No construction allowed	66.0	NA	55.5	NA	48.8	NA

Site	NSLU Jurisdiction	NSLU Type	NSLU Distance	Threshold at NSLU (dBA L_{EQ} [1 hour]) [1]	No Barrier		8-foot Barrier[1]		12-foot Barrier[1]	
					Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?	Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?	Noise Levels (dBA L_{EQ} [one hour])	Exceed Standard at NSLU?
Maintenance Hole Enlargement Sites (Potential Pipe Access Sites)										
SLF Sta. 1875+56	Los Angeles	Single-family residences	50 feet	45	78.4	Yes	67.0	Yes	60.3	Yes
SLF Sta. 1899+76	Torrance	Single-family residences	60 feet	50	76.8	Yes	65.6	Yes	58.9	Yes
SLF Sta. 1957+80	Los Angeles	School/Single-family residences	50 feet	45	78.4	Yes	67.0	Yes	60.3	Yes
SLF Sta. 2034+32	Lomita	Single-family residences	20 feet	No construction allowed	86.4	Yes	73.0	Yes	66.9	Yes
SLF Sta. 2045+04	Lomita	Single-family residences	10 feet	No construction allowed	92.4	Yes	74.8	Yes	71.5	Yes

[1] Barrier is assumed to be 8 feet from the noise source.

NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level; NA = not applicable

Table 23
VENTILATION LOCATION SETBACK DISTANCES – NIGHTTIME HOURS

Jurisdiction	Threshold at NSLU (dBA L_{EQ} [1 hour])	Land Use Type	Distance Within Which Noise Levels Would Exceed Threshold	
			No Barrier	With 8-foot Barrier[1]
Los Angeles	45	Residential	850 feet	170 feet
Torrance	50	Residential	500 feet	95 feet
Lomita	No construction allowed	Residential	NA	NA
	No construction allowed	Commercial	NA	NA
Rolling Hills Estates	No construction allowed	Residential	NA	NA
	No construction allowed	Commercial	NA	NA

Note: Ventilation activity assumes the use of a generator, blower, and welder.
[1] Barrier is assumed to be approximately 8 feet from the noise source.
NSLU = Noise Sensitive Land Use; dBA = A-weighted decibels; L_{EQ} = equivalent sound level; NA = not applicable

4.4.2.1 Additional Potential Nighttime Construction Activities

The proposed valve replacement at Service Connection T-08, located at SLF STA 1902+95 near the intersection of Western Avenue and Sepulveda Boulevard, and modifications to a blow-off structure, located at STA 1973+18 near the intersection of Western Avenue and Lomita Boulevard, may require nighttime work to minimize traffic effects at these major intersections. Construction work associated with improvements to Service Connection T-08 would occur as close as 200 feet from a residential NSLU within Torrance, where nighttime construction work is limited to 50 dBA L_{EQ} (1-hour). Improvements would involve construction activities similar to those described in Section 4.4.1.5 (trenching using a concrete saw and backhoe). At 200 feet, a backhoe would generate a noise level of 62.5 dBA L_{EQ} and a concrete saw would generate a noise level of 77.6 dBA L_{EQ}. As discussed in Section 4.4.1.5, due to the short-term and mobile nature of the use of a backhoe, a barrier would likely not be used, and noise levels would exceed the Torrance nighttime noise limit of 50 dBA L_{EQ} (1-hour). For use of concrete saw, a 6-foot barrier would attenuate noise levels to approximately 60 dBA L_{EQ}, and noise levels at the nearby residential NSLUs would exceed the 50-dBA L_{EQ} (1-hour) nighttime noise limit for Torrance.

Construction work associated with modifications to the blow-off structure at SLF STA 1973+18 would occur as close as 120 feet from a residential NSLU within Los Angeles, where nighttime construction work is limited to 45 dBA L_{EQ} (1-hour). Blow-off structure modifications would require the use of a jackhammer, as described in Section 4.4.1.4. At 120 feet, a jackhammer would generate a noise level of 78.3 dBA L_{EQ}. With a 6-foot barrier, noise levels would be reduced to approximately 63 dBA L_{EQ}, and noise levels at the nearby residential NSLUs would exceed the 45-dBA L_{EQ} (1-hour) nighttime noise limit for Los Angeles.

4.4.3 Construction Traffic

As described in Section 3.2.4, construction would add a maximum of 104 daily trips per pipe access site to nearby roadways. This would consist of 64 passenger vehicles and 40 trucks per day, or approximately 8 vehicles and 4 trucks during a peak hour. A general rule of thumb is that a doubling of traffic would cause a doubling in sound energy (a 3-dBA increase), which would be perceptible and, therefore, a significant increase.

Because of the location of the pipe access sites, construction traffic would be required on local streets. An additional 104 vehicle trips over the course of a day would represent less than a doubling in trips and therefore would not be expected to cause a doubling in noise. Furthermore, it is unlikely that 104 trips would be needed for extended periods of time, and overall construction noise impacts would be temporary. The addition of construction traffic would be less than significant, and no mitigation is required.

4.4.4 Mitigation Measures

The project would be required to comply with PEIR MM NOI-2, PEIR MM NOI-3, and PEIR MM NOI-4 to reduce noise levels, as feasible. To comply with PEIR MM NOI-3, the following additional project measures shall be implemented:

MM NOI-3.1 **Construction Exterior Noise Level Standards.** Construction noise from project construction activities shall comply with the daytime and nighttime thresholds and hours specified by Los Angeles, Torrance, Lomita, Rolling Hills Estates, Long Beach, and Carson for sensitive receptors to the maximum extent feasible.

Within Los Angeles, daytime construction activities lasting more than one day and less than 10 days in a three-month period shall comply with the 60 dBA L_{EQ} standard for residential zones. Daytime construction activities lasting more than 10 days in a three-month period shall comply with the 55 dBA L_{EQ} standard for residential zones. Nighttime (9:00 p.m. to 7:00 a.m. on weekdays, before 8:00 a.m. and after 6:00 p.m. on Saturday, and any time on Sunday) shall comply with the 45 dBA L_{EQ} standard for residential zones.

Within Torrance, construction activities shall occur only between 7:30 a.m. and 6:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturdays. If construction occurs outside these hours, noise levels shall not exceed 50 dBA as measured at property lines.

Within Lomita, construction activities shall occur only between 7:00 a.m. and 6:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturdays, Sundays, and Holidays. In addition, daytime construction noise shall comply with the 65 dBA standard for residential land uses and the 75 dBA standard for commercial land uses.

Within Rolling Hill Estates, construction activities shall occur only between 7:00 a.m. and 5:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturdays. In addition, daytime construction noise shall comply with the 55 dBA standard for residential land uses and the 65 dBA standard for commercial uses.

MM NOI-3.2 **Noise Reduction Measures for Pipe Access Site Excavation and Relining Activities**. Measures to reduce noise levels to below a level of significance may include the use of noise barriers, noise attenuation devices/modifications to construction equipment, limiting hours of operation, or a combination of these measures.

For excavation activities at all proposed pipe access sites, a 12-foot barrier shall be required to reduce noise levels.

For pipeline relining activities at all proposed pipe access sites, a 12-foot barrier shall be required to reduce noise levels.

If a temporary barrier is used, all barriers shall be solid and constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, with no cracks or gaps through or below the wall. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove or close butted seams and must be at least ¾-inch thick or have a surface density of at least 3.5 pounds per square foot. Sheet metal of 18 gauge (minimum) may be used if it meets the other criteria and is properly supported and stiffened so that it does not rattle or create noise itself from vibration or wind. Noise blankets, hoods, or covers also may be used, provided they are appropriately implemented to provide the required sound attenuation. The noise control barrier enclosures should be of an elongated "U" shape, with the elongated sides parallel to the pipeline.

MM NOI-3.3 **Setback Distances for Mobile Operations (Ventilators, Manholes, Valves).** For construction operations that would occur at movable locations along the pipeline alignment, the following setback distances and/or barriers shall be necessary to maintain noise levels to within local standards for residential land uses in Los Angeles, Torrance, Lomita, Rolling Hills Estates, Long Beach and Carson, and for commercial land uses in the Lomita and Rolling Hills Estates. Setback distances and/or barriers shall be used to the extent feasible.

Daytime

For ventilation activities, equipment shall be set back outside of the distances within which noise levels would exceed thresholds, as presented in Table 15 of this noise report, for Los Angeles, Lomita, and Rolling Hills Estates.

For the continuous use of a jackhammer during a single hour, equipment shall be setback outside of the distances within which noise levels would exceed thresholds, as presented in Table 16 of this noise report, for Los Angeles, Lomita, and Rolling Hills Estates.

For use of a backhoe, equipment shall be setback outside of the distances within which noise levels would exceed thresholds, as presented in Table 17 of this noise report, for Los Angeles, Lomita, Rolling Hills Estates, and Carson.

For the continuous use of a concrete saw during a single hour, equipment shall be setback outside of the distances within which noise levels would exceed thresholds, as presented in Table 18 of this noise report, for Los Angeles, Lomita, Rolling Hills Estates, Carson.

For the continuous use of a generator during a single hour, equipment shall be setback outside of the distances within which noise levels would exceed thresholds, as presented in Table 19 of this noise report, for Los Angeles, Lomita, Rolling Hills Estates, and Carson.

Nighttime

For the continuous use of a generator during a single hour at night, equipment shall be setback outside of the distances within which noise levels would exceed thresholds, as presented in Table 20 of this noise report, for Los Angeles, Torrance, and Carson.

For nighttime ventilation activities, equipment shall be setback outside of the distances within which noise levels would exceed thresholds, as presented in Table 22 of this noise report, for Los Angeles and Torrance.

MM NOI-3.4 **Nighttime Construction Management Plan.** The project specifications shall require preparation of a Nighttime Construction Management Plan prior to the onset of construction. The plan shall describe measures to reduce noise levels for any nighttime work that may occur. Specific measures to reduce construction noise may include:

- Placement of noise-generating equipment as far as feasible from noise-sensitive land uses.
- Utilization of enclosures or other barriers for equipment to reduce noise levels.
    - If work at Service Connection T-08 using a concrete saw occurs during nighttime hours, a 6-foot noise barrier shall be required between the equipment and residential land uses to reduce noise levels.
    - If work at the blow-off structure located at SLF STA 1973+18 using a jackhammer occurs during nighttime hours, a 6-foot noise barrier shall be required between the equipment and residential land uses to reduce noise levels.
- Construction equipment properly outfitted and maintained with manufacturer-recommended noise-reduction devices.
- Diesel equipment operated with closed engine doors and equipped with factory-recommended mufflers.
- Written notification to residents within 100 feet of the project's property line, provided a minimum of one week prior to nighttime construction activity. Notification to include a description of activities anticipated, expected dates and hours for construction, and contact information with details of a complaint and response procedure.

4.4.5 Significance After Mitigation

4.4.5.1 Daytime Construction Operations

Impacts from pipe access site excavation would remain significant at all pipe access sites with the use of a 12-foot barrier. Impacts from relining activities would remain significant at all pipe access sites except for Pipe Access Sites 1964, 2098, 2109, and 2114 with the use of a 12-foot barrier. Impacts associated with pipe access site excavation and relining are therefore considered significant and unavoidable. As

noted in Section 1.3, however, impacts would be consistent with those identified in the PEIR. For activities that would occur at various, movable locations along the pipeline alignment, provided the setback distances with or without inclusion of barriers as described in MM NOI-3.3 and listed in Tables 15 through 19 are maintained, impacts would be reduced to less-than-significant levels.

4.4.5.2 Nighttime Construction Operations

Noise levels from nighttime relining activities at all pipe access sites within Los Angeles and Torrance would exceed respective nighttime standards at nearby NSLUs, and impacts would be significant and unavoidable; however, impacts would be consistent with those identified in the PEIR. Similarly, noise levels from nighttime work at Service Connection T-08 in Torrance and at the blow-off structure located at SLF STA 1973+18 in Los Angeles would exceed respective nighttime standards at nearby NSLUs, even with the use of temporary barriers, and impacts would be significant and unavoidable; however, these impacts too would be consistent with those identified in the PEIR. Impacts associated with dewatering and ventilation activities within Los Angeles, Torrance, and Carson would be less than significant after mitigation, which involves maintaining the setback distances depicted in Tables 21 and 23. If dewatering or ventilation activities occur within these setback distances, impacts would be significant.

The use of temporary noise barriers during nighttime dewatering, relining, and ventilation activities would reduce noise levels at nearby NSLUs within Lomita, Rolling Hills Estates, and Long Beach; however, because Lomita, Rolling Hills Estates, and Long Beach do not allow nighttime construction, noise impacts associated with construction between the hours of 6:00 p.m. and 7:00 a.m. on weekdays, before 9:00 a.m. and after 5:00 p.m. on Saturdays, Sundays, and Holidays in Lomita, between the hours of 5:00 p.m. and 7:00 a.m. on weekdays, before 9:00 a.m. and after 5:00 p.m. on Saturdays, or any time on Sundays in Rolling Hills Estates, or between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, before 9:00 a.m. and after 6:00 p.m. on Saturdays, or any time on Sundays in Long Beach would be significant and unavoidable. As noted in Section 1.3, however, impacts would be consistent with those identified in the PEIR.

4.5 ISSUE 5: AIRPORT NOISE EXPOSURE

Would the project expose people residing or working in the project area to excessive noise from a nearby public use airport or private airstrip?

The project proposes the relining of an underground pipeline, and no housing or permanent workers would result from the project. Additionally, construction workers would wear noise safety gear as required by the federal Occupational Safety and Health Administration that would also serve as protection from any airport noise exposure. No impacts from airport noise exposure would occur.

5.0 LIST OF PREPARERS

Hunter Stapp	Noise Analyst
Charles Terry	Senior Acoustic Specialist
Joanne M. Dramko, AICP	Senior Technical Specialist, QA/QC
Amy L. Mila de la Roca	Project Manager
Andrea Bitterling	Principal-in-Charge

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

6.0 REFERENCES

California Department of Transportation (Caltrans). 2013. Technical Noise Supplement (TeNS) to the Traffic Noise Protocol. September.

City of Lomita. 2019. City of Lomita Municipal Code. Article 2 – Noise Regulations. Available at: https://library.municode.com/ca/lomita/codes/code_of_ordinances?nodeId=MUCO_TITIVPUWEMOCO_CH4NORENESOYAMACO_ART2NOREEN.

City of Los Angeles. 2006. L.A. CEQA Thresholds Guide. Available at: http://planning.lacity.org/Documents/MajorProjects/CEQAThresholdsGuide.pdf.

City of Rolling Hills Estates. 2018. City of Rolling Hills Estates Municipal Code. Chapter 8.32 – Noise. Available at: https://library.municode.com/ca/rolling_hills_estates/codes/code_of_ordinances?nodeId=TIT8HESA_CH8.32NO_8.32.210PEONHODA.

City of Torrance. 2019. City of Torrance Municipal Code. Chapter 46.3.1, Construction of Buildings and Projects. Available at: https://www.codepublishing.com/CA/Torrance/#!/Torrance04/Torrance0406.html#46.3.1.

Department for Environment, Food and Rural Affairs (Defra). 2005. Update of Noise Database for Prediction of Noise on Construction and Open Sites. Prepared by Hepworth Acoustics, Ltd. July 22.

Linscott, Law & Greenspan, Engineers (LLG). 2019. Traffic Impact Study for the Relining of the Second Lower Feeder PCCP Project: Reach 3. November 19.

The Metropolitan Water District of Southern California. 2016. Programmatic Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH No. 2014121055). December.

U.S. Department of Transportation, Federal Highway Administration(FHWA). 2007. Construction Equipment Noise levels and Ranges – Highway Construction Noise. August 29.

U.S. Department of Transportation, Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment. May.

U.S. Department of Transportation (USDOT). 2008. Roadway Construction Noise Model.

This page intentionally left blank

Appendix A

Site Survey Measurement Sheets

Site Survey

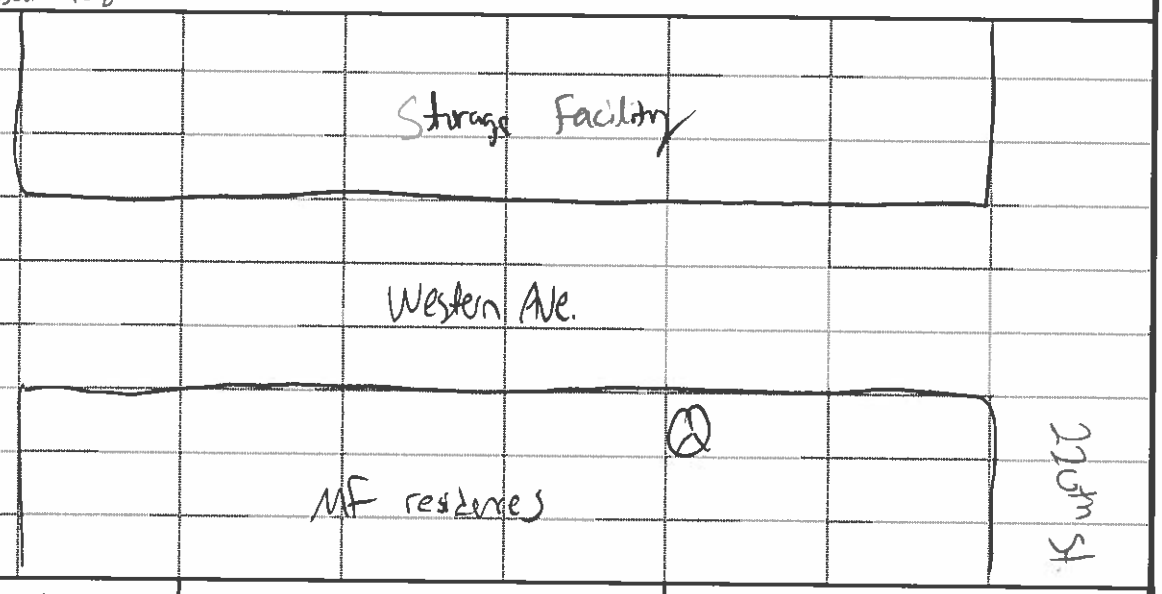
Job # MWD - 24.03	Project Name: PCCP Reach 3		
Date: 12/7/18	Site #: 1863	Engineer: HTG	
Address: along eastern edge of Western Ave between 221st and 220th			
Meter: LD LXT	Serial #: 1741	Calibrator: LD CAL150	Serial #: 1544

Notes: Clear

Traffic along Western Ave dominant noise source

Data: 108

Sketch:



Temp:	67° F	Wind Spd:	3 mph	Humidity:	48 %
Start of Measurement:	11:24 am	End of Measurement:	11:34 am	73.7	dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

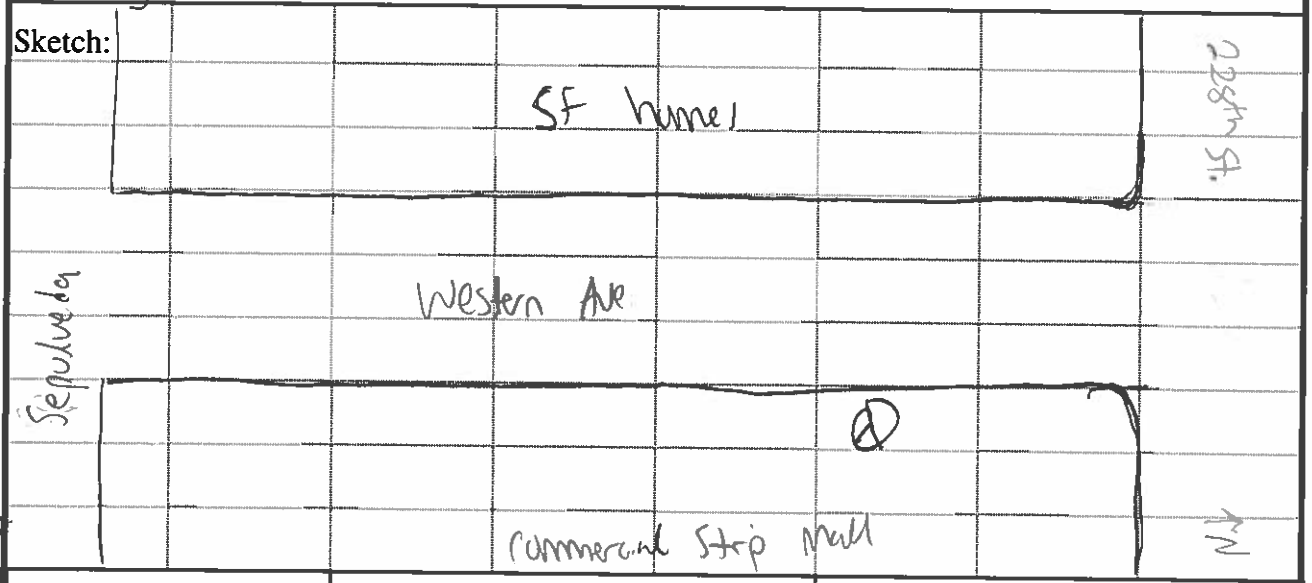
No Calibration Analysis Will Be Provided

Site Survey

Job # MWD-24.03	Project Name: PCCP Reach 3		
Date: 12/7/18	Site #: 1897	Engineer: HTS	
Address: along eastern side of Western Ave, North of Sepulveda			
Meter: LD LxT	Serial #: 1741	Calibrator: LD CA250	Serial #: 1544

Notes: Clear
Traffic along Western dominant noise source
Date: 107

Sketch:



Temp: 64°F	Wind Spd: 3 mph	Humidity: 50 %
Start of Measurement: 11:05 am	End of Measurement: 11:15 am	76.1 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

Site Survey

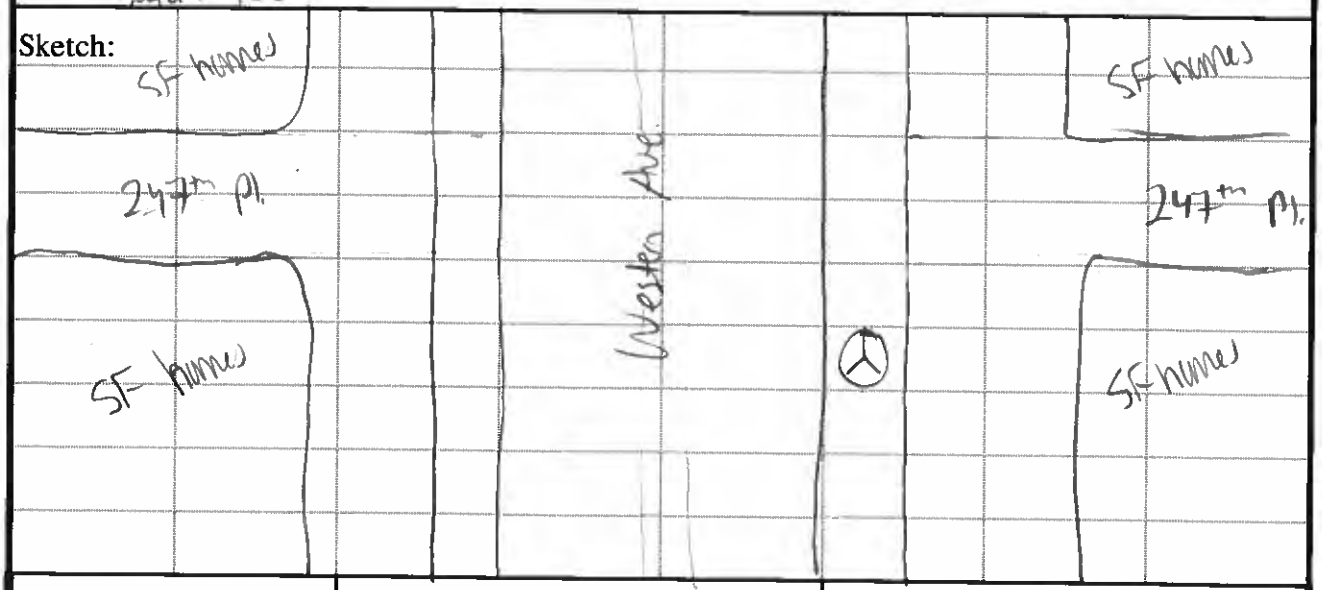
Job # MWD-24.03	Project Name: PCCP Reach 3		
Date: 12/7/18	Site #: 1964	Engineer: HTS	
Address: Along eastern side of Western Ave, just south of 247th Place			
Meter: LD LXT	Serial #: 1741	Calibrator: LD LA250	Serial #: 1544

Notes: Clear

Traffic on Western Ave main noise source

Data: 106

Sketch:



Temp: 64°F	Wind Spd: 3 mph	Humidity: 54 %
Start of Measurement: 10:42 am	End of Measurement: 10:52 am	72.3 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

Site Survey

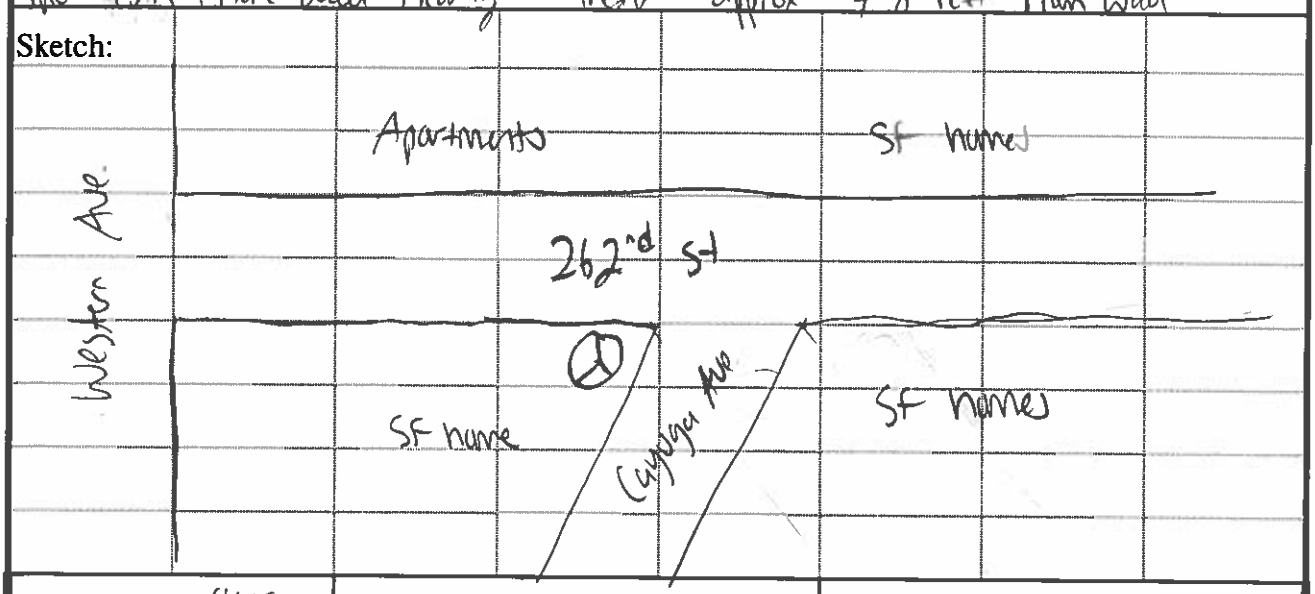
Job # MWD-24.03	Project Name: PCCP Reach 3		
Date: 12/7/18	Site #: 2022	Engineer: HTS	
Address: Intersection of 262nd St and Cayuga Avenue			
Meter: LD LxT	Serial #: 1741	Calibrator: LD CAL50	Serial #: 1544

Notes: Clear - Data: 105

Traffic noise along western and 262nd St ; distant landscaping equipment

Short (3ft) stone wall nearby - meter approx 7-8 feet from wall

Sketch:



Temp: 64°F	Wind Spd: 0 mph	Humidity: 56 %
Start of Measurement: 10:18 am	End of Measurement: 10:28 am	62.3 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

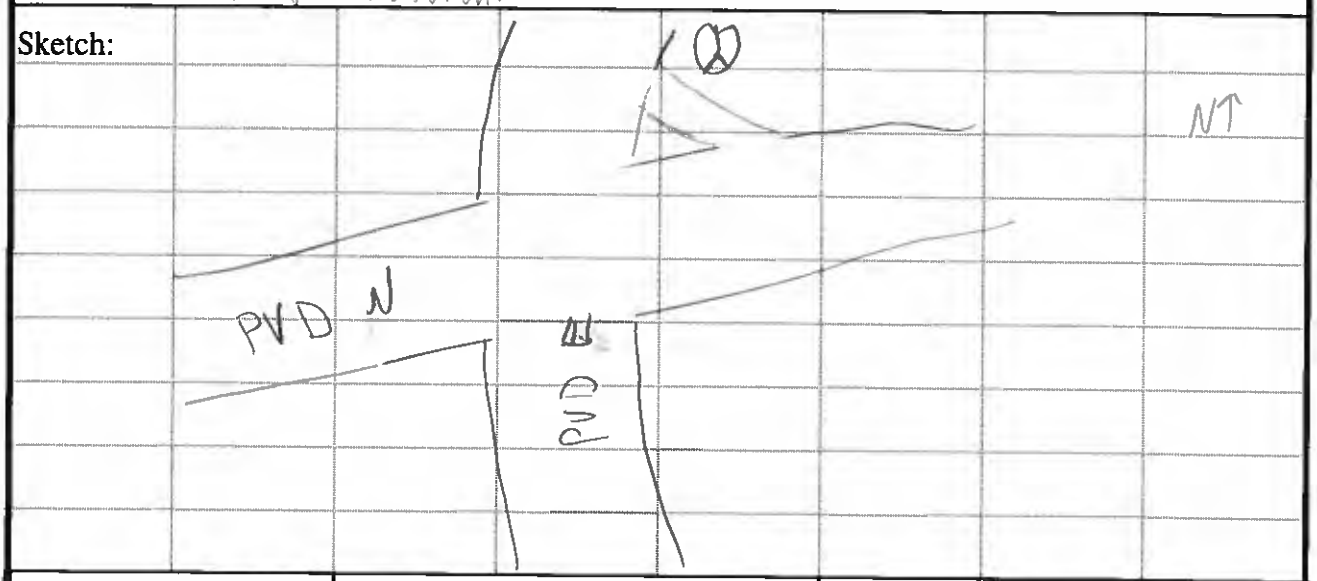
Site Survey

Job # MND-24.03	Project Name: PCCP Beacon 3		
Date: 12/7/18	Site #: 2098	Engineer: HTS	
Address: Northeastern corner of Palos Verdes Dr. N and Palos Verdes Dr. E			
Meter: LD LXT	Serial #: 1741	Calibrator: LD CA250	Serial #: 1544

Notes: Clear — Data: 104

Traffic dominant noise source; distant tree trimming noise last 2 minutes of Measurement.

Sketch:



Temp: 61°F	Wind Spd: 5	mph	Humidity: 61	%	
Start of Measurement: 9:51 am	End of Measurement: 10:01 am		68.0	dBA L_{EQ}	

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

Site Survey

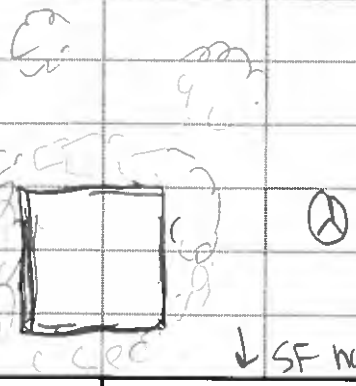
Job # MWD-24.03	Project Name: PCCP Reach 3		
Date: 12/7/18	Site #: 2111	Engineer: HTS	
Address: —			
Meter: LD LxT	Serial #: 1741	Calibrator: LD CAL250	Serial #: 1544

Notes: Clear

Dominant noise source: traffic on Palos Verdes Drive East

Data: 103

Sketch:



Temp: 53° F	Wind Spd: 4 mph	Humidity: 77 %
Start of Measurement: 7:36 am	End of Measurement: 7:46 am	57.3 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

ADDENDUM #5
to the
Programmatic Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program
Second Lower Feeder Reach 3

January 2022

The Metropolitan Water District of
Southern California
700 North Alameda Street
Los Angeles, California 90012

Metropolitan Report No. 1527-5

PRESTRESSED CONCRETE CYLINDER PIPE REHABILITATION PROGRAM FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT REPORT

PREPARED FOR:

Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, California 90012
Contact: Arleen Arita
Manager, Program Management Unit, Engineering Services Section
(213) 217-6460

PREPARED BY:

ICF International
1 Ada, Suite 100
Irvine, CA 92618
Contact: Donna McCormick
(714) 949-6611

December 2016

ICF International. 2016. Prestressed Concrete Cylinder Pipe Rehabilitation Program Final Programmatic Environmental Impact Report. December. (ICF 52.14.) Irvine, CA. Prepared for Metropolitan Water District of Southern California, Los Angeles, California.

Contents

Tables

Table

Figures

Acronyms and Abbreviations

AQMP	air quality management plan
ALUP	airport land use plan
AWWA	American Water Works Association
AB	Assembly Bill
dBA	A-weighted decibels
BMPs	best management practices
BAU	business-as-usual
ARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CBC	California Building Code
CCR	California Code of Regulations
DOC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
Cal/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CRHR	California Register of Historical Resources
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CO	carbon monoxide
CAA	Clean Air Act
CWA	Clean Water Act
Central Basin	Coastal Plain of Los Angeles Groundwater Basin
CFR	Code of Federal Regulations
CE	Commuter Express
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMA	Congestion Management Agency
CMP	Congestion Management Program
CMPHS	Congestion Management Program Highway System
dB	decibels

DPM	diesel exhaust particulate matter
DAMP	Drainage Area Master Plan
EC-PCCP	embedded-cylinder prestressed concrete pipe
EDR	Environmental Data Resources
EIR	environmental impact report
EO	Executive Order
FMMP	Farmland Mapping and Monitoring Program
FESA	federal Endangered Species Act
Construction General Permit	General Permit for Stormwater Discharges Associated with Construction Activity
GWP	global warming potential
GHG	greenhouse gas
HCP	Habitat Conservation Plan
HCM	Highway Capacity Manual
HFCs	hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
ICU	Intersection Capacity Utilization
I	Interstate
I-105	Interstate 105
I-110	Interstate 110
I-15	Interstate 15
I-210	Interstate 210
I-215	Interstate 215
I-405	Interstate 405
I-5	Interstate 5
I-605	Interstate 605
I-710	Interstate 710
kWh	kilowatts per hour
Pb	lead
LOS	level of service
LC-PCCP	lined-cylinder prestressed concrete pipe
LIP	Local Implementation Plan
LST	localized significance threshold
LBT	Long Beach Transit
MTA	Los Angeles County Metropolitan Transportation Authority
LADOT	Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power

LID	Low-Impact Development
MEP	maximum extent practicable
CH_4	methane
MPO	Metropolitan Planning Organization
Metropolitan	Metropolitan Water District of Southern California
$\mu g/m^3$	micrograms per cubic meter
MBTA	Migratory Bird Treaty Act
$MMTCO_2e$	million metric tons of carbon dioxide
MSHCP	Multi-species Habitat Conservation Plan
MS4 Permit	Municipal Separate Storm Sewer Systems
MWDOC	Municipal Water District of Orange County
NAAQS	National Ambient Air Quality Standards
NCP	National Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NO	nitric oxide
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
N_2O	nitrous oxide
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
OCTA	Orange County Transportation Authority
OCWD	Orange County Water District
O_3	ozone
ppm	part per million
PM10	particulate matter 10 microns or less in diameter
PM2.5	particulate matter 2.5 microns or less in diameter
ppb	parts per billion
ppm	parts per million
PFCs	perfluorocarbons
psi	pound per square inch
PCS	Pressure Control Structure

PCCP	Pre-Stressed Concrete Cylinder Pipe
proposed program	Prestressed Concrete Cylinder Pipe Rehabilitation Program
Important Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
PEIR	Program Environmental Impact Report
PRC	Public Resources Code
ROG	reactive organic gas
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
RCRA	Resource Conservation and Recovery Act
Diemer Plant	Robert B. Diemer Water Treatment Plant
Omnitrans	San Bernardino County Public Transit
SRA	Seismic Response Area
SB	Senate Bill
SRAs	source receptor area
Basin	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SUSMP	Standard Urban Stormwater Management Plan
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SR	State Route
SR-118	State Route 118
SR-133	State Route 133
SR-241	State Route 241
SR-261	State Route 261
SR-27	State Route 27
SR-55	State Route 55
SR-57	State Route 57
SR-83	State Route 83
SR-90	State Route 90
SR-91	State Route 91
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWPPP	Stormwater Pollution Prevention Plan
SO_2	sulfur dioxide
SF_6	sulphur hexafluoride

TT	Torrance Transit
TMDL	total maximum daily load
TAC	toxic air contaminant
TIA	Traffic Impact Analysis
EPA	U.S. Environmental Protection Agency
US-101	U.S. Highway 101
VMT	vehicle miles traveled
VOC	volatile organic compounds
WDRs	waste discharge requirements
WPCP	Water Pollution Control Plan
Basin Plan	water quality control plan
WQMP	water quality management plan

Chapter 1
Summary

1.1 Introduction

This chapter provides a summary of this Programmatic Environmental Impact Report (PEIR) for implementation of the Metropolitan Water District of Southern California's (Metropolitan) proposed Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (proposed Program).[1] Metropolitan is the lead agency under the California Environmental Quality Act (CEQA). This PEIR has been prepared in accordance with CEQA (Public Resources Code [PRC] Section 21000 et seq.) and the Guidelines for Implementation of CEQA (State CEQA Guidelines) published by the Public Resources Agency of the State of California (California Code of Regulations [CCR], Title 14, Section 15000 et seq.).

This chapter highlights the major areas of importance in the environmental analysis for the proposed program ~~project~~ as required by State CEQA Guidelines Section 15123. It provides a brief description of the proposed program, a description of objectives and features of the proposed program, and a discussion of alternatives to the proposed program. In addition, this chapter includes a table summarizing: (1) the direct impacts that would occur from implementation of the proposed program; (2) the level of impact significance before mitigation; (3) the recommended mitigation measures that would avoid or reduce significant environmental impacts; (4) the level of impact significance after mitigation measures are implemented; and (5) whether or not additional environmental analysis is necessary before the program components can proceed to construction.

1.2 Program Description

Between 1962 and 1985, 163 miles of PCCP were installed throughout Metropolitan's service area. Under certain subsurface conditions, PCCP lines have an elevated risk of failure compared with other types of pipe. In response to this risk of failure, in the late 1990s, Metropolitan developed a program to inspect and assess all 163 miles of PCCP within its distribution system. In 2011, Metropolitan initiated a comprehensive program of inspections to evaluate and rank PCCP lines with the highest risk of failure. The data indicate that the following five pipelines represent the highest risk: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder.

Under the proposed program, Metropolitan would rehabilitate subsurface water distribution pipelines (also known as feeders[2]). Metropolitan is proposing to rehabilitate the PCCP portions of the five pipelines within its service area that were identified as having the highest risk as described above.

[1] The Notice of Preparation described this document as ~~was for~~ a combined PEIR and project-level EIR for the Second Lower Feeder. The project-level analysis is no longer a part of this PEIR. Project-level analysis will be provided at a later date.

[2] A feeder and a pipeline are equivalent. Unless referring to the formal name, *pipeline* will be used throughout this document.

1.2.1 Program Objectives

The proposed program is designed to maintain the reliability of Metropolitan's distribution system. The proposed program would minimize risks associated with failures by proactively rehabilitating each portion of PCCP, starting with the pipes that show the greatest risk of failure. This would help Metropolitan avoid possible unplanned system outages, thereby increasing service reliability for all customers within Metropolitan's service area.

The following are the objectives of the proposed ~~project and~~ program.

- Reduce the risk of unplanned outages
- Extend the service life of the pipelines
- Perform the rehabilitation work in a cost-effective manner
- Minimize the effects of rehabilitation efforts on Member Agency deliveries
- Minimize the loss of hydraulic capacity due to rehabilitation
- Improve system operational and emergency flexibility

1.2.2 Location

The proposed program would rehabilitate subsurface water distribution pipelines, which are located primarily in Metropolitan-owned rights-of-way and existing public roads. The pipelines that would be rehabilitated extend through the following cities and counties.

Allen-McColloch Pipeline

- Anaheim
- Irvine
- Lake Forest
- Mission Viejo
- Orange
- Tustin
- Yorba Linda

Calabasas Feeder

- Calabasas
- Hidden Hills
- Los Angeles

Rialto Pipeline

- Claremont
- Fontana
- La Verne
- Rancho Cucamonga
- Rialto
- San Bernardino
- San Dimas
- Upland
- Unincorporated San Bernardino County

Second Lower Feeder

- Anaheim
- Buena Park
- Carson
- Cypress
- Lakewood
- Lomita
- Long Beach
- Los Alamitos
- Los Angeles
- Placentia
- Rolling Hills Estates
- Torrance
- Yorba Linda
- Unincorporated Los Angeles County
- Unincorporated Orange County

Sepulveda Feeder

- Culver City
- Gardena
- Hawthorne
- Inglewood
- Los Angeles
- Torrance

1.2.3 Components

This section briefly describes the multiple components that compose the proposed program. More details for each of the components can be found in Chapter 3, *Program Description*. The proposed program consists primarily of pipeline rehabilitation and rehabilitation of other facilities along the pipeline, such as equipment vaults, valves, and other appurtenances. For pipelines, the term "rehabilitation" is used to describe either relining of the pipe or installation of supplemental or relocated lines. For vaults, valves, and other appurtenant structures, the term "rehabilitation" is used to describe either refurbishment or replacement.

The proposed program would consist primarily of rehabilitating the PCCP portions of the pipelines by lining them with steel. New liner segments would be inserted into existing PCCP pipelines by cutting into the existing pipelines, moving the new liner segments into position to reline the PCCP sections, and welding together the new liner segments. The cut sections of the PCCP would be encased in concrete after the new liner segments are welded together.

In some cases, it may be necessary to relocate existing PCCP with welded steel pipe in lieu of using steel liners to rehabilitate the PCCP. Portions of the PCCP would be left in place and new steel pipeline segments would be used. Relocation would involve excavating an open trench along the length of the existing pipeline or in an appropriate location in the vicinity of the existing pipeline, placing bedding for the new pipe to sit upon, and installing the new pipe. The dimensions of the open trench and the amount of soil that would be excavated would correspond to the depth and diameter of the new pipe. After installation the pipe trench is backfilled and the surface is restored.

Pipeline systems typically include equipment vaults that house water meters, isolation valves, check valves, bypass valves, back-flow preventer valves, and pressure-reducing valves. Equipment vaults are buried rectangular concrete structures that can be accessed from street level to perform maintenance and repairs. Existing vaults and the equipment inside them would be upgraded as part of the rehabilitation work.

Manholes typically provide access for maintenance and repairs and are spaced at regular intervals along the pipelines. The proposed program would retain the existing manholes and construct new manholes as needed to maintain access to buried vault structures and to the pipeline.

Air release/vacuum valves allow air into or out of the pipeline during dewatering or filling of pipe to control air pressure in the pipe. As part of the program, below-ground air valves along the pipeline would be relocated above ground to prevent potential cross-connection. Pumpwells and blowoff structures would be used to dewater pipelines prior to rehabilitation, some of which would be new. These would also be located within the underground equipment vaults. Electrical panels would be provided as part of the program, located in small enclosures along the pipelines.

1.3 Scope of the PEIR

1.3.1 Environmental Issue Areas Evaluated

The proposed program was initially evaluated through the Initial Study Checklist (Appendix A). The environmental analyses in Sections 4.2 through 4.14 include a detailed discussion and impact determination for the issue areas that were determined to have a potentially significant impact in the Initial Study Checklist. Metropolitan determined that a PEIR was necessary to address these potentially significant issues. The environmental issue areas for the proposed program evaluated in this PEIR include:

- Aesthetics
- Agriculture
- Air quality
- Biological resources
- Cultural resources
- Geology and soils
- Greenhouse gas emissions
- Hazards and hazardous materials
- Hydrology and water quality
- Land use and planning
- Noise
- Recreation
- Transportation and traffic
- Utilities and service systems

1.3.2 Program-Level Analysis

A program-level analysis generally evaluates the broad environmental effects of the program with the understanding that additional project-specific environmental review may be required for particular projects covered under the program. A project-specific environmental review is typically performed at the time projects are proposed for implementation and construction. A project-level analysis generally includes the necessary construction information and analyzes the specific environmental effects of the project elements.

This PEIR evaluates the rehabilitation activities of the five PCCP pipelines at a program level because design-specific information for each pipeline is not currently known and the timing of the individual rehabilitation efforts is still to be determined. Enough information is known, however, to evaluate the broad environmental effects of activities that could occur. In most cases, typical construction scenarios have been defined for the individual rehabilitation scenarios, allowing analysis of typical impacts that would result during rehabilitation. This PEIR identifies potential impacts of rehabilitation as follows.

- Impacts that can be known at the time of analysis and that would be less than significant under the typical construction scenarios. Where this is the case, no mitigation would be necessary and no further analysis would be needed before rehabilitation takes place, as long as that rehabilitation is consistent with the typical construction scenarios.
- Impacts that can be known at the time of analysis and would be significant under the typical construction scenarios, but where mitigation is available to reduce these impacts to less-than-significant levels. Where this is the case, no further analysis would be needed before rehabilitation takes place, as long as the rehabilitation is consistent with the typical construction scenarios and the identified mitigation is implemented as part of the rehabilitation.

- Impacts that can be known at the time of analysis and would be significant under the typical construction scenarios, but where mitigation is not available or mitigation could not reduce these impacts to less-than-significant levels. Where this is the case, no further analysis would be needed before rehabilitation takes place, as long as the rehabilitation is consistent with the typical construction scenarios and any identified mitigation is implemented as part of the rehabilitation.
- Impacts that cannot be known at the time of analysis (due to insufficient construction information) or where the location, timing, or severity of the impacts cannot be known. Where this is the case project specific ~~additional~~ environmental analysis may ~~will~~ be necessary before rehabilitation can take place, which would be documented in the appropriate project-level CEQA document(s). This PEIR identifies the additional analysis that may ~~would~~ be necessary.

1.4 Areas of Known Controversy

Metropolitan circulated a Notice of Preparation (NOP) and Initial Study Checklist to various agencies and other interested parties to disclose the proposed program and scope the environmental topics to be analyzed in this PEIR. As a result of the scoping period, several letters, emails, and correspondence were received that highlighted common topics. These topics are listed below. See Chapter 2, *Introduction*, for a summary of comments received during the NOP scoping period and where they are addressed within this PEIR.

- Concerns regarding traffic and circulation during rehabilitation activities as a result of activities primarily occurring within streets and public rights-of-way.
- Concerns regarding air quality during rehabilitation activities as a result of multiple pieces of construction equipment running at the same time and the concurrent overlap of rehabilitation activities.
- Concerns regarding noise during rehabilitation activities as a result of the use of large equipment and possible 24-hour construction.
- Concerns regarding sensitive habitat and species as a result of potential disturbance during rehabilitation activities.

Metropolitan filed a Notice of Completion (NOC) and circulated the Draft PEIR on September 1, 2016, starting the required 45-day comment period. Metropolitan received one letter after the comment period closed and no new areas of controversy were identified. (See Chapter 9, *Comment on Draft PEIR and Responses*.)

1.5 Alternatives Considered and Issues to be Resolved

Alternatives are analyzed in Chapter 5, *Alternatives*, of this PEIR. The objective of the alternatives analysis is to consider a reasonable range of potentially feasible alternatives to foster informed decision-making and public participation. The proposed PCCP Rehabilitation Program includes various methods of rehabilitation, including relining with collapsible pipe, relining with non-

collapsible pipe, and replacing the piping. A number of alternatives were previously identified and subjected to screening analysis as part of the inspection, evaluation, and ranking process. All of the alternatives for the proposed program were rejected as infeasible and would not meet the basic proposed program objectives, especially the primary objective to reduce the risk of pipeline failure.

As required by CEQA, a No Program Alternative is evaluated in the alternatives analysis for the PEIR. This evaluation compares the impacts of the proposed program to those that would occur if no rehabilitation program was approved. Under the No Program Alternative, rehabilitation would still need to occur because the pipelines and feeders would continue to age. Metropolitan would need to prevent failures through localized and as-needed improvements, but under the No Program Alternative these activities would not occur as part of a planned program. Much of this rehabilitation would thus occur as "urgent repairs" because of the lack of a systematic planning offered by the proposed program.

Because the No Program Alternative would eventually require the same types of repairs and rehabilitation of the five pipelines as the proposed program, and because these repairs would occur without preplanning and scheduling and often as urgent repairs, the ability to locate excavations and other rehabilitation work in a manner that avoids impacts may be lessened. Therefore, impacts under the No Program Alternative would be the same or greater than the impacts of the proposed program.

1.6 Summary of Environmental Impacts

Table 1-1 provides a summary of the environmental impacts that could result from implementation of the proposed program, and feasible mitigation measures that could reduce or avoid environmental impacts. For each impact, Table 1-1 identifies the significance of the impact prior to and following implementation of mitigation measures.

Table 1-1. Potential Impacts of Proposed PCCP Rehabilitation Program

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
4.1 Aesthetics				
Threshold AES-A: Have a Substantial Adverse Effect on a Scenic Vista	Less than significant	None	Less than significant	No
Threshold AES-B: Substantially Damage Scenic Resources, Including, but not Limited to, Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway	Less than significant	None	Less than significant	No
Threshold AES-C: Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings	Less than significant	None	Less than significant	No
Threshold AES-D: Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area	Significant	**MM AES-1:** In order to prevent impacts related to spillover lighting into light-sensitive land uses, all safety and security lighting at construction work areas and staging areas will be directed downward and shielded to avoid light spilling over into residential areas.	Less than significant	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
4.2 Agriculture and Forestry Resources[3]				
Threshold AGR-A: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmland) to Non-Agricultural Use	Less than significant	None	Less than significant	No
Threshold AGR-E: Involve Other Changes in the Existing Environment that, Because of Their Location or Nature, Could Result in the Conversion of Farmland to Non-Agricultural Use	Less than significant	None	Less than significant	No
4.3 Air Quality				
Threshold AQ-A: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan	Significant	**MM AIR-1:** All off-road diesel-powered construction equipment greater than 50 horsepower will meet Tier 4 emission standards. All construction equipment will be outfitted with ARB best available control technology devices. Any emissions-control device used by the contractor will achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by ARB regulations. A copy of each unit's certified tier specification, best available control technology	Significant and unavoidable	Yes

[3] CEQA thresholds b, c, and d for agriculture and forestry resources were determined to be less than significant in the Initial Study and were not addressed in this PEIR.

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		documentation, and ARB or SCAQMD operating permit will be provided to Metropolitan's Construction Inspector at the time of mobilization of each applicable unit of equipment.		
Threshold AQ-B: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation	Significant	**MM AIR-1:** (see above)	Significant and unavoidable	Yes
Threshold AQ-C: Result in a Cumulatively Considerable Net Increase in Any Criteria Pollutant for Which the Region Is in Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard	Significant	**MM AIR-1:** (see above)	Significant and unavoidable	Yes
Threshold AQ-D: Expose Sensitive Receptors to Substantial Pollutant Concentrations	Significant	**MM AIR-1:** (see above)	Significant and unavoidable	Yes
4.4 Biological Resources				
Threshold BIO-A: Have a Substantial Adverse Effect, either Directly or through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-status Species in Local or Regional Plans, Policies, or Regulations or	Potentially significant; to be determined at project level	**MM BIO-1, Take of Special-Status Species:** For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 300 feet of unpaved	Potentially significant and unavoidable; to be determined at project level	Yes, for projects that would require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service		areas (except for landscaped developed areas) and that contain special-status species, a qualified biologist will visit the site ~~to determine if any special-status species have the potential to occur on the site~~. If the biologist determines that special-status species may occur, preconstruction surveys for special-status plants and/or wildlife will be completed prior to any construction and consultation with the appropriate resource agency will occur (U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife), if necessary, to determine measures to address impacts such as avoidance, minimization, restoration, or compensation. **MM BIO-2, Impacts on Nesting Birds:** For any projects within the program that require vegetation removal during the nesting season for sensitive species protected by the Migratory Bird Treaty Act and California Fish and Game Code Section 3513, including street trees and other landscaping, a qualified biologist will inspect the vegetation to be removed no more than 10 days prior to tree/vegetation removal to determine whether nesting birds are present. If a nest is found, the biologist will determine the site-specific measures necessary to avoid disturbing the nest until nesting activity has ceased~~, including avoidance of the nest and establishment of an adequate buffer~~.		unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 300 feet of unpaved areas (except for landscaped developed areas).

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		~~Construction within the buffer area will not occur until the biologist has verified that nesting activity has ceased.~~ Nothing in this mitigation measure precludes the use of deterrent measures to prevent bird nesting.		
Threshold BIO-B: Have a Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	Potentially significant; to be determined at project level	**MM BIO-3, Adverse Impacts on Riparian Habitat:** For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (except for landscaped developed areas) <u>which contain riparian vegetation</u>, a qualified biologist will visit the site to <u>conduct pre-construction surveys</u> ~~determine if any riparian habitat is present at the site~~. If the biologist determines that riparian vegetation is present, then habitat areas will be mapped and flagged for avoidance, or other measures will be taken<u>, including applying for appropriate regulatory permits, as required</u> ~~to protect the habitat, as appropriate~~. **MM BIO-4: Adverse Impacts on Sensitive Natural Communities:** Removal of or adverse impacts on sensitive natural communities will be minimized for rehabilitation projects in the program, except in accordance with	Potentially significant and unavoidable; to be determined at project level	Yes, for projects that would require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (except for landscaped developed areas)

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		adopted HCPs/NCCPs to which Metropolitan is a party for covered areas and covered activities. For such covered activities, Metropolitan will coordinate with the appropriate resource agencies and Metropolitan's contractors will adhere to all requirements in the applicable plan. For any activities not covered by an adopted HCP/NCCP, the following shall apply: For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (except for landscaped developed areas) and that contain sensitive natural communities, a qualified biologist will conduct pre-construction surveys ~~visit the site to determine if any sensitive natural communities may be present at the site. If the biologist determines that such communities may be present, preconstruction surveys~~ for sensitive natural communities will be required prior to any construction. These surveys will be conducted by a qualified biologist within 100 feet of ground-disturbing activities. If sensitive natural communities are located during the surveys, then habitat areas will be mapped and flagged for		

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		avoidance, or other measures will be taken including applying for appropriate regulatory permits, as required ~~to protect the habitat~~.		
Threshold BIO-C: Have a Substantial Adverse Effect on Federally Protected Wetlands, as Defined by Section 404 of the Clean Water Act, through Direct Removal, Filling, Hydrological Interruption, or Other Means	Potentially significant; to be determined at project level	**MM BIO-5, Adverse Impacts on Wetlands:** For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (including large landscaped areas, parks, and golf courses), which contain wetlands, a qualified biologist will visit the site to conduct pre-construction surveys ~~determine if wetlands may be present at the site~~. If the biologist determines that wetlands may be present, preconstruction wetlands jurisdictional delineations will be ~~required~~ performed prior to any construction. These delineations will be conducted by a qualified biologist within 100 feet of ground-disturbing activities. Any jurisdictional wetlands located during the delineations will be mapped and flagged for avoidance or other measures may be taken, including applying for appropriate regulatory permits, as required ~~or other measures will be taken to protect the habitat, as necessary~~.	Potentially significant and unavoidable; to be determined at project level	Yes, for projects that would require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (except for landscaped developed areas).
Threshold BIO-D:	Potentially significant; to	**MM BIO-6, Impacts on Wildlife**	Potentially significant	Yes, for projects

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors or Impede the Use of Native Wildlife Nursery Sites	be determined at project level	**Movement:** For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 300 feet of unpaved areas (except for landscaped developed areas), a qualified biologist will ~~visit the site to~~ determine if any identifiable wildlife movement corridors are present at the site. If the biologist determines that such corridors are present, then wildlife movement corridors will be mapped, flagged, and avoided, or other measures will be taken to protect wildlife movement, as appropriate.	and unavoidable; to be determined at project level	that would require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 300 feet of unpaved areas (except for landscaped developed areas)
Threshold BIO-E: Conflict with Any Local Policies or Ordinances Protecting Biological Resources, Such as a Tree Preservation Policy or Ordinance	Potentially significant	**MM BIO-7, Conflicts with Local Policies Related to Biological Resources:** For any projects within the program that require vegetation removal, Metropolitan will determine if there are any applicable local policies related to biological resources and, if so, <u>coordinate</u> ~~consult~~ with the affected jurisdiction, as necessary, to determine appropriate requirements for vegetation removal and replacement. The contractor will be required to comply with any applicable requirements. Nothing in this mitigation will require the contractor to make improvements beyond the	Less than significant	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		existing condition prior to construction.		
Threshold BIO-F: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan	Potentially significant; to be determined at project level	To be determined at project level.	Potentially significant and unavoidable; to be determined at project level	Yes, for project within the covered areas of an HCP or NCCP
4.5 Cultural Resources				
Threshold CUL-A: Cause a Substantial Adverse Change in the Significance of a Historical Resource	Potentially significant	**MM CUL-1, Historic Resources Protection Program:** To avoid impacts on built environment (historic) resources, prior to any rehabilitation involving excavation or concrete cutting, a qualified cultural resource specialist ~~an architectural historian~~ will ~~be retained to~~ determine whether there are any identified or eligible historical resources present and whether ~~to determine if~~ proposed construction activities could adversely affect these resources. If any resources could be adversely affected by construction, ~~the excavation site will be moved or other~~ measures will be taken ~~used~~ to prevent adverse impacts on the resource, as determined by the qualified cultural resource specialist ~~architectural historian~~.	Less than significant	Yes, for projects involving excavation or concrete cutting
Threshold CUL-B: Cause a Substantial Adverse Change in the Significance of an Archaeological	Potentially significant	**MM CUL-2, Avoidance or Monitoring of Archaeological Sites:** To avoid impacts on archaeological sites, prior to construction of any program element, such as pipeline alignments,	Less than significant	Yes

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
Resource		construction staging areas, laydown areas, or relocation of pipelines in new alignments, a new record search will be conducted to determine if additional sites or resources have been recorded on or adjacent to the proposed construction section. Reports will be examined to determine the condition of each site when recorded, if the site has been evaluated, and if destruction of the site is documented. Following this review, recorded archaeological sites that are within the pipeline route will be surveyed and their present conditions assessed (see MM CUL-4). Archaeological monitoring will be required during construction-related ground-disturbing activities if within the recorded area of a significant or potentially significant site and for a 50-foot buffer beyond the site boundary. A Native American monitor may be present if the site is prehistoric. If archaeological materials are discovered during monitoring, procedures outlined in MM CUL-~~4~~3 will be implemented. If it can be demonstrated that the site has been destroyed by previous construction or other actions and there is no potential for other buried parts of the site within the construction area, or if the site has been evaluated and determined not eligible for the CRHR, then monitoring will not be required. **MM CUL-3, Preconstruction Meeting for Identifying Cultural Resources:**		

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		To avoid impacts on previously unidentified cultural resources, all construction personnel will attend a preconstruction meeting that includes a discussion of cultural resources. The meeting will inform construction personnel on how to identify potential cultural resources during ground-disturbing activities and what to do if such potential resources are encountered. **MM CUL-4, Previously Unidentified Resources Encountered during Ground-disturbing Activities:** In the event that any potentially significant cultural resources are unexpectedly encountered during construction, work will be immediately halted and the discovery shall be protected in place. The contractor will halt construction within 50 feet of the exposed resource until a qualified cultural resources specialist evaluates the discovery. If the qualified cultural resources specialist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from project implementation. This additional work may include avoidance, testing, and evaluation or data recovery excavation. Work shall be prohibited in the restricted area until Metropolitan provides written authorization.		

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		MM CUL-5, Archaeological Survey of Non-Pipeline Areas: Prior to rehabilitation activities of any program element each area will be subject to pedestrian survey for archaeological resources by a professional archaeologist retained by Metropolitan if ground-disturbing activities are slated to occur. If archaeological sites are recorded or found in these affected areas, the sites will be avoided to the greatest extent feasible. If a site cannot be avoided, site testing and evaluation by a professional archaeologist will be required. This may require test excavations, artifact analysis, evaluation for the CRHR and review by SHPO, and possibly data recovery excavation and reporting.		
Threshold CUL-C: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature	Potentially significant	**MM CUL-6, Develop a Program to Mitigate Impacts on Paleontological Resources for Each Contract Package:** In order to avoid impacts on paleontological resources, the following mitigation program will be implemented for each contract package. This mitigation program will be conducted by a qualified professional paleontologist and will be consistent with the provisions of CEQA. This program will include the following: 1. Assessment of site-specific excavation areas to determine those areas that may be designated	Less than significant	Yes

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		as highly sensitive for unique paleontological resources to be monitored during ground disturbance. 2. ~~Development of a monitoring plan for these designated areas. Paleontological~~ <u>In these designated areas, if any, paleontological</u> resources monitors qualified to Society of Vertebrate Paleontology standards will be equipped to salvage fossils as they are unearthed and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitoring may be reduced or eliminated if some of the potentially fossiliferous units are determined upon exposure and examination by qualified paleontological resources personnel to have low potential to contain fossil resources. <u>Also in these designated areas, all unique paleontological resources, if any, will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates</u>. 3. ~~Preparation of all unique paleontological resources to a point of identification and permanent preservation, including washing of sediments to recover~~		

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		~~small invertebrates and vertebrates. Identification and curation of unique~~ Unique paleontological resources, if any, will be identified and curated into an established, accredited museum repository ~~will be required~~. 4. Preparation of a report of findings including a summary of field work and laboratory methods, an overview of the program work area geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. If the monitoring efforts produced fossils, a copy of the report will also be submitted to the designated museum repository.		
4.6 Geology and Soils[4]				
Threshold GEO-A.I: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Rupture of a Known Earthquake Fault	Less than significant	None	Less than significant	No
Threshold GEO-A.II: Expose People or Structures to Potential	Less than significant	None	Less than significant	No

[4] CEQA threshold e for geology and soils was determined to be less than significant in the Initial Study and were not addressed in this PEIR.

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Strong Seismic Groundshaking				
Threshold GEO-A.III: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Seismically Related Ground Failure, Including Liquefaction	Less than significant	None	Less than significant	No
Threshold GEO-A.IV: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Landslides	Less than significant	None	Less than significant	No
Threshold GEO-B: Result in Substantial Soil Erosion or the Loss of Topsoil	Less than significant	None	Less than significant	No
Threshold GEO-C: Be Located on a Geologic Unit or Soil that Is Unstable, or that Would Become Unstable as a Result of the Project, and Potentially Result in On- or Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse	Less than significant	None	Less than significant	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
Threshold GEO-D: Be Located on Expansive Soil, Creating Substantial Risks to Life or Property	Less than significant	None	Less than significant	No
4.7 Greenhouse Gas Emissions				
Threshold GHG-A: Generate Greenhouse Gas Emissions, either Directly or Indirectly, that May Have a Significant Impact on the Environment	Significant	**MM-AIR-1:** (see above, under 4.3, Air Quality)	Significant and unavoidable	Yes
Threshold GHG-B: Conflict with Any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases	Less than significant	None	Less than significant	No
4.8 Hazards and Hazardous Materials				
Threshold HAZ-A: Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Less than significant	None	Less than significant	No
Threshold HAZ-B: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into	Less than significant	None	Less than significant	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
the Environment				
Threshold HAZ-C: Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School	Potentially significant	**MM HAZ-1, Project-Level Hazardous Materials Sites Assessment Prior to Construction Activities:** To avoid exposure of construction workers, the public, or the environment to previously identified hazardous materials, during design, qualified Metropolitan staff or consultant(s) ~~will retain a professional environmental consultant~~ specializing in hazardous materials impact assessment will ~~to~~ conduct a project-level analysis to determine if there are existing hazardous materials sites in the vicinity of the construction site and potential for existing hazardous materials sites to affect construction. This assessment will consist of a search for environmental-related information present in publicly accessible databases. The information will be reviewed to determine if the construction footprint or adjacent properties are listed in the databases. If the construction footprint or adjacent properties are listed in the databases, qualified Metropolitan staff or consultant(s) ~~the professional environmental consultant~~ will determine the potential risk to construction workers, the public, or the environment from rehabilitation activities and identify all necessary avoidance, abatement, remediation, cleanup, disposal, monitoring,	Less than significant	Yes

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		reporting, notifications, and/or other measures to prevent significant impacts. **MM HAZ-2: Encountering Unreported Hazardous Materials:** To avoid exposure of construction workers, the public, or the environment to unreported hazardous materials in the soil, contractors will be required to inspect any site to be used for excavation, work zones, staging, or other rehabilitation-related activities prior to beginning construction. If odiferous, stained, or discolored soil is encountered, qualified Metropolitan staff or consultant(s) ~~a professional environmental consultant~~ specializing in the identification and handling of hazardous materials will be retained to assess the site. Identification of possible hazardous materials would typically involve soil samples and laboratory analysis. The suspect soil will be isolated, covered, and avoided by construction personnel until analytical results are reviewed by qualified personnel. Soils identified as hazardous or contaminated will be handled, transported, and treated in accordance with all federal, state, and local existing hazardous materials regulations ~~and based the professional environmental consultant's direction~~. **MM HAZ-3, Engineering Controls and Best Management Practices during Construction:** To minimize human		

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		exposure to potential contaminants, during construction contractors will employ the use of engineering controls and BMPs. Engineering controls and construction BMPs will include, but are not limited to, the following: • Contractor employees working on site handling hazardous materials on contaminated media will be certified in the Occupational Health and Safety Administration's 40-hour Hazardous Waste Operations and Emergency Response training. • Contractors will water or mist soil as it is being excavated and stockpiled or loaded onto transportation trucks. **MM HAZ-4, Encountering Contaminated Groundwater:** To avoid exposure of construction workers, the public, or the environment to contaminated groundwater, suspect water removed from excavation areas (but not including dewatering of the pipelines themselves) will be tested by a qualified laboratory ~~professional environmental consultant~~ specializing in the identification ~~and handling~~ of hazardous materials ~~and classified as hazardous or non-hazardous based on laboratory results~~. If groundwater is considered hazardous, Metropolitan will notify the Regional Water Quality Control Board and local Environmental Health agencies regarding assessment		

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		and remediation requirements.		
Threshold HAZ-D: Be Located on a Site That Is Included on a List of Hazardous Materials Sites and, as a Result, Create a Significant Hazard to the Public or the Environment	Potentially significant	**MM HAZ-1:** (see above). **MM HAZ-2:** (see above). **MM HAZ-3:** (see above). **MM HAZ-4:** (see above).	Less than significant	Yes
Threshold HAZ-E: For a Project Located within an Airport Land Use Plan or, Where Such Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Result in a Safety Hazard for People Residing or Working in the Project Area	Potentially significant	**MM HAZ-5, Construction Activities within Runway Protection Zones:** During the design phase for any projects in the program within the runway protection zones for Long Beach Municipal Airport or Van Nuys Airport (even where all construction would be accessed from outside the runway protection zones), project engineers will coordinate with the management of Long Beach Municipal Airport (Second Lower Feeder) or Van Nuys Airport (Sepulveda Feeder), as appropriate, to determine the methods of construction that will be necessary to avoid impacts on airport operations and safety. All operations and safety requirements of the airports will be incorporated into the construction design packages. All necessary requirements will be implemented during construction. **MM HAZ-6, Aboveground Elements in Runway Protection Zones:** To avoid airport operations and safety impacts, no permanent aboveground elements of the proposed program,	Less than significant	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		such as manhole covers, valve boxes, or electrical panels, will be located within runway protection zones (at Long Beach Municipal Airport for the Second Lower Feeder and Van Nuys Airport for the Sepulveda Feeder) without prior approval of the management of the appropriate airport.		
Threshold HAZ-F: For a Project within the Vicinity of a Private Airstrip, Result in a Safety Hazard for People Residing or Working in the Project Area	No impacts	None	No impacts	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
Threshold HAZ-G: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	Potentially significant	**MM HAZ-7, Maintaining Emergency/Evacuation Routes:** To avoid impacts on emergency/evacuation routes, excavation sites will typically not be placed in roadways that serve as designated emergency/evacuation routes. If such streets cannot be avoided, the contractor will work with the local jurisdiction responsible for the emergency/evacuation routes to maintain adequate capacity. This will be accomplished by utilizing unused portions of the street right-of-way for travel lanes (such as temporarily prohibiting parking, restriping medians or parkway space, or detouring bike lanes) or by detouring the emergency/evacuation route to other roadways during construction. If detours are necessary, appropriate notification of emergency personnel and temporary signage will be used to direct emergency/evacuation traffic during construction.	Less than significant	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
Threshold HAZ-H: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires, Including Areas where Wildlands Are Adjacent to Urbanized Areas or where Residences Are Intermixed with Wildlands	Less than significant	None	Less than significant	No
4.9 Hydrology and Water Quality[5]				
Threshold WQ-A: Violate Any Water Quality Standards or Waste Discharge Requirements	Less than significant	None	Less than significant	No
Threshold WQ-C: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, in a Manner that Would Result in Substantial Erosion or Siltation On or Off Site	Less than significant	None	Less than significant	No

[5] CEQA thresholds b, g, h, and i for hydrology and water quality were determined to be less than significant in the Initial Study and were not addressed in this PEIR.

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
Threshold WQ-D: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Manner That Would Result in Flooding On or Off Site	Potentially significant	**MM HYD-1, Implementation of a Grading and Drainage Plan:** Prior to construction of aboveground project facilities, Metropolitan will prepare a grading and drainage plan that identifies anticipated changes in flow that would occur on site and minimizes any potential increases in flooding, erosion, or sedimentation potential in accordance with applicable regulations and in coordination with ~~requirements for~~ the county and/or the city in which the facility would be located. The ~~In accordance with local requirements, the~~ plan will identify and implement best management practices and other measures to ensure that potential increases in stormwater flows and erosion are minimized.	Less than significant	No
Threshold WQ-E: Create or Contribute Runoff Water that Would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff	Less than significant	None	Less than significant	No
Threshold WQ-J: Expose People or Structures to Inundation by Seiche, Tsunami, or Mudflow	Less than significant	None	Less than significant	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
4.10 Land Use[6]				
Threshold LU-A: Physically Divide an Established Community	Less than significant	None	Less than significant	No
Threshold LU-B: Conflict with Applicable Land Use Plan, Policy, or Regulation of an Agency with Jurisdiction over the Project Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect	Less than significant	None	Less than significant	No
4.11 Noise				
Threshold NOI-A: Expose Persons to or Generate Noise Levels in Excess of Standards Established in the Local General Plan or Noise Ordinance or Applicable Standards of Other Agencies	Potentially significant; to be determined at project level	**MM NOI-2, Locate Excavation Sites Away From Noise-Sensitive <u>Receptors</u> ~~Receivers~~ Where Feasible:** A noise consultant will be retained during excavation site planning to determine if there are sensitive <u>receptors</u> ~~receivers~~ that could be affected by construction. Whenever possible, the excavation sites will be located in areas that would not affect sensitive <u>receptors</u> ~~receivers~~ or where <u>receptors</u> ~~receivers~~ can be shielded from construction noise. **MM NOI-3, Conduct Project-Level Noise Studies at Each Excavation Site Where Noise-Sensitive <u>Receptors</u> ~~Receivers~~ Are Present:** Project-level noise studies will be required at all	~~Potentially significant~~ <u>Significant</u> and unavoidable; <u>locations</u> to be determined at project level	Yes

[6] For threshold c for land use, see Threshold BIO-F in Section 4.4, *Biological Resources*.

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		excavation sites where sensitive receptors ~~receivers~~ are present, as required in the planning stage by MM NOI-2. Such noise studies will identify the ambient noise levels, the receptors ~~number of receivers~~ that would be affected, the noise levels the receptors ~~receivers~~ will experience during construction, and any measures that can be used to reduce noise levels. ~~Mitigation~~ All feasible mitigation measures identified in this noise study will be implemented. ~~and the amount of noise reduction that would occur with implementation of these measures.~~ **MM NOI-4, Locate Staging Areas Away from Noise-Sensitive Receptors ~~Receivers~~ or Provide Noise Attenuation:** Whenever feasible ~~possible~~, staging areas will be located in areas that would not affect sensitive receptors ~~receivers~~ or where receptors ~~receivers~~ can be shielded from staging-area noise. Where possible, noise ~~Noise~~ screening will include temporary noise barriers with openings in the barriers kept to the minimum necessary for access.		
Threshold NOI-B: Expose Persons to or Generate Excessive Groundborne Vibration or Groundborne Noise Levels	Potentially significant; to be determined at project level	**MM NOI-1, Locate Excavation Sites Away From Vibration-Sensitive Uses:** A noise and vibration consultant will be retained during excavation site planning to determine if there are vibration-sensitive land uses that could be affected by construction. Whenever	Less than significant	Yes

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		possible, excavation ~~Excavation~~ sites will then be located so that vibration impacts would not affect vibration-sensitive land uses or mitigation would be included to reduce vibration levels at vibration-sensitive land uses to less-than-significant levels.		
Threshold NOI-C: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity, Above Levels Existing without the Project	No impact	None	No impact	No
Threshold NOI-D: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity, Above Levels Existing without the Project	Potentially significant; to be determined at project level	**MM NOI-2:** (see above). **MM NOI-3:** (see above). **MM NOI-4:** (see above).	~~Potentially significant~~ Significant and unavoidable; locations to be determined at project level	Yes
Threshold NOI-E: For a Project Located within an Airport Land Use Plan or, Where Such a Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Expose People Residing or Working in the Project Area to Excessive Noise Levels	Less than significant	None	Less than significant	No
Threshold NOI-F: For a Project within the Vicinity	No impact	None	No impact	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
of a Private Airstrip, Expose People Residing or Working in the Project Area to Excessive Noise Levels				
4.12 Recreation				
Threshold REC-A: Increase the Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities Such That Substantial Physical Deterioration of the Facilities Would Occur or Be Accelerated	Less than Significant	None .	Less than significant	No
Threshold REC-B: Include Recreational Facilities or Require the Construction or Expansion of Recreational Facilities, Which Might Have an Adverse Physical Effect on the Environment	No impact	None	No impact	No
4.13 Transportation and Traffic				
Threshold TRA-A: Conflict with an Applicable Plan, Ordinance, or Policy that Establishes Measures of Effectiveness for the Performance of the Circulation System, Taking into Account All Modes of Transportation, Including Mass Transit and Non-	Potentially significant; to be determined at project level	**MM TRA-1, Excavation Siting to Minimize Traffic Impacts:** Excavation sites would be located to avoid traffic impacts to the maximum extent feasible ~~possible~~, considering the logistical requirements for pipeline rehabilitation (e.g., adequate spacing, pipeline logistics) and other impacts such as habitat and noise. To the maximum extent feasible ~~possible~~, the	~~Potentially significant~~ Significant and unavoidable; locations to be determined at project level	Yes

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
Motorized Travel, and Relevant Components of the Circulation System, Including, but not Limited to, Intersections, Streets, Highways and Freeways, and Pedestrian and Bicycle Paths		following will be considered when locating excavation sites. • Whenever <u>feasible</u> ~~possible~~, where an off-road excavation site is available that would not result in other significant environmental impacts (e.g., to habitat, land uses), the off-road location will be used. • Whenever <u>feasible</u> ~~possible~~, excavation sites in roadways will be situated within medians where available, especially if the medians are not used for left-turn lanes and do not include large street trees or other features that would be difficult to restore after rehabilitation. • Whenever <u>feasible</u> ~~possible~~, excavation sites will be situated where the existing number of travel lanes can be maintained by temporarily removing parking (where adequate parking is available in the local area), temporarily relocating bike lanes to adjacent roadways, or temporarily restriping to provide narrower lanes (where they can be safely accommodated). • Whenever <u>feasible</u> ~~possible~~, excavation sites will be situated so that adequate access to adjacent properties can be maintained, including left-turn entrances. • Whenever <u>feasible</u> ~~possible~~,		

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		excavation sites will be situated so that bicycle and pedestrian circulation can be safely maintained, either by use of barriers or other safety features, or by providing alternative bicycle and pedestrian routes, with appropriate signage. Where feasible, siting ~~Siting~~ excavation near heavily used pedestrian areas, such as around schools, hospitals, and transit stops, will be avoided. Where feasible, siting ~~Siting~~ excavation in areas designated as safe routes to school will be avoided, or alternative routes will be developed in coordination ~~by working~~ with the local jurisdictions and school districts and providing appropriate signage, notification, and traffic controls. **MM TRA-2, Construction Traffic Control Plans:** Metropolitan and/or its contractors will coordinate with the counties of Los Angeles, Orange, and San Bernardino as well as each local jurisdiction through which the pipelines travels (see tables above) to develop construction traffic control measures and procedures prior to the start of construction on each project. Measures to reduce temporary construction traffic and transportation impacts on city streets may include, but not be limited to, the following: • Development of traffic control		

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		plans in coordination with local jurisdictions. The traffic control plans will be implemented and revised, as necessary and applicable. • Provision of advance written notification of construction activities to residences and businesses around each construction site. • Identification of travel routes and establishment of optimal arrival and departure times to minimize conflicts with residents, schools, and businesses, as feasible to minimize conflicts. • Provisions to detour pedestrians and bicyclists from ~~for~~ project activities ~~impacts~~ near or ~~/~~on the sidewalks and bike lanes. • Implementation of safety measures, such as signs, flaggers, cones, signage, and advance notice, as appropriate. • Covering of all open trenches when not in use or at the end of each work day, as applicable. **MM TRA-3, Maintaining Adequate Parking:** Whenever feasible ~~possible~~, excavation work zones and construction staging areas will not be sited in such a way that they result in inadequate availability of parking for adjacent land uses. If work zones or staging areas are planned for parking		

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
		areas, a parking study will be completed by a qualified traffic consultant prior to construction to identify if adequate parking would be available locally.		
Threshold TRA-B: Conflict with an Applicable Congestion Management Program, Including, but not Limited to, Level-of-Service Standards and Travel Demand Measures or Other Standards Established by the County Congestion Management Agency for Designated Roads or Highways	Less than significant	None	Less than significant	No
Threshold TRA-C: Result in a Change in Air Traffic Patterns, Including either an Increase in Traffic Levels or a Change in Location that Would Result in Substantial Safety Risks	Potentially significant	**MM HAZ-5:** (see above in 4.8, Hazards and Hazardous Materials). **MM HAZ-6:** (see above in 4.8, Hazards and Hazardous Materials).	Less than significant	No
Threshold TRA-D: Substantially Increase Hazards Due to a Design Feature or Incompatible Uses	Potentially significant	**MM TRA-2:** (see above).	Less than significant	No
Threshold TRA-E: Result in Inadequate Emergency Access	Potentially significant	**MM HAZ-7:** (see above in 4.8, Hazards and Hazardous Materials).	Less than significant	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
Threshold TRA-F: Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities or Otherwise Decrease the Performance or Safety of Such Facilities	Potentially significant	**MM TRA-1:** (see above). **MM TRA-2:** (see above).	Less than significant	Yes
4.14 Utilities and Service Systems				
Threshold UTIL-A: Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board	Less than significant	None	Less than significant	No
Threshold UTIL-B: Require or Result in the Construction of New Water or Wastewater Treatment Facilities or the Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects	No impact	None	No impact	No
Threshold UTIL-C: Require or Result in the Construction of New Stormwater Drainage Facilities or the Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects	No impact	None	No impact	No

Threshold	Significance Before Mitigation	Mitigation Measure(s)	Significance After Mitigation	Is additional analysis necessary at project level?
Threshold UTIL-D: Have Sufficient Water Supplies Available to Serve the Project from Existing Entitlements and Resources, or Are New and Expanded Entitlements Needed	No impact	None	No impact	No
Threshold UTIL-E: Result in a Determination by the Wastewater Treatment Provider that Serves or May Serve the Project that it Has Adequate Capacity to Serve the Project's Projected Demand in Addition to its Existing Commitments	No impact	None	No impact	No
Threshold UTIL-F: Be Served by a Landfill with Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs	Less than significant	None	Less than significant	No
Threshold UTIL-G: Comply with Federal, State, and Local Statutes and Regulations Related to Solid Waste	Less than significant	None	Less than significant	No
4.15 Energy Conservation				
Threshold ENE-A: Use Energy in an Inefficient, Wasteful, or Unnecessary Manner	Less than significant	None	Less than significant	No

Chapter 2
Introduction

2.1 Purpose of the PEIR

This Programmatic Environmental Impact Report (PEIR) assesses the potential environmental effects of the Prestressed Concrete Cylinder Pipe Rehabilitation Program (proposed program). This PEIR has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 (Public Resources Code [PRC] Section 21000 et seq.) and the Guidelines for Implementation of CEQA (State CEQA Guidelines) published by the Public Resources Agency of the state of California (California Code of Regulations [CCR], Title 14, Section 15000 et seq.). The Metropolitan Water District of Southern California (Metropolitan) is the Lead Agency under CEQA (PRC Section 21067, as amended), is responsible for the preparation of the PEIR, and will use this document to objectively review and assess the proposed program prior to approval or disapproval.

This PEIR is intended to: (1) inform decision-makers and the public about the potentially significant environmental effects of the proposed activities; (2) identify the ways that significant environmental effects can be avoided or reduced; (3) prevent significant, avoidable damage to the environment by requiring changes in the proposed program through the use of alternatives or mitigation measures, to the extent that Metropolitan determines the changes to be feasible, and (4) identify what additional project-level analysis will be necessary in later environmental documents (State CEQA Guidelines Section 15002; PRC Section 21002.1).

2.2 Scope of the PEIR

Metropolitan prepared an Initial Study for the proposed program (Appendix A).[1] The Initial Study indicated that the proposed program would result in less-than-significant impacts on the following environmental issue areas.

- Mineral resources
- Population and housing
- Public services

These issue areas do not require additional analysis in this PEIR.

The Initial Study indicated that significant impacts may occur with respect to the environmental issue areas for the proposed program that are listed below; these issue areas are analyzed in detail in this PEIR (Chapter 4, *Environmental Analysis*).

[1] The Notice of Preparation described this document as a combined PEIR and project-level EIR for the Second Lower Feeder. The project-level analysis is no longer a part of this PEIR. Project-level analysis will be provided at a later date.

- Aesthetics
- Agriculture
- Air quality
- Biological resources
- Cultural resources
- Geology and soils
- Greenhouse gas emissions
- Hazards and hazardous materials
- Hydrology and water quality
- Land use and planning
- Noise
- Recreation
- Transportation and traffic
- Utilities and service systems

One additional topic, energy conservation, was not addressed in the Initial Study and is also included in this PEIR.

On December 18 ~~17~~, 2014, Metropolitan circulated a Notice of Preparation (NOP) to responsible agencies and other interested parties. The Initial Study and NOP are included in Appendix A, and comment letters received on the NOP are included in Appendix B of this document. The topics in the comment letters and where they are addressed are summarized in Table 2-1.

Table 2-1. Summary of NOP Comments

Topic	Chapter Addressed
Transportation impacts during rehabilitation work	**Section 4.13, Transportation and Traffic** The typical construction scenarios are identified and the types of transportation impacts that would occur are evaluated. Requirements for construction traffic management plans are included in mitigation.
Impacts on listed, candidate, or sensitive species	**Section 4.4, Biological Resources** Biological resources within the program area, potential impacts, and Metropolitan's standard measures to minimize potential impacts on such resources are detailed.
Impacts on waters of the United States or jurisdictional wetlands	**Section 4.4, Biological Resources** **Section 4.9, Hydrology and Water Quality** Waters of the United States or jurisdictional wetlands within the program area, potential impacts, and Metropolitan's standard measures to minimize potential impacts on such resources are detailed.
Impacts related to air quality during rehabilitation work	**Section 4.3, Air Quality** Existing air quality conditions, anticipated emissions for typical construction scenarios, and measures to reduce potential impacts related to air quality are detailed.
General sequencing and timing of rehabilitation work and potential disruption of water service	**Chapter 3, Program Description** To the extent information is known, general sequencing of rehabilitation work is discussed. In all cases in which disruptions to service would be required, Metropolitan will coordinate with affected agencies in advance of shutdowns to ensure adequate service is maintained.

Topic	Chapter Addressed
Impacts on existing aboveground and subsurface infrastructure	**Chapter 3, Program Description** To the extent information is known, potential impacts related to existing aboveground and subsurface infrastructure are described. Also, Section 4.9, *Hydrology and Water Quality*; Section 4.14, *Utilities and Service Systems*; and Section 4.13, *Transportation and Traffic*, discuss potential impacts on infrastructure, and mitigation is identified when necessary.
Impacts on emergency service providers during rehabilitation work	**Section 4.8, Hazards and Hazardous Materials** **Section 4.13, Transportation and Traffic** Impacts and mitigation measures related to the timely provision of emergency services are discussed.

2.3 Format of the PEIR

This PEIR is organized as follows.

- **Chapter 1, *Summary*.** The summary includes a brief program description and a summary of environmental impacts and proposed mitigation measures that would reduce or avoid impacts determined to be significant, discussion of alternatives considered, description of areas of controversy known to the Lead Agency, and any issues to be resolved, including the choice among alternatives or how to mitigate significant impacts (State CEQA Guidelines Section 15123).
- **Chapter 2, *Introduction*.** This chapter describes the scope and purpose of the PEIR, provides a brief summary of the CEQA process, and establishes the document format.
- **Chapter 3, *Program Description*.** This chapter provides a description of Metropolitan, the location of the proposed program pipelines, the objectives of the proposed program, and proposed program features.
- **Chapter 4, *Environmental Impact Analysis*.** This chapter constitutes the main body of the PEIR and includes the detailed impact analysis for each environmental issue. The issue areas analyzed in this chapter include those listed in Section 2.2, *Scope of the PEIR*. For each issue area, Sections 4.1 to 4.14 include a discussion of methods of analysis, existing conditions, the thresholds identified for the determination of significant impacts, and an evaluation of the impacts associated with the proposed program. Where the impact analysis demonstrates the potential for the proposed program to have a significant impact on the environment, mitigation measures are provided that would minimize the significant effects. The PEIR indicates if the proposed mitigation measures would reduce impacts to less-than-significant levels. The cumulative impacts that would result from implementation of the proposed program in combination with other past, present, and reasonably foreseeable or probable future projects are discussed in each resource section. If additional analysis is necessary to identify site-specific environmental impacts, identify mitigation, or determine whether environmental impacts could be reduced to less-than-significant levels, the PEIR identifies that additional environmental analysis will be necessary at the project level.
- **Chapter 5, *Alternatives*.** This chapter provides a description of alternatives to the proposed program and an evaluation of their potential to reduce or avoid the proposed program's significant impacts.

- **Chapter 6, *Other CEQA Considerations*.** This chapter discusses additional topics required by CEQA, including unavoidable adverse impacts, growth inducement, and irreversible environmental changes.
- **Chapter 7, *References*.** This chapter includes a listing of applicable reference materials.
- **Chapter 8, *List of Preparers***. This chapter includes a list of individuals involved in the preparation of the PEIR, including Lead Agency staff and consultants.
- **Chapter 9, *Comment on Draft PEIR and Responses***. This chapter includes the comments received during the comment period of the Draft PEIR and the responses to the comments.

Changes were made to this Final PEIR after it was circulated during the comment period for clarification. These changes are indicated by underlined text (for additions) and strike-out text (for deletions). None of these changes were significant and do not require recirculation of the PEIR for public review.

Chapter 3
Program Description

3.1 Introduction

The Metropolitan Water District of Southern California (Metropolitan), the lead agency under the California Environmental Quality Act (CEQA), is proposing various rehabilitation activities under the proposed Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (proposed program). Under this proposed program, Metropolitan would rehabilitate the PCCP portions of the following five buried water distribution pipelines (also known as feeders) within its service area.

- Allen-McColloch Pipeline
- Calabasas Feeder
- Rialto Pipeline
- Second Lower Feeder
- Sepulveda Feeder

Rehabilitation would occur at various locations along approximately 100 miles of the Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder combined. This program-level environmental impact report (PEIR) analyzes the potential environmental impacts that would result from rehabilitation activities to occur along all five of the feeders.

This chapter provides an overview of Metropolitan and its service area, the objectives of the proposed program, the location of the activities that would be conducted as part of the proposed program, and key components of the proposed program.

3.2 Metropolitan and the Service Area

Metropolitan is a regional wholesaler that delivers water to 26 member agencies—14 cities, 11 municipal water districts, and one county water authority—which in turn provide drinking water to about 19 million people in Southern California. Collectively, the member agencies serve the residences and businesses of more than 300 cities and numerous unincorporated communities spread over a service area that includes 5,200 square miles of Los Angeles, Orange, San Bernardino, Riverside, San Diego, and Ventura counties.

Metropolitan was established in 1928 under an act of the California legislature to build and operate the Colorado River Aqueduct, which extends 242 miles from Lake Havasu on the California-Arizona border to Metropolitan's Lake Mathews reservoir in western Riverside County. In 1960, Metropolitan, along with 30 other public agencies, signed a long-term contract to enable construction of the 444-mile California Aqueduct, which extends from Northern California's Sacramento-San Joaquin Delta to several Southern California reservoirs, including Lake Silverwood, Lake Perris, and Lake Castaic. The California Aqueduct is owned and operated by the Department of Water Resources and currently provides water to Metropolitan and others under contract.

In addition to its two primary sources, Metropolitan's water sources include local supplies from groundwater storage agreements and water transfer arrangements with other water suppliers and users. Supplies from the Colorado River, Northern California, and local sources may vary substantially from year to year.

Metropolitan conveys more than 1.5 billion gallons of potable water to its member agencies per day through an extensive system of reservoirs and distribution facilities throughout its service area. The major facilities within Metropolitan's conveyance, treatment, and distribution system are summarized below.

- **Colorado River Aqueduct** – 242 miles of conduits, siphons, tunnels, and canals
- **Pumping plants** – five pumping plants, including Whitsett Intake (lift 291 feet); Gene (303 feet); Iron Mountain (144 feet); Eagle Mountain (438 feet); and Julian Hinds (441 feet)
- **Water treatment plants** – five water treatment plants, including the Joseph E. Jensen plant (Granada Hills), Robert A. Skinner plant (north of Temecula), F.E. Weymouth plant (La Verne), Robert B. Diemer plant (Yorba Linda), and Henry J. Mills plant (Riverside)
- **Conveyance and Distribution pipelines** – 830 miles of pipeline extending throughout the service area
- **Reservoirs** – 10 water storage reservoirs, including Diamond Valley Lake (near Hemet), Etiwanda (Riverside), Lake Mathews (Riverside), Lake Skinner (north of Temecula), Copper Basin and Gene Wash (desert region), Live Oak Reservoir (La Verne), Garvey Reservoir (Monterey Park), Palos Verdes Reservoir (Rolling Hills), and Orange County (Brea)
- **Hydroelectric plants** – 16 hydroelectric plants at various locations throughout the service area

3.3 Program Need

Metropolitan's water distribution system comprises over 830 miles of buried pipelines constructed of various materials, including steel, cast iron, reinforced concrete, and PCCP. Between 1962 and 1985, 163 miles of PCCP lines, ranging in size from 42 to 201 inches in diameter, were installed throughout Metropolitan's service area. The pipelines are generally located within Metropolitan-owned and public rights-of-way in both dense urban areas and remote rural regions.

PCCP is a composite-walled pipe that contains a steel cylinder that is spirally wound with high-strength steel prestressing wire. The wire is wrapped around a cement slurry bed and is then coated with cement mortar, which serves as a finished outer surface. PCCP has been used by water utilities in North America since the early 1940s and began to see widespread use in municipal, industrial, and irrigation systems in the 1960s.

Beginning in the early 1970s, an increasing number of PCCP failures were observed throughout the United States. Studies found that under certain conditions, PCCP lines may have a reduced service life and elevated risk of failure versus other types of pipe because of the potential of its prestressing wires to deteriorate, corrode, and eventually break. PCCP failures can occur without warning, and such failures can be catastrophic, compromising system reliability and resulting in unplanned major repairs, significant costs from service interruptions and repair work, and potential third-party damages.

Beginning in the late 1990s, Metropolitan initiated a program to inspect and assess the condition of all of its PCCP lines on a regular basis using state-of-the-art inspection techniques. Under this inspection program, all 27 PCCP lines within the distribution system were inspected every 3 to 7 years in order to gain information about the pipelines' baseline condition, to track prestressing wire breakage over time, and to identify distressed PCCP segments that require immediate repair. The inspection data were then used to assess the pipeline condition using industry-recognized risk factors such as wire breaks, repair history, internal pipe pressure, stray current from third parties, and location. Based on the results of the inspections, Metropolitan rated each of its 27 PCCP lines and then prioritized the pipelines based on need of rehabilitation. The following five PCCP lines were identified as having the highest need for rehabilitation: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder.

In September 2011, Metropolitan's Board authorized initiation of the PCCP Rehabilitation Program in order to develop a comprehensive, long-term plan for repair of Metropolitan's at-risk PCCP feeders. There were several drivers for the creation of this program: (1) the increasing number of failures of PCCP lines within the water industry, along with recognition of the risks associated with these failures; (2) trends of PCCP deterioration within Metropolitan's distribution system, based on monitoring data collected over a 14-year period; and (3) Metropolitan's experience with expensive, urgent repairs on PCCP lines. Based on this experience and on a risk assessment of Metropolitan's PCCP lines, staff concluded that approximately 100 miles of PCCP will have a reduced service life and need to be rehabilitated, especially in comparison with pipelines made of other materials.

3.4 Program Objectives

CEQA requires that an EIR include a statement of the objectives of the proposed action (State CEQA Guidelines 15124). The objectives of the proposed program are to:

- Reduce the risk of unplanned outages
- Extend the service life of the pipelines
- Perform the rehabilitation work in a cost-effective manner
- Minimize the effects of rehabilitation efforts on Member Agency deliveries
- Minimize the loss of hydraulic capacity due to rehabilitation
- Improve system operational and emergency flexibility

3.5 Program Locations

This section describes the general location and current condition of the five pipelines that would be rehabilitated as part of the proposed program. General characteristics and locations of the pipelines are summarized in **Table 3-1**, **Figure 3-1** shows the regional location of all pipeline alignments, and **Figures 3-2a through 3-2e** show the individual pipeline locations. Additional details regarding the environmental setting of each pipeline can be found in Section 4.0, *Introduction to Environmental Analysis*, and in the respective resource sections (Sections 4.1 through 4.14).

3.6 Program Components

Components involved in rehabilitation of PCCP can be categorized as primary, secondary, and associated temporary construction components. These components and the various methods needed to construct, install, and operate the components are summarized below and would be used as appropriate for rehabilitation of all five pipelines.

- Primary components include the different methods of rehabilitation considered for segments of the pipelines under the proposed program. These rehabilitation methods include steel cylinder relining with collapsed pipe, steel pipe sliplining with non-collapsed pipe, and replacement or new pipe construction.
- Secondary components include permanent appurtenant structures. These appurtenant structures are common to each of the five pipelines and can be further divided into buried (underground) structures and above-ground enclosures. Buried structures include vaults that house piping such as those at interconnections and equipment such as valves and meters. Above-ground enclosures, typically located on sidewalk median strips, house back-flow preventer valves and air vents. New vaults with new equipment would be constructed and existing appurtenant structures, including their equipment, would be rehabilitated as necessary.
- Temporary construction components include pipe portals, bulkhead, vault excavation sites, contractor work areas, and equipment staging areas.

3.6.1 Primary Components

3.6.1.1 Steel Cylinder Relining With Collapsed Pipe

Steel cylinder relining rehabilitation of PCCP would involve the following.

- Inserting collapsed steel cylinders into the existing PCCP line
- Expanding the collapsed cylinder into round to fill the PCCP pipe interior
- Welding the cylinder within the PCCP
- Filling the annular space between the steel cylinder and existing PCCP with concrete grout
- Applying a cement mortar to the interior surface of the steel cylinder

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Figure 3-1
Regional Vicinity Map
Metropolitan Water District PCCP Rehabilitation Program

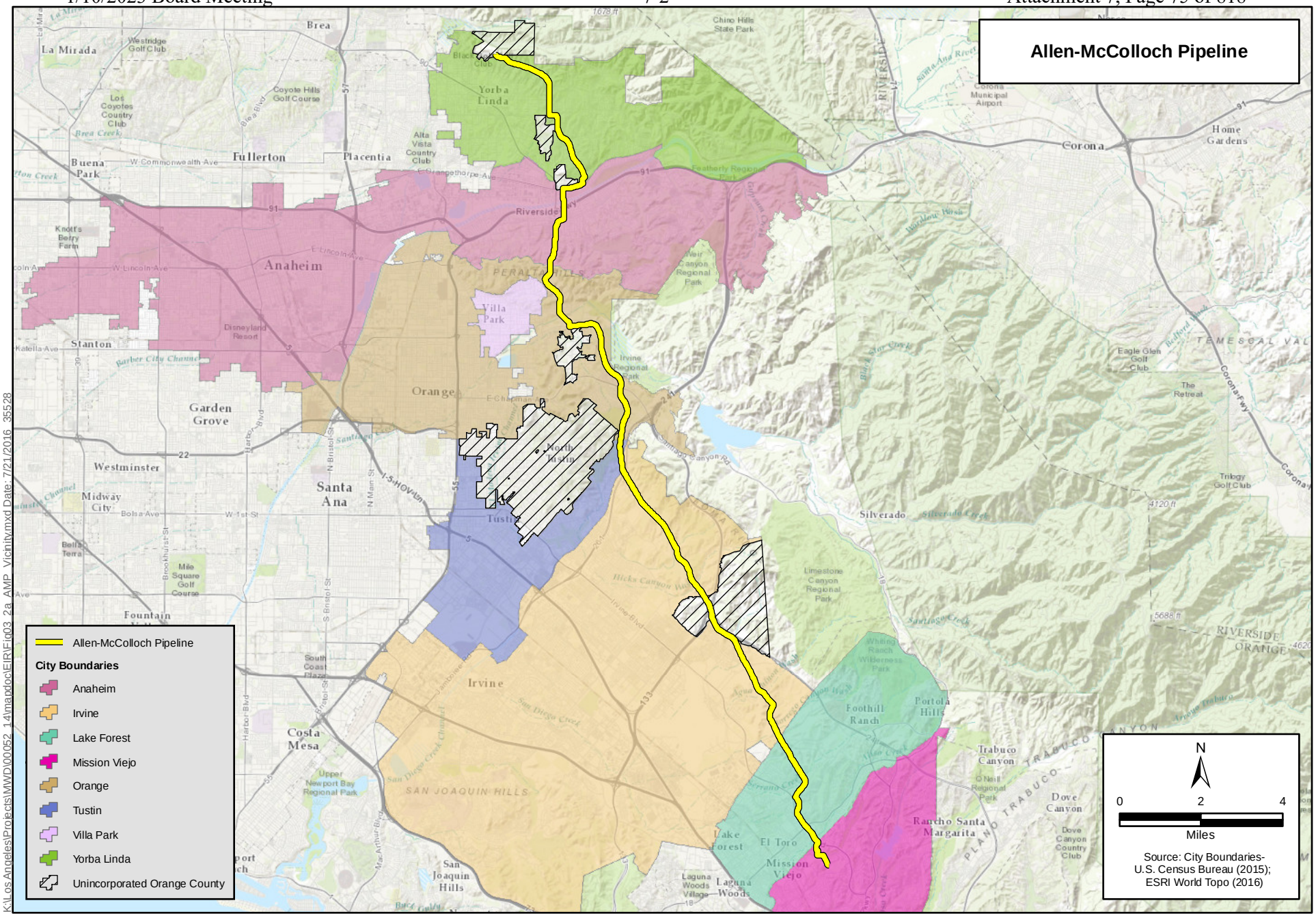
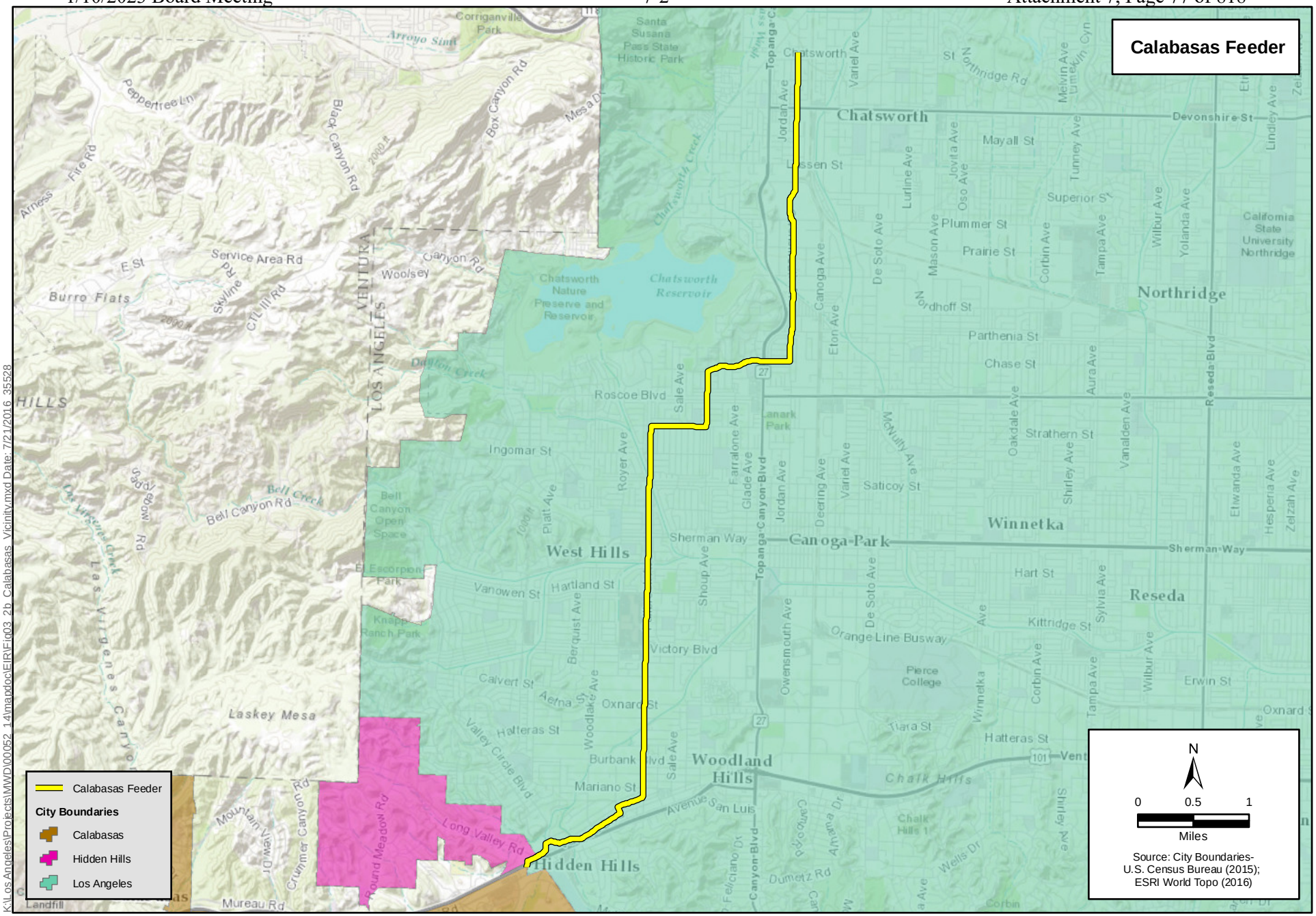


Figure 3-2a
Allen-McColloch Pipeline
Metropolitan Water District PCCP Rehabilitation Program



K:\Los Angeles\Projects\MWD\00052_14\mapdoc\EIR\Fig03_2b_Calabasas_Vicinity.mxd Date: 7/21/2016 35528

Figure 3-2b
Calabasas Feeder
Metropolitan Water District PCCP Rehabilitation Program

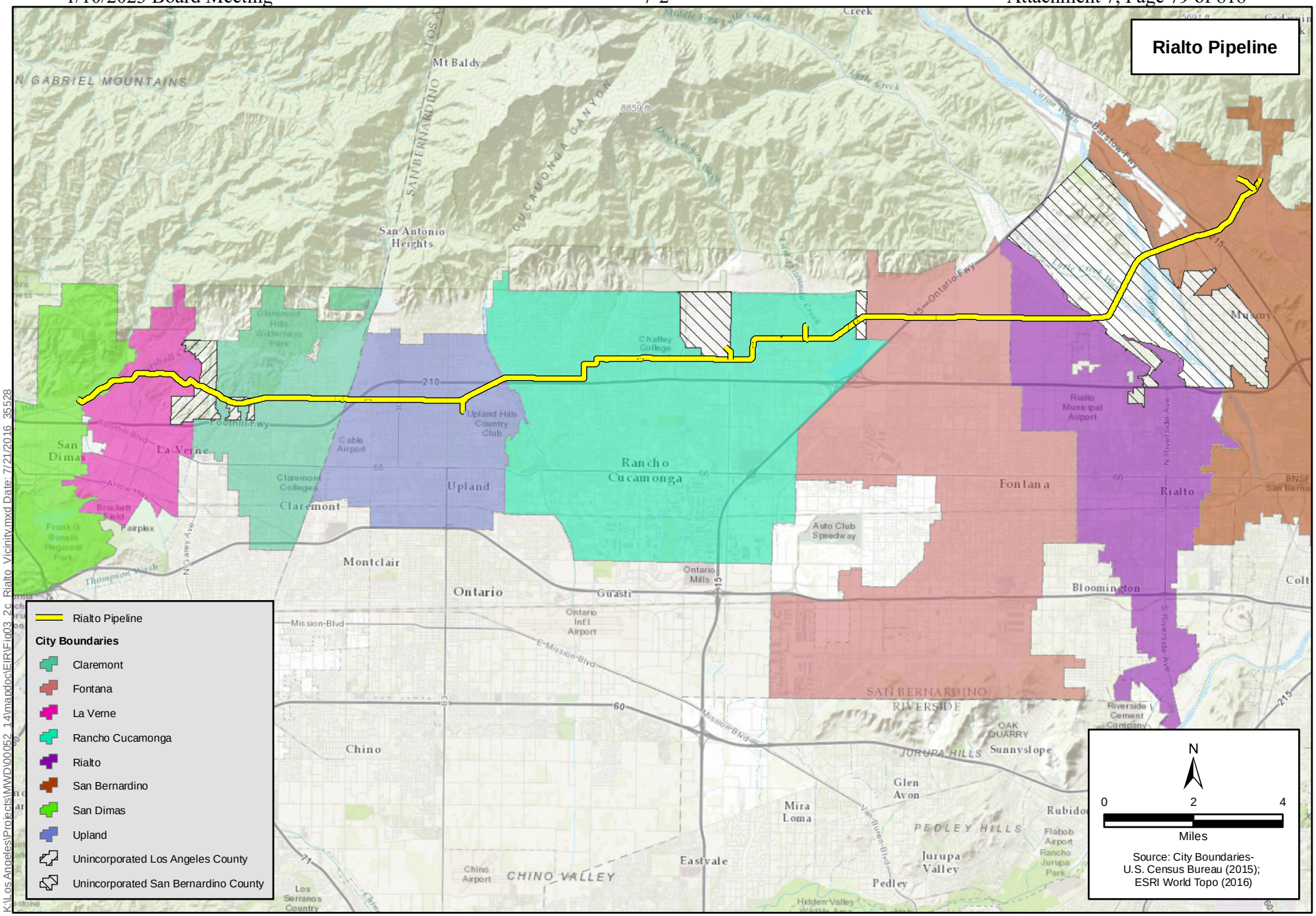
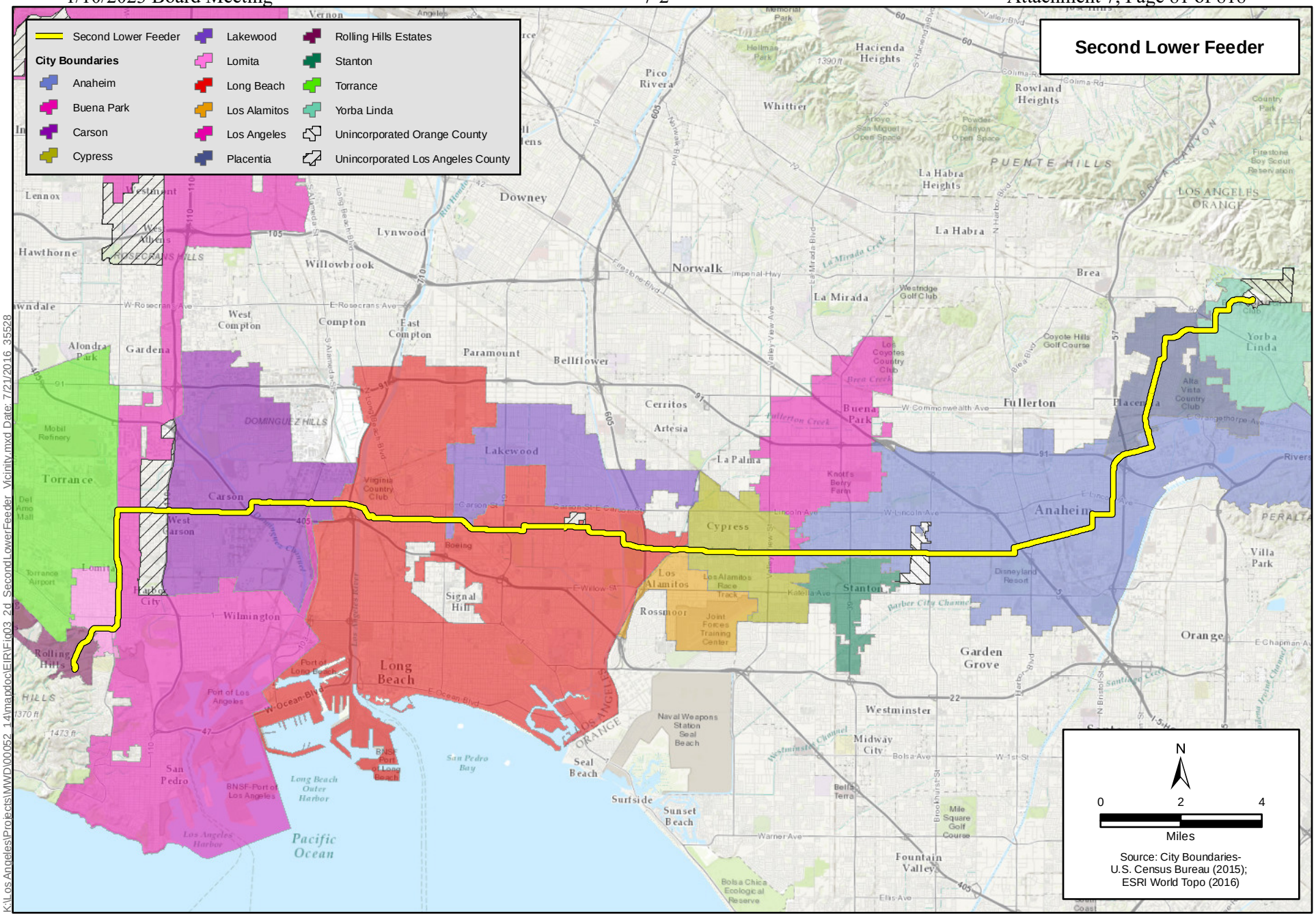


Figure 3-2c
Rialto Pipeline
Metropolitan Water District PCCP Rehabilitation Program



K:\Los Angeles\Projects\MWD\00052_14\mapdoc\EIR\Fig03_2d_SecondLowerFeeder_Vicinity.mxd Date: 7/21/2016 35528

Figure 3-2d
Second Lower Feeder
Metropolitan Water District PCCP Rehabilitation Program

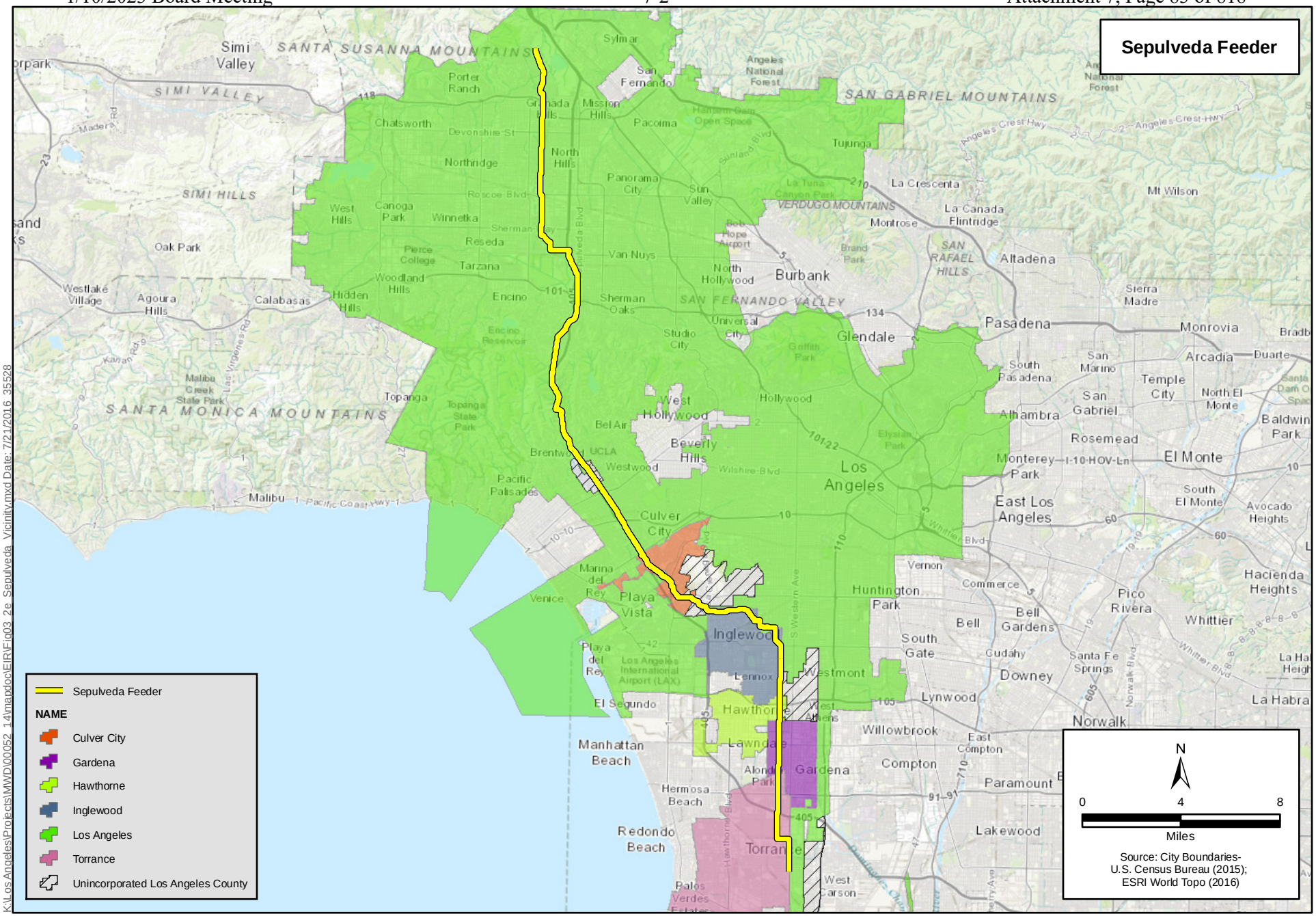


Figure 3-2e
Sepulveda Feeder
Metropolitan Water District PCCP Rehabilitation Program

Table 3-1. Summary of Proposed Program Pipelines

Pipeline	Construction Year	Total Length (miles)	Length of PCCP (miles)	Starting Location	Terminus Location	Counties	Cities
Allen-McColloch Pipeline	1970	26	9	Diemer Water Treatment Plant, City of Yorba Linda	El Toro Water District El Toro Reservoir, City of Mission Viejo	Orange	Anaheim, Irvine, Lake Forest, Mission Viejo, Orange, Tustin, and Yorba Linda
Calabasas Feeder	1975	9.3	9.3	West Valley Feeder No. 2, City of Los Angeles	Las Virgenes Municipal Water District Service Connection, City of Calabasas	Los Angeles	Calabasas, Hidden Hills, and Los Angeles
Rialto Pipeline	1970	30	16	California Department of Water Resources' Devil Canyon Facility, City of San Bernardino	San Dimas Power Plant Control Structure, City of San Dimas	Los Angeles, San Bernardino	Claremont, Fontana, La Verne, Rancho Cucamonga, Rialto, San Bernardino, San Dimas, and Upland
Second Lower Feeder	1966	39	30	Diemer Water Treatment Plant, City of Yorba Linda	Palos Verdes Reservoir, City of Rolling Hills Estates	Orange, Los Angeles	Anaheim, Buena Park, Carson, Cypress, Lakewood, Lomita, Long Beach, Los Alamitos, Los Angeles, Placentia, Rolling Hills Estates, Torrance, and Yorba Linda
Sepulveda Feeder	1970	42	37	Jensen Water Treatment Plant, City of Los Angeles	Second Lower Feeder Interconnection, City of Torrance	Los Angeles	Culver City, Gardena, Hawthorne, Inglewood, Los Angeles, and Torrance

The steel cylinder liner would be designed as a stand-alone pipeline that can accommodate full internal and external pressures on the line. The steel cylinder liner would only be slightly smaller than the existing PCCP line.

This method is best suited for pipe rehabilitation of long pipe reaches with varying pipe diameters resulting from previous repairs. Most of the construction activities occur within the pipe and site impacts occur primarily at the entry and exit portals to the pipeline. **Figures 3-3 and 3-4** show the steel lining that would be inserted into the existing PCCP. All of this work would be done inside the existing pipeline and at excavation sites along the existing pipeline alignment.

Figure 3-3. Collapsed Steel Pipe Section

3.6.1.2 Steel Pipe Sliplining with Non-Collapsed Pipe

Steel pipe sliplining rehabilitation of PCCP with non-collapsed pipe is similar to steel cylinder relining with collapsed pipe, but does not include installing and expanding collapsed pipe. Instead, it involves inserting full sections of cement-mortar-lined welded steel pipe into the existing PCCP line, welding adjoining pipe sections together, filling the annular space between the steel pipe and existing PCCP with concrete grout, and applying a cement mortar of the interior pipe surface at the welded joints. The steel pipe would be designed as a stand-alone pipeline that can accommodate full internal and external pressures on the line. The interior diameter of the steel pipe with sliplining would be smaller than the existing PCCP line and also slightly smaller than pipes relined with collapsed pipe. This method is less labor intensive than steel cylinder relining with collapsed pipe

and best suited for pipe rehabilitation of single pipe segments or shorter pipe reaches. Similar to steel cylinder relining with collapsed pipe, most of the construction activity would occur within the pipe and site impacts would occur primarily at the entry and exit portals to the pipelines.

Figure 3-4. Steel Sliplining with Non-Collapsed Pipe in Progress

3.6.1.3 New Pipe Replacement

New pipe may be constructed to replace an individual pipe segment or a new pipeline alignment in locations where the existing PCCP line cannot be rehabilitated with steel liners due to construction constraints, additional capacity requirements, or operational constraints. The new pipe would be sized to accommodate needed flows. Only two pipelines may require new or parallel pipe replacement.

- Allen-McColloch Pipeline in limited areas of Anaheim, Tustin, Irvine, Lake Forest, and Mission Viejo
- Second Lower Feeder in limited areas of Yorba Linda, Placentia, and Anaheim
- Rialto Pipeline in limited areas of Claremont, Fontana, La Verne, Rancho Cucamonga, Rialto, San Bernardino, San Dimas, and Upland

New pipe would generally be constructed via open trench methods and would involve laying 20- to 40-foot-long full sections of cement-mortar-lined and coated welded steel pipe. The open trench depths would be based on the depth of the existing pipeline (the pipe trenches for the Second Lower Feeder, for example, would be excavated to depths of 20 to 40 feet), and open trench widths would generally be sized to be a few feet wider than the pipe diameter (the additional width allows shoring

installation and proper pipe placement, backfilling, and compaction activities to take place). After installation of the new pipe, the trench is backfilled with soils that were previously removed, and the surface is restored. Due to its higher cost, installation of new pipe would only be considered where other methods are determined to be ineffectual.

Where possible, the existing PCCP line would be kept in service until the new pipe is completely constructed and operational. Upon completion of the tie-ins to the new pipe, pipe flows would be diverted to the newly constructed pipe and the existing PCCP line would likely be abandoned and taken out of service.

3.6.2 Secondary Components

Pipeline systems typically include equipment vaults that house water meters, isolation valves, check valves, bypass valves, back-flow preventer valves, and pressure-reducing valves, pump wells, and blow-offs. Valves are typically used in pipelines to regulate, throttle, and control flow or pressure, to prevent back-flow, and to relieve excess pressure or vacuum or to dewater the pipeline. Meters are typically used to monitor, measure, and control water usage in a water distribution system.

Equipment vaults are buried rectangular concrete structures that can be accessed from street level to perform maintenance and repairs. Vaults sizes would vary; for analysis purposes they are assumed to be 33 feet wide by 57 feet long by 28 feet high to house valves as large as 120 inches in diameter. (Many vaults would be smaller.) The top of the structure is typically several feet below ground surface and the structures are accessed via ladders from street-level hatches or manholes. **Figure 3-5** shows a typical buried equipment vault. Above-ground enclosures housing electrical panels are typically located along the sidewalk within the public right-of-way.

3.6.2.1 Buried Equipment Vaults

Existing vaults and the equipment inside them would be upgraded as part of the rehabilitation work. This could include modifying or enlarging the existing vault structure or building a new adjacent vault structure. Once the new vault is constructed and new equipment is installed, aged and deteriorated vaults may be demolished.

New vaults are planned to be added to the existing pipelines as part of the proposed program. These new vaults would require excavation around the existing pipeline. Once rehabilitation is complete, the excavation site would be backfilled with slurry, originally excavated soils would be properly disposed of off site, and the surface would be restored to existing conditions. This would involve repaving existing roads and replacing existing sidewalks.

3.6.2.2 Manholes and Above-Ground Enclosures

Manholes typically provide access for maintenance and repairs and are spaced at regular intervals along the pipelines. The proposed program would retain the existing manholes and construct new manholes as needed to maintain access to buried vault structures and to the pipeline. Existing manholes would be used for ventilation and for access to the interior of the pipeline for personnel, small equipment, and materials during rehabilitation of other program components (e.g., pipeline relining). New manholes would be installed at other planned locations.

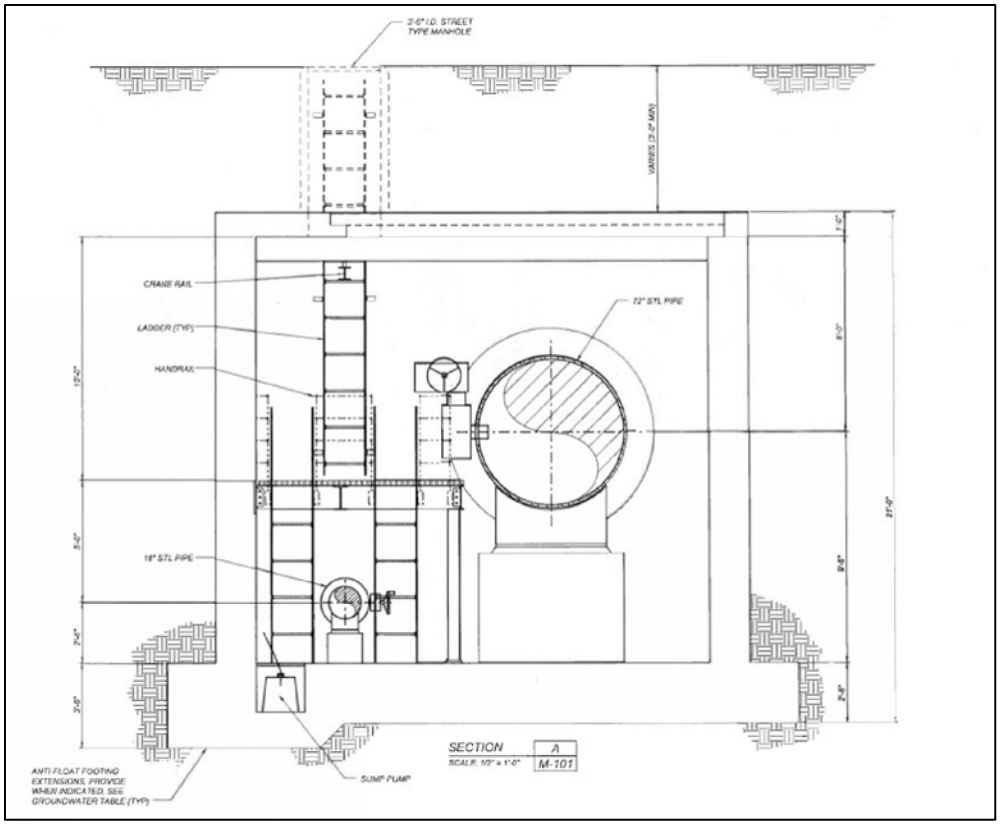


Figure 3-5. Valve Vault

The California Department of Public Health requires that all treated water supply systems be protected from potential contamination through air release and vacuum valves. Air release/vacuum valves allow air into or out of the pipeline during dewatering or filling of pipe to control air pressure in the pipe. These facilities are typically located in above-ground facilities, so any existing below-ground air release/vacuum valve assemblies along the pipeline would be relocated above ground. The relocation from below ground to above ground would require shallow trenching from the existing below-ground vault to a location along the sidewalk. For the purposes of this analysis, the trench is assumed to be approximately 24 inches wide and about 4 feet deep. The length of the trench would vary with the size of the street to be crossed. The new air valves would be located in small enclosures along the sidewalk and within the public-right-of way. **Figure 3-6** shows a typical above-ground valve enclosure.

Electrical panels that provide power to equipment from within the buried equipment vaults would be located within small above-ground enclosures along sidewalks. The size of the electrical panels would vary; for analysis purposes they are assumed to be approximately 8 to 10 feet high and approximately 3 feet wide. New electrical panels would be constructed as needed. In remote areas, telemetry equipment to communicate billing information from meters and information from other monitoring equipment to Metropolitan headquarters may also be installed. Vent stacks to vent air pressure from buried structures would also be rehabilitated or constructed as needed.

Figure 3-6. Typical Above-ground Valve Enclosure

3.6.2.3 Pumpwells and Blow-off Structures

Pumpwells and blow-off structures along pipelines are used to dewater the pipeline quickly into natural creeks, channels, waterways, and storm drains when a shutdown of the pipeline is necessary. Pumpwells allow temporary pumps to be placed to dewater a pipeline. Blow-offs allow gravity to dewater the pipelines. Pumpwells and blow-offs also provide access points for routine maintenance or pipeline inspection. These structures are typically located within the buried equipment vaults. In some cases, additional pumpwells and blow-off structures may be constructed during pipeline rehabilitation.

3.6.3 Temporary Construction Components

The following components would be present during rehabilitation only. After construction, these components would be removed and the sites returned to pre-construction conditions.

3.6.3.1 Contractor's Work Areas

The contractor's work area allows for construction activities to occur safely and efficiently within a construction site. These activities include excavation, shoring, pipe removal, pipeline rehabilitation, electrical panel installation, and construction support activities such as ventilation, dewatering, pipe disinfection, and refilling. The contractor's work area would be defined in the construction contract

drawings and would vary in size depending on existing constraints, such as road width and local traffic, and construction methods and equipment.

3.6.3.2 Excavation Areas

An excavation area is defined as the entry or exit portal that exposes the underground PCCP section of the pipe or equipment vault to be rehabilitated. It is the trench in which new pipe would be installed. Multiple excavation areas would be needed to rehabilitate the pipelines and buried equipment vaults included in the proposed program. Excavation areas would vary in size. For analysis purposes excavation areas are assumed to be approximately 20 feet wide and 50 feet long. Existing surface improvements, such as road pavements, sidewalks, and landscaping, would be removed at each excavation area, and soils would be excavated and temporarily removed from the site to expose the existing pipeline. Excavation areas are assumed to be approximately 15 to 20 feet deep; however, these dimensions would vary site-to-site based upon the size and depth of the pipe or vault to be rehabilitated. Other potential constraints include interferences with existing third-party utilities and soil conditions and depth to groundwater.

Spacing of excavation areas would also vary. For purposes of analysis, excavation areas are assumed to be spaced approximately 1,500 feet apart along the existing pipeline alignment (or approximately three per mile). Actual excavation area spacing would be determined by the number of horizontal and vertical bends within the existing alignment and in many cases would be more than 1,500 feet. Once rehabilitation is complete, the excavation area would be backfilled with soils originally excavated, and the surface of each excavation area and surrounding work zone would be restored to existing conditions. This would involve re-paving existing roads, replacing or repairing existing sidewalks, and replanting landscaping.

3.6.3.3 Staging Areas

Staging areas would be established to provide space to store pipes or liners, construction materials such as shoring boxes and pipe bedding materials, and equipment such as excavators and dump trucks. The staging area would also be used for the contractor trailer and worker parking. Typically, staging areas would be located adjacent to the contractor's work areas; however, potential space limitations could require that they be located farther away. Generally, staging areas would also accommodate existing surface improvements (e.g., trees) and require little modification.

The sizes of a staging area would be dependent upon proximity to the proposed program component, land leasing fees, contractor work methods, land uses in the vicinity, and the services the staging area would provide. Staging areas may be located on Metropolitan fee property or on private or public property. Agreements would be negotiated with the appropriate parties as necessary prior to establishing a staging area. Upon completion of construction work, the staging areas would be returned to their existing condition, as appropriate and pursuant to any agreements. For example, if the staging area was previously paved and the pavement was damaged during staging, Metropolitan would re-pave the area.

3.7 Program Coordination Activities

3.7.1 Construction Activities

Pipeline construction activities can be compared to a moving assembly line. The first step would be dividing the pipeline project into manageable lengths. For a pipeline where certain portions are to remain in service during construction, these lengths would be determined by the locations of existing or new isolation valves and pipeline bulkheads. These isolation valves and bulkheads would be used to isolate or stop water flows in sections of pipeline for repair, maintenance, or safety purposes. Each of the program pipelines has several isolation valves at strategic locations along the pipeline alignments.

The remaining construction activities are listed below. In a typical project, there would be multiple construction contracts, depending on the activity being performed.

- Mobilization of contractor's construction equipment
- Procurement and fabrication of equipment and piping
- Site preparation, including installation of temporary fencing and traffic controls
- Pre-construction survey, including locating and relocating third-party utilities to prevent accidental damage
- Trenching of entry and exit pipe portals and new pipeline alignments
- Pipeline relining and/or installation of new pipe construction
- Site excavation for equipment vaults and equipment vault rehabilitation, including installation of new valves, meters, and other appurtenant equipment
- Backfilling of the excavations and testing
- Site restoration

Most of the PCCP rehabilitation activities would take place along the existing pipeline alignments in urban areas, within Metropolitan-owned and public rights-of-way. Metropolitan would coordinate with its member agencies as needed (identified in sidebar) prior to and during rehabilitation activities, thus reducing the potential for a service interruption. In addition, prior to the commencement of construction activities, Metropolitan would coordinate with each affected local jurisdiction to minimize or mitigate noise and traffic conflicts during construction work hours as they may vary according to jurisdiction. Working with the local jurisdictions, Metropolitan would submit a traffic control plan, which would be approved by the respective jurisdiction.

Metropolitan's Member Water Agencies

City of Anaheim
City of Beverly Hills
City of Burbank
City of Compton
City of Fullerton
City of Glendale
City of Long Beach
City of Los Angeles
City of Pasadena
City of San Fernando
City of San Marino
City of Santa Ana
City of Santa Monica
City of Torrance
Calleguas Municipal Water District
Center Basin Municipal Water District
Eastern Municipal Water District
Foothill Municipal Water District
Inland Empire Utilities Agency
Las Virgenes Municipal Water District
Municipal Water District of Orange County
San Diego County Water Authority
Three Valleys Municipal Water District
Upper San Gabriel Valley Municipal Water District
West Basin Municipal Water District
Western Municipal Water District of Riverside County

Where possible, construction activities would occur during daytime hours, Monday through Friday and potentially Saturday. However, in order to prevent significant water delivery interruptions, accommodate a request from an affected jurisdiction, or expedite rehabilitation, it is likely that construction activities on some construction reaches would occur outside the hours allowed by local regulations. ~~could proceed outside of the normal daytime hours (i.e., during the nighttime or on Sundays). For this program-level analysis, only daytime, Monday through Friday, construction is analyzed, because impacts related to weekend and nighttime work would be site-specific. Therefore, any projects requiring work on weekends or at night would require additional environmental analysis and documentation prior to construction.~~

Protection and/or relocation work for existing utilities may be needed in some locations to avoid construction interferences and provide an adequate work area for rehabilitation activities. Metropolitan would work with utility owners to coordinate such activity on a case-by-case basis, depending on the particular circumstances of the program component.

Key construction activities are described below. Metropolitan would implement a number of environmental commitments as part of each activity as referenced below, where appropriate, and as fully described and detailed in Section 3.9, *Environmental Commitments*.

3.7.2 Pre-Construction and Post-Construction Activities

Procurement of valves and piping materials are considered long-lead items that are started prior to issuing a construction contract for pipeline rehabilitation. Some of the custom-designed valves would be procured directly by Metropolitan from valve suppliers, while off-the-shelf catalog valves would be procured by the construction contractor. The valves would be fabricated off site and shipped by truck or rail. Valves fabricated overseas may be shipped by vessel. Steel pipe liner would be procured from pipe suppliers by Metropolitan or by the construction contractor. The steel liner would be fabricated off site and shipped by truck or rail.[1]

Pre-construction and post-construction activities include the mobilization and demobilization of the contractor's forces and equipment necessary for performing the required work. Mobilization includes all activities and associated costs for transportation of the contractor's personnel, equipment, and operating supplies to the site; establishment of offices, buildings, and other necessary general facilities for the contractor's operations at the site; and premiums paid for performance and payment bonds including coinsurance and reinsurance agreements as applicable. Demobilization includes all activities and costs for transportation of personnel, equipment, and supplies not required or included in the contract from the site, including the disassembly, removal, and site cleanup of offices, buildings, and other facilities assembled on the site specifically for this contract.

3.7.3 Site Preparation

Each program component would first require site preparation. This would include establishing specific work zones, placing temporary fencing and signage around the construction work zones, and establishing local and regional staging areas for storing construction equipment and materials. Procedures described in approved Temporary Construction Permits would also be implemented at this time. These would include requirements for directing traffic, establishing traffic detours,

[1] At this time, fabrication is anticipated to occur in Adelanto, California and in Mexico.

establishing and installing signage for new temporary speed limits, and placing traffic control signs to ensure safe vehicular, pedestrian, and bicycle traffic during rehabilitation activities. Traffic control measures would remain in place until site restoration is complete. Because much of the PCCP rehabilitation activities would take place along the existing pipeline alignments in urban areas, within Metropolitan-owned and public rights-of-way, features such as pavements, sidewalks, and vegetation would be removed as part of site preparation work.

3.7.4 Excavation Areas

Excavation to access the existing pipeline would be the first major construction activity for pipeline rehabilitation and for rehabilitation of the equipment vault structures. In most cases, steel shoring would be placed within the excavated area to minimize the size of the excavation area. The depth of the excavation site depends on the program component as detailed in Section 3.6.1, *Primary Components*. Soils removed as part of excavation may be stockpiled within the footprint of the program component and reused or trucked to and stored at one of the staging areas. Soils identified as hazardous or contaminated would be handled, transported, and treated per all federal, state, and local existing hazardous materials regulations.

As part of this activity, third-party utilities would be identified and relocated, if necessary, and groundwater dewatering, if required, would occur. Water removed from the excavation would be tested prior to discharge into either existing stormwater drains or flood control facilities or disposed of off site in accordance with applicable laws and regulations.

3.7.5 Rehabilitation Activities

3.7.5.1 Steel Cylinder Relining with Collapsed Pipe and Steel Pipe Sliplining with Non-Collapsed Pipe

After the pipe has been isolated and dewatered, access to the pipeline would be made through the excavation areas. Within an excavation area, specialized saws would be used to cut out a section of the existing PCCP to create an entry portion that would be used to provide access to the pipe being rehabilitated. The cut portion would be removed from the excavation area by crane.

For all confined space work, blowers and fans would be needed to maintain safe subsurface working conditions. These blowers and fans would be set up around the site of the existing buried structures within the street once site preparation occurred, as described above.

For steel cylinder relining with collapsed pipe, new collapsed steel liners would be lowered into the excavation site, compressed using steel bands, and then inserted into the pipeline entry portal by crane. Customized pipe carrier equipment would be used to slide the steel liner into its final position inside the existing pipeline. Once the liner is placed, the bands would be cut and the steel liner would be expanded into circular pipe and welded in place. (For steel pipe sliplining with non-collapsed pipe, welding is only necessary at pipe section ends.) After welding, grouting would take place by injecting grout into the space between the existing pipeline and the new liner. Mortar lining then occurs by spraying mortar on the inside of the steel liner for protection.

After mortar lining is applied, all construction workers, equipment, and materials would be removed and the pipe cleaned of all debris and rinsed with water. Rinse water would be collected, filtered to remove solids, treated as necessary to meet regulatory requirements, and then discharged from the

pipe to stormwater piping or channels. Once rehabilitation is complete, Metropolitan would restore service to its customers.

3.7.5.2 New Pipeline Replacement

Pipeline replacement would involve removing existing pipe and installing new pipe. New pipe construction is needed in locations where existing pipe cannot be rehabilitated with steel liners due to construction constraints, hydraulic capacity requirements, or operational constraints. The new pipe would be sized to accommodate needed flows and would generally be constructed in a new alignment that is parallel to the existing pipe.

For new pipeline replacement, the pipeline would first be divided into manageable lengths. Pipeline construction would then proceed as follows.

1. Backhoes or excavators would be used to excavate a pipeline trench, with the bottom of the trench extending 2 to 3 feet below the existing pipe.
2. The excavation would be shored with vertical walls in congested urban areas, or sloped without shoring in open areas.
3. The existing pipe would be then demolished and removed.
4. The bottom of the excavation would be prepared with bedding material.
5. The new pipe would be installed using a crane or large excavator.
6. Each pipe section would be welded to each other.
7. After welding, the new pipe may be encased in concrete, as applicable.
8. The trench would be backfilled with cement slurry, sand backfill, native material, or a combination thereof.
9. The line would then be disinfected and put into service.

The site would then be restored to its preconstruction condition, and any excess materials would be removed and hauled off site.

3.7.5.3 Pipeline Isolation for Rehabilitation Activities

Preventing water flow in sections of pipeline for maintenance or safety purposes would be accomplished using isolation valves or temporary bulkheads. Regarding isolation valves, each pipeline has several isolation valves at strategic locations along the pipeline alignment that can be used to isolate or stop water flows. These isolation valves are normally left open; however, when repairs or maintenance of a pipeline are needed, the isolation valves would be shut to stop the flow of water.

In some circumstances, when shorter sections of pipeline need to be isolated to allow continued service to member agencies, temporary pipeline bulkheads would be installed instead. Bulkheads work similarly to isolation valves, but instead of shutting off flow using a mechanical device, a physical structure or partition composed of steel plates welded to the liner interior is installed to stop water flow. Bulkheads may be required along various sections of the pipelines to isolate one section of the pipeline from another and to ensure continued and reliable water supply delivery to member agencies while rehabilitation is being performed on another section of pipe. Bulkheads would be installed temporarily and may be required to stay in place up to 6 months while the

relining work is being completed. Temporary bulkheads would be removed once rehabilitation has been completed.

The actual dimensions of the bulkhead excavation site would be similar to that of an excavation to an access portal for pipe relining or sliplining. Once the bulkhead is installed, the original soil that was removed to access the pipeline and insert the bulkhead would be backfilled. The surface of each bulkhead location and surrounding excavation area would then be restored to its pre-construction conditions. In some locations, temporary site restoration would remain in place until the bulkhead is removed. Thereafter, permanent surface restoration would be completed. A manhole may be installed at some locations to provide access to the pipeline after rehabilitation. Some bulkhead sites would remain open so that other program components could be rehabilitated. At other locations, soils would be backfilled and covered once the bulkhead was in place.

3.7.5.4 Equipment Vaults

Similar to pipe relining and sliplining rehabilitation, access to existing equipment vaults would be accomplished through the excavation areas after the pipe has been isolated and dewatered. Within an excavation area, the concrete lid of the existing vault would be lifted and the existing equipment would be removed and replaced. For rehabilitation of smaller equipment, excavation may not be required and equipment could be replaced by access through existing manholes.

Construction of new equipment vault structures would require larger and deeper excavations in order to shore the excavation and construction vaults using reinforced concrete materials. The vault structure would be constructed first and then the equipment would be installed, using large cranes. In some cases, existing vaults would be demolished.

For demolition of the existing vault structures, Metropolitan would follow standard demolition guidelines, including the following.

- No stockpiling of demolition debris would be allowed on site.
- Removal and disposal of all material would be performed in accordance with federal, state, and local laws governing waste disposal.
- Blasting would not be permitted.
- All demolition requirements (including removal of driveways, pavement, sidewalks, or curbs) would be included in the final design phase.
- A list of salvage items would be prepared and reviewed by Metropolitan during final design.

3.7.5.5 Air Release and Vacuum Valves

In the locations requiring air valves to be relocated above ground, construction workers would remove existing air valves and associated appurtenance structures. They would identify on-site utilities and relocate them during rehabilitation, as required. Trenching would then occur from the location of the existing air valve, across the existing road, to an existing sidewalk. The trench would be covered with large plates at night when construction is not occurring to allow cars to use the existing road. At the location on the sidewalk, a new air valve would be installed and enclosed in a metal box, which would sit on a new concrete pad. The trench would contain a pipeline of less than 12 inches in diameter extending from the existing manhole to the new air valve location on the sidewalk.

3.7.6 Site Restoration

Once rehabilitation of a program component is complete, if excavation was required, the following site restoration activities would be performed.

- The excavation site would be backfilled and compacted and the ground surface would be restored to its prior conditions. Previously excavated materials would be used for backfill, where appropriate.
- Excess excavation materials would be hauled off site nearby to project sites requiring imported fill or to landfills.
- Salvage items would be returned to Metropolitan.
- Remaining items would be removed from the footprint of the program component or the staging areas and disposed of.
- Landscaping would be replaced and restored to pre-construction conditions.
- Traffic control measures would be removed after site restoration activities are complete.

Site restoration would also include restoration of existing roads or sidewalks damaged during rehabilitation activities. This could involve patching discrete locations that were opened to access the pipeline or air valve, or it could involve curb-to-curb pavement of larger sections of existing roads. The decision for the type and size of re-paving would be made during discussions with local jurisdictions about traffic control measures. Once rehabilitation of a specific contract package or section of pipeline is complete, staging areas would also be restored to pre-existing conditions.

3.7.7 Construction Equipment and Hauling

Construction equipment required for various proposed program components is listed in **Table 3-2**.

Program equipment and debris hauling would utilize the pipeline right-of-way to get to adjacent surface streets, and then continue to main arterial routes. Depending on the pipeline, average hauling distance is anticipated to be approximately 20 miles.

The total number of vehicles in use would likely vary. Approximately two daily truck trips would be required for site preparation and excavation and site restoration. Eight daily truck trips would be required for rehabilitation of the pipeline, air valves, and valves. While some variation may occur in actual numbers, types, or frequency of use of vehicles during the work, anticipated truck usage is estimated to be the following.

- Four dump trucks (2 trips per day each for a total of 8 trips per day)
- Six semi-trucks with trailers (2 trips per day each for a total of 12 trips per day)
- Four water trucks (8 trips per day each for a total of 32 trips per day)
- Twenty-four pick-up trucks (4 trips per day each for a total of 96 trips per day)

Table 3-2. Common Construction Equipment Needed for Rehabilitation

Equipment	Program Component					
	Excavation Site for Pipeline Relining	Bulkhead	Staging Area*	Pipeline Replacement/ Parallel Piping	Vault Structure/ Meter Manhole	Air Valve Relocation
Asphalt Paver	X	X	X	X	X	
Backhoe Loader	X		X	X		X
Confined Space Blower/Fan Ventilation Fan		X	X	X		X
Crane	X	X	X	X	X	
Delivery Trucks	X	X	X	X	X	X
Drum Roller Compactor	X		X	X		
Compactor (soils/asphalt)	X	X	X	X	X	X
End Dump Truck	X	X	X	X	X	X
Excavator	X	X	X	X	X	
Flat Bed Truck	X		X	X		
Fork Lift	X		X	X	X	
Front End Loader	X	X	X	X	X	
Maintenance Utility Truck with Mounted Crane			X	X	X	X
Pneumatic Tools	X	X	X	X	X	X
Slip Lining Cart	X		X	X		
Street Sweeper	X	X	X	X	X	X
Water Truck	X	X	X	X	X	
Welding equipment	X	X	X		X	
Concrete Saw	X				X	
Concrete Coring Machine	X				X	X
Transit Mixed Concrete Truck	X				X	
Concrete Pump	X	X	X	X	X	X
Generator	X	X	X	X	X	X
Compressor	X	X	X	X	X	X
** The equipment identified for staging areas would be stored at any one of the staging areas.*						

3.8 Rehabilitation Sequence and Phasing

The PCCP rehabilitation program is designed to be completed over an approximately 20-year period. The proposed program would be planned to provide considerable flexibility in the sequence of implementation. Factors such as pipeline risk, water supply availability, regional and local demands, operational restrictions, and individual member agency capabilities would change throughout the life of the planned 20-year program. Flexibility to alter the planned rehabilitation sequence in response to changing factors would be an essential element of the proposed program.

In general, pipelines with the highest risk of a reduced service life would be rehabilitated first. Sections of the pipeline of significant length and without service connections to member agencies would also be prioritized over those that would cause more potential water delivery interruptions. It is anticipated that rehabilitation would be scheduled during months with low water demand (i.e., late fall, winter, early spring). Final prioritization of phasing for rehabilitation activities would consider the following.

- Condition of the PCCP lines: Metropolitan will continue to monitor and assess the condition of its PCCP lines on a yearly basis. Changes in relative risk between pipeline segments may result in the need to alter the planned rehabilitation sequence or timing.
- Metropolitan's available sources of supply: There is a large variation in wet versus dry year water supply availability. Water supply availability has significant impacts on how Metropolitan operates its overall system.
- Operational Restrictions: Metropolitan's water delivery system comprises a number of interconnected pipelines. Operational restrictions or work in some areas will affect the ability to shut down others.
- System Demand: Metropolitan's system demands vary, as its member agencies manage their own water systems and supplies. Rehabilitation sequence or timing may be adjusted due to high or low demands within certain portions of the system.
- Local Disruptions: Coordinating with cities to avoid conflicts with other public improvement projects, moratoriums, community events, and seasonal events as well as local business disruptions.
- Member Agency Considerations: Coordinating with member agencies to determine the length of any required outage to their service connections.

Due to overall system constraints, some feeders cannot be rehabilitated at the same time as others. Multiple pipelines may be rehabilitated concurrently. Rehabilitation can also alternate between pipelines based on their prioritization.

Other factors to improve flexibility would also be considered, including the following.

- Preparing much of the design up-front, so that multiple contract packages would be available for construction at any given time if adjustments are needed.
- Issuing construction contracts that involve multiple excavation sites that may be constructed concurrently or sequentially depending on water supply demands, requirements from jurisdictions, and construction constraints.

- Implementing multiple construction contracts at the same time.
- Reprioritizing construction contracts from different pipelines and making them interchangeable between feeders, depending on the proposed program needs. For example, a construction contract may be implemented on the Second Lower Feeder and a subsequent construction contract may then be completed on the Sepulveda Feeder.

In terms of the specific activities for each pipeline, each pipeline would be divided into sections determined by the location of isolation valves and/or bulkheads. Additional isolation valves and bulkheads may be added to minimize potential interruptions of water delivery to member agencies while the pipeline is being rehabilitated. For example, the Second Lower Feeder is proposed to be divided into multiple segments. These sections can be hydraulically isolated, one at a time, which would allow for rehabilitation activities to take place within one segment of pipeline while water deliveries continue in other sections. The length of the pipeline within each contract package would vary, depending upon the distance between isolation valves and bulkheads. Constructability variables, such as the number and the degree of pipe angles at horizontal and vertical turning point locations, would be adjusted as needed based on other factors such as conflicts with other underground utilities, traffic control, and proximity to sensitive receptors.

In terms of schedule, the length of each pipeline within a contract package would primarily dictate the duration of various rehabilitation activities**.** Once the pipeline has been divided into sections, the period to complete each section would also vary depending on the length of the section, but generally, all activities on a section would be completed within one shutdown season (fall through spring). Sections may overlap with one another, and several rehabilitation activities within a single contract package could be completed simultaneously. Different sections may also overlap in order to expedite construction and minimize any potential service interruptions. **Table 3-3** summarizes program components, expected range of duration, and considerations associated with the maximum duration. These durations include site preparation and excavation, pipeline isolation and dewatering (including bulkhead construction if needed), rehabilitation of PCCP, isolation valve vault structures, valves, and site restoration. Durations are estimates and timeframes could be shortened or expanded depending on construction constraints, requests from various jurisdictions, and unforeseen impacts.

It is anticipated that approximately 14,300 linear feet of pipeline can be rehabilitated within a 9-month period.

Table 3-3. Program Components Average Durations

Project Component	Approximate Duration	Duration Considerations
Primary Components		
Steel cylinder relining with collapsed pipe	6–9 months	• Steel liner segments can be installed at a rate of 200 linear feet per day. • Welding and testing can occur at a rate of 120 linear feet per day. • Grouting can occur at a rate of 600 feet per day. • Cement mortar lining can occur at a rate of 500 feet per day (field applied).
Steel pipe sliplining with non-collapsed pipe	6–9 months	• Steel liner segments can be installed at a rate of 200 linear feet per day. • Welding and testing can occur at a rate of 180 linear feet per day. • Grouting can occur at a rate of 600 feet per day. • Cement mortar lining can occur at a rate of 1000 feet per day (shop applied)
New pipe replacement (segment)	12 months	• 9,000 feet. • Depends on location and construction constraints.
Secondary Components		
Buried equipment vaults	6 months	• Could be concurrent with pipeline relining
Manholes & above-ground enclosures: air release/vacuum valves, vent stacks, meter cabinets/ electrical panels	4 weeks	• Rehabilitation of air release valves could occur during the rehabilitation of existing PCCP pipe. However, when necessary, rehabilitation could also be separate and independent in location and time from slip-line or new pipe installation.
Pumpwells & blowoff structures	1 month	• Could be concurrent with pipeline relining
Temporary Construction Components		
Contractor's work areas	12 months	• Depends on the final start and completion date of a construction package.
Excavation areas	6–9 months	• Up to 4 months for each excavation site
Staging areas	12 months	• Depends on the final start and completion date of a construction package.
Program Coordination Activities		
Pre-construction activities	3 month	• Includes procurement & mobilization
Site Preparation	1 month	• Some concurrent activities
Site Restoration & demobilization	3 months	• Most sites less; some concurrent activities

3.9 Environmental Commitments

Metropolitan or its contractors would implement the environmental commitments listed below during rehabilitation activities. These commitments are incorporated into the proposed program.

- Rehabilitation activities would generally occur during daytime hours. Construction at night may be necessary to respond to pipeline operational issues, to address traffic related concerns, or to implement shutdown and refill periods, or at the request of the jurisdiction. To expedite construction, as allowed by or in coordination with the local affected jurisdiction(s), construction may occur on Saturdays. Generally construction is not expected to take place on Sundays or on holidays.
- Rehabilitation activities would comply with South Coast Air Management District's Rule 403 to minimize fugitive dust, construction traffic, and particulate matter releases.
- Rehabilitation activities would incorporate water quality Best Management Practices, including a Stormwater Pollution Prevention Plan, as applicable, for sediment and erosion control, pollutant treatment, outlet protection, and general site management.
- A Spill Emergency Response Plan would be prepared prior to the start of construction and be responsible for ensuring that hazardous materials and waste are handled, stored, and disposed of in accordance with applicable federal and state laws and regulations. All materials and fuels within the staging areas and excavation sites/work zones would be stored in a manner that reduces the potential for spills.
- A traffic control plan would be prepared and implemented in coordination with the affected local government jurisdictions. The traffic control plan would include safety measures such as posting of signs identifying excavation sites, work zones, and staging areas and utilizing flagmen to direct vehicle traffic.
- Each of the excavation sites/work areas and staging areas would be fenced and screened.

Chapter 4
Environmental Analysis

4.0.1 Introduction

This chapter introduces the resource sections, which contain the various impact analyses, and discusses the organization of the Programmatic Environmental Impact Report (PEIR) and terminology used throughout the PEIR. It explains the overall methodology used to analyze impacts, along with the methodology for the cumulative analysis. This section also summarizes the permits that may be required for implementation of the program components. Finally, it provides a general regional setting to orient the readers prior to reading the resource-specific sections.

4.0.2 Environmental Analysis Scope and Organization

4.0.2.1 Resource Sections

As previously discussed in Chapter 2, *Introduction*, Sections 4.1 through 4.14 contain a discussion on the potentially significant impacts of the proposed program. Each of these sections corresponds with a specific resource area. To assist the reader in comparing information about the various environmental issues, each resource chapter is organized in the following manner.

- **Existing Conditions.** Describes the existing or baseline conditions in the study areas for the proposed program.
- **Regulatory Framework.** Provides the federal, state, regional, and local regulations that apply to the proposed program.
- **Thresholds and Methodology.** Identifies the thresholds for determining whether a significant impact would occur with implementation of the proposed program, based on California Environmental Quality Act (CEQA) guidance and, in some cases, resource-specific guidance. Describes the methods used for the analysis of impacts and any assumptions that were made in the analysis of impacts.
- **Impacts Analysis.** Presents the evaluation of impacts that would result from implementation of the proposed program, and any mitigation measures that would be necessary to reduce these impacts. Includes the analysis of significant cumulative impacts for each environmental resource area, evaluated by considering the impacts of the proposed program when combined with impacts of other projects and programs within the resource study area.

The impact analysis compares the proposed program to the existing conditions, also known as the CEQA baseline.

When considering the existing conditions and impacts for each resource, enough information is sometimes available to make a determination of whether or not there would be significant impacts and whether there is mitigation available to reduce these impacts to less-than-significant levels. In other cases, however, the lack of specific construction sites and methods means that specific impacts of the proposed program cannot be determined, and supplemental environmental documentation

will be necessary once these projects are further defined. The need for supplemental environmental analysis is identified in the analysis of the proposed program, where appropriate.

In most cases, the analysis of each resource is organized geographically. For the alignments in the proposed program, the analysis is organized starting at the water origin to the alignment termination.

4.0.2.2 Methodology and Terminology Used in the Analysis

In evaluating the potential impacts of the proposed program, the level of significance is determined by applying the thresholds of significance presented in each resource area. The proposed program was initially evaluated through the Initial Study Checklist (Appendix A). Impacts on resources were designated as having no impact, a less-than-significant impact, or a potentially significant impact. The environmental analyses in Sections 4.1 through 4.14 include a detailed discussion and final impact determination for the proposed program that were determined to have a potentially significant impact in the Initial Study Checklist.

To determine significance, the proposed program is compared to a baseline condition. The difference between the proposed program and the baseline is then compared to a threshold to determine if the difference is significant. Section 15125 of the State CEQA Guidelines requires that an EIR include a description of the physical environmental conditions in the vicinity of a proposed action that exists at the time the Notice of Preparation is published. This environmental setting will normally serve as the baseline by which the lead agency determines whether an impact is significant. The lead agency may also consider a baseline condition that better reflects fluctuations resulting from cyclical trends, such as drought and wet weather. The baseline to which the proposed program is compared is described in each resource section to determine the significance of impacts.

The following terms are used to describe each impact in each resource section.

- **No impact.** A designation of no impact is given when no adverse changes in the environment are expected.
- **Less-than-significant impact.** A less-than-significant impact is identified when the proposed project or proposed program would cause no substantial adverse change in the environment (i.e., the impact would not reach the threshold of significance).
- **Significant impact.** A significant (but mitigable or avoidable) impact is identified when the proposed project or proposed program would create a substantial or potentially substantial adverse change in any of the physical conditions within the affected resource area. Such an impact would exceed the applicable significance threshold established by CEQA, but would be reduced to a less-than-significant level by application of one or more mitigation measures.

  In some cases this may be described as a potentially significant impact, if the level of impact cannot be known at this program level because insufficient information is available about the location or timing of construction. However, with this level of impact, implementation of the identified mitigation measure would reduce the impact to a less-than-significant level regardless of location or timing, as long as the construction methods used were consistent with the typical construction scenarios described in the analysis.
- **Mitigation.** Mitigation refers to measures that would be implemented to avoid or lessen potentially significant impacts. Mitigation includes:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing the impact by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

Mitigation measures would be required as conditions of plan approval and would be monitored to ensure compliance and implementation.

- **Significant unavoidable impact.** A significant unavoidable impact is identified when an impact that would cause a substantial adverse effect on the environment could not be reduced to a less-than-significant level through any feasible mitigation measure(s).

  In some cases this determination is made because there is not sufficient information available at the program level to ensure that mitigation could reduce the impact to a less-than-significant level. In such cases, the impacts are considered to be potentially significant and unavoidable~~,~~ and additional analysis and CEQA documentation would be required once project-level information is available.

- **Residual impact.** Residual impact is the level of impact after the implementation of mitigation measures. The residual impacts would be expressed as no impact, less-than-significant impact, significant impact reduced to less than significant by mitigation, or significant and unavoidable impact, as defined above.

It should be noted that in most cases, the analysis of impacts is focused on those that would occur during construction only. Because the proposed program includes rehabilitation of existing pipelines, with most of the components located underground, once construction is complete, the rehabilitated pipeline would operate in the same manner as in the existing condition, but with a lower risk of failure and with additional valves and other components that would improve functionality of the system. With the exception of the addition of small utility boxes housing located above ground, generally within public rights-of-way, the post-rehabilitated condition would be identical to the existing (baseline) condition. There would be minimal impacts related to operation of the program.

4.0.3 Cumulative Analysis Methodology

The State CEQA Guidelines define cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (State CEQA Guidelines Section 15355). According to State CEQA Guidelines Section 15130, an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively significant. A cumulative impact analysis must include either: (1) a list of past, present, and reasonably anticipated future projects ("list approach"); or (2) a summary of projections contained in adopted plans designed to evaluate regional or area-wide conditions ("plan approach"). A cumulative impact analysis considers the collective impacts posed by individual plans and

projects. Cumulative impacts can result from individually minor, but collectively substantial, impacts taking place within a study area and/or over a period of time.

At the program level, the list approach is not possible because the specific location and timing of construction is not known, so the potential for the impacts of the proposed program components to combine with other specific projects is not known. Instead, this document uses a plan approach, looking at ongoing and planned growth patterns in the vicinity of the feeders to identify where there would be the potential for program component impacts to combine with other construction impacts to result in cumulative impacts.

4.0.4 Permits and Approvals

Federal, state, and local agencies may rely on information in this PEIR to inform them in their decision-making regarding issuance of specific permits related to construction or operation. This PEIR identifies federal, state, and local permits and authorizations that would be required prior to construction for future projects in the proposed program, as well as the agencies that the Metropolitan Water District of Southern California (Metropolitan) will likely need to coordinate with regarding these future projects. These may include:

- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- California Air Resources Board portable equipment registration and/or South Coast Air Quality Management District permit to operate for construction equipment
- California Department of Fish and Wildlife
- California Department of Transportation, Districts 7, 8, and 12 encroachment permits
- California Division of Occupational Safety and Health Tunnel Safety Order compliance
- Permits and traffic control plans from local jurisdictions
- Conformance with applicable State Water Resources Control Board National Pollutant Discharge Elimination System and/or Municipal Separate Storm Sewer System requirements
- Review and approval by Long Beach Airport, Van Nuys Airport, and the Federal Aviation Administration
- Orange County Flood Control District, Los Angeles County Flood Control District, and San Bernardino County Flood Control District permits

4.0.5 Regional Environmental Setting

The proposed program is located in multiple Southern California jurisdictions and topographies. This section provides a brief overview of the regional setting of the various pipelines to orient the reader. Specific characteristics of the environmental setting relevant to the impact analysis are described in the resource sections that follow this chapter.

The proposed program extends through numerous cities and counties. Because these pipelines are located primarily within Metropolitan-owned rights-of-way and public roads, the general plan land use designations are typically related to Public Services, Utilities, or Open Space. However, the general plan land use designations also include, but are not limited to, General Commercial,

Residential, Limited Manufacturing, Business Park, Recreation, and Public Facilities. California Government Code Section 53091 exempts Metropolitan, as a regional public water purveyor and utility, from local zoning and building ordinances. Zoning designations are typically related to Public Services, Utilities, or Open Space. However, the zoning designations also include, but are not limited to, Commercial Recreation, Residential (various densities), Light Manufacturing, Public Facilities, and Office.

4.0.5.1 Allen-McColloch Pipeline

The Allen-McColloch Pipeline was constructed in 1979 by the Municipal Water District of Orange County (MWDOC), and Metropolitan took ownership of the pipeline in 1995. The 26-mile pipeline extends from the Robert Diemer Water Treatment Plant's Finished Water Reservoir to the El Toro Reservoir in the city of Mission Viejo. It serves MWDOC and its retail agencies, including Irvine Ranch Water District, Santa Margarita Water District, El Toro Water District, and Moulton Niguel Water District.

There are two primary portions of the pipeline: the northern 17-mile steel pipe portion, which extends from Yorba Linda to Irvine, and the 9-mile southern prestressed concrete cylinder pipe (PCCP) portion, which extends from Irvine to Mission Viejo. The PCCP portion varies in diameter from 54 to 78 inches. The PCCP portion of the Allen-McColloch Pipeline begins just north of Rattlesnake Reservoir in the city of Irvine and continues in a southeasterly direction for approximately 6 miles. It travels under private extensions of Jeffrey Road, Bee Canyon Access Road, the State Route 133 (SR-133) toll road, ramps connecting to the State Route 241 (SR-241) toll road, and Portola Parkway. The majority of this part of the alignment passes through agricultural or undeveloped foothills of the Santa Ana Mountains within Metropolitan's permanent right-of-way. The nearest residences to this part of the pipeline occur in Irvine to the southeast of the SR-133/SR-241 interchange. These residences are within 0.1 mile of the Allen-McColloch Pipeline alignment and are part of the Portola Springs development. After the pipeline extends under Portola Parkway, it continues in a southeasterly direction through undeveloped land before extending under Alton Parkway and into the city of Lake Forest adjacent to light industrial and commercial land uses. It extends under Bake Parkway, traveling adjacent to residential land uses and under Serrano Creek. The Allen-McColloch Pipeline then bears southwest along Canada Road, through residential land uses, and under Lake Forest Drive, where it continues south under Old Trabuco Road and Trabuco Road adjacent to El Toro Cemetery. It continues along Trabuco Road approximately 1 mile, adjacent to residential land uses, and extends under Aliso Creek and into the city of Mission Viejo. Once in Mission Viejo, the Allen-McColloch Pipeline bears southward adjacent to residences and crosses Los Alisos Boulevard along Metropolitan's right-of-way before entering into the La Gloriela Road public right-of-way. The pipeline alignment then continues until it reaches its terminus at the El Toro Reservoir.

4.0.5.2 Calabasas Feeder

The Calabasas Feeder was constructed in 1975. It is a 9.3-mile-long, 54-inch-diameter pipeline made almost entirely of PCCP. The Calabasas Feeder is located in the western San Fernando Valley almost completely within the city of Los Angeles. It delivers State Water Project supply from the Joseph Jensen Water Treatment Plant to the cities of Agoura Hills, Calabasas, Hidden Hills, and Westlake Village, as well as to areas of unincorporated western Los Angeles County. The northern connection point for the Calabasas Feeder is the West Valley Feeder No. 2 in the Chatsworth neighborhood of

the city of Los Angeles. The pipeline extends south and west to the Las Virgenes Municipal Water District's service connection LV-02 in the city of Calabasas.

The pipeline alignment begins at West Valley Feeder No. 2 under the intersection of Chatsworth Street and Owensmouth Avenue. Neighboring land uses are primarily residential with light industrial development as the alignment approaches the Canoga Park neighborhood. Once the alignment reaches Chase Street, it bears west within the public right-of-way adjacent to single-family residences and extends under Topanga Canyon Road. Following the Chase Street right-of-way, the pipeline extends in a southwesterly direction until it reaches Shoup Avenue.

The pipeline follows the right-of-way along Shoup Avenue and Roscoe Boulevard. At Strathern Street, the alignment bears west for 0.5 mile, passing adjacent to single-family residences and Capistrano Avenue Elementary School.

As the alignment continues southward, the pipeline extends under the Dayton Creek flood control channel near the Fallbrook Avenue/Saticoy Street intersection. The pipeline continues southbound within the Fallbrook Avenue right-of-way adjacent to residences and a small number of commercial buildings. It extends under Sherman Way and crosses under the Bell Creek flood control channel before continuing southward adjacent to a mix of residential and commercial uses, including the Fallbrook Center commercial development between Vanowen Street and Victory Boulevard.

South of Victory Boulevard, the pipeline alignment remains in the Fallbrook Avenue right-of-way next to residences interspersed with low-intensity commercial development before extending under the Calabasas Creek flood control channel. The alignment ultimately reaches the Ventura Boulevard right-of-way adjacent to commercial development and U.S. Highway 101 (US-101) for approximately 0.5 mile before rejoining Leonora Drive. A steel portion of the Calabasas Feeder crosses under Valley Circle Boulevard. The pipeline is again composed of PCCP where the alignment parallels Long Valley Road and the US-101 northbound on-ramp underneath land occupied by a private nursery. Approximately 0.2 mile west of Valley Circle Boulevard, the Calabasas Feeder crosses under US-101 into the city of Calabasas and the Las Virgenes Municipal Water District's service connection LV-02.

4.0.5.3 Rialto Pipeline

The Rialto Pipeline was placed into service in 1975 and is approximately 30 miles long, approximately 16 miles of which is PCCP. The Rialto Pipeline delivers water from east to west in San Bernardino and Los Angeles counties. From the east, the pipeline alignment begins at the second afterbay of the California Department of Water Resources' Devil Canyon Facility, located in the city of San Bernardino. This pipeline extends to the west and terminates at the San Dimas Power Plant Control Structure.

Within the Rialto Pipeline, the pipeline material and inside diameter changes five times from east to west: 7.8 miles of 96-inch PCCP, 3.8 miles of 120-inch PCCP, 3.2 miles of 120-inch steel pipeline, 1.4 miles of 96-inch steel pipeline, and then 1.9 miles of 96-inch PCCP. From the Devil Canyon Facility, an approximately 8.5-mile welded steel section of the 120-inch pipeline proceeds in a southwesterly direction before bearing due west within the Lytle Creek floodplain, passing by residential uses and light industrial facilities in the cities of Rialto and Fontana. Just beyond the Etiwanda turnout where the Etiwanda Pipeline branches in a southwesterly direction from the Rialto Pipeline, the pipeline changes to PCCP composition as it extends west.

From near the Etiwanda turnout, the Rialto Pipeline extends westward under Interstate 15 (I-15) and follows a utility corridor near the northern edge of a residential subdivision. The Rialto Pipeline then moves in a southwesterly direction across an undeveloped floodplain into the city of Rancho Cucamonga and through a single-family residential area, where it follows a wide pedestrian pathway to the south of Crescenta Way. Once the pipeline reaches Wilson Avenue, it turns west and crosses under the Etiwanda Creek Flood Control Channel adjacent to residences and the Cucamonga Valley Water District Lloyd W. Michaels Water Treatment Plant.

The Rialto Pipeline continues westward along 24th Street under the landscaped parkway on the south side of Wilson Avenue and bears southbound at Bluegrass Avenue before extending west again beneath the school grounds of John L. Golden Elementary. The pipeline alignment continues westward within the Banyan Street public right-of-way, passing adjacent to Day Creek Park, residential subdivisions, the Day Canyon Wash, and Los Osos High School. After crossing underneath the Merlot Court cul-de-sac and Haven Avenue, the alignment follows parallel to the Alta Loma stormwater retention basin. The pipeline alignment bears southbound and remains within the Archibald Avenue right-of-way for 0.1 mile, turning west again along a 0.3-mile undeveloped linear corridor. The alignment bears south at Amethyst Avenue and then west below an undeveloped linear corridor, the north part of Beryl Park, and Highland Avenue. Once the alignment reaches Cucamonga Creek, it moves southwesterly, leaving the city of Rancho Cucamonga's boundaries and entering unincorporated San Bernardino County.

The Rialto Pipeline crosses under Interstate 210 (I-210) in a southwesterly direction and extends under commercial development parking lots before reaching the Campus Avenue right-of-way. From the corner of Campus Avenue and 19th Street, a 4.5-mile westward stretch of welded steel pipeline extends under public rights-of-way, crossing under I-210 at 18th Street and into the city of Claremont. Approximately 1.7 miles into the city of Claremont, a PCCP segment extends under the Thompson Creek Equestrian and Bicycle Trail before crossing under Thompson Creek and extending in a northwesterly direction along the undeveloped hillsides along and extending from Webb Canyon Road. The alignment traverses foothill residential development and reaches the Live Oak Reservoir in the city of La Verne.

Once the alignment goes around the Live Oak Reservoir, it crosses under foothill residential development, Puddingstone Channel, and San Dimas Canyon Road in the city of San Dimas. The Rialto Pipeline alignment follows the San Dimas Canyon Road right-of-way for the remaining 0.8-mile stretch to the San Dimas Power Plant Control Structure.

4.0.5.4 Second Lower Feeder

The Second Lower Feeder was constructed in 1967. The 39-mile pipeline extends from the Robert Diemer Water Treatment Plant's Finished Water Reservoir to the Palos Verdes Reservoir in Rolling Hills Estates. It serves Metropolitan and its retail agencies, including Southern California Water Company, City of La Palma, City of Long Beach, Lakewood Water Department, City of Signal Hill, Cal Water Service Company, Los Angeles Department of Water and Power, Los Angeles County Flood Control, and City of Torrance.

Approximately 30 miles of the Second Lower Feeder was constructed of PCCP, with pipeline diameters ranging from 78 to 84 inches. Nearly 2 miles of the PCCP segment has already been rehabilitated, leaving 28 miles still needing rehabilitation or replacement. Approximately 9 miles of the Second Lower Feeder is composed of 84-inch cement mortar-lined and coated-steel pipe.

The Second Lower Feeder crosses beneath the following major freeways and transportation corridors, from east to west: Imperial Highway, the Alameda Corridor rail lines, Burlington Northern Santa Fe Railway, Metrolink, Interstate 605 (I-605), Long Beach Municipal Airport, the Los Angeles County Metropolitan Transportation Authority's Blue Line (rail), Interstate 710 (I-710), Interstate 405 (I-405), Interstate 110 (I-110), the Union Pacific Railroad, and Western Avenue.

The majority of the land above the Second Lower Feeder alignment is urban, including residential, commercial, industrial, and institutional uses, with several schools, parks, and golf courses located adjacent to the pipeline right-of-way. It also crosses portions of the Long Beach Airport. The pipeline crosses Carbon Canyon Channel (multiple times), Coyote Creek, the San Gabriel River, the Los Angeles River, and the Dominguez Channel.

The Second Lower Feeder alignment begins at the Diemer Plant, crossing Metropolitan property and then the Black Gold Golf Course in Yorba Linda. Through Yorba Linda, the land uses are primarily residential along its alignment under Wabash Avenue, Prospect Avenue, and Bastanchury Road, with some light industrial/warehousing and retail commercial uses present. Along Bastanchury Road the Second Lower Feeder crosses into Placentia. The land uses in Placentia along Bastanchury Road, Brookhaven Avenue, Yorba Linda Boulevard, Angelina Drive, Kramer Boulevard, and Community Drive are a mixture of residential, commercial, and schools.

On entering Anaheim, the existing steel-lined pipe section begins, using easements in alleyways, and then following Miraloma Avenue, Sunkist Street, South Street, State College Boulevard, Vermont Avenue, Disneyland Drive, and Ball Road, with commercial, industrial/warehousing, residential, schools, and parks located adjacent to the alignment.

The PCCP portion of the Second Lower Feeder begins again along Ball Road near Magnolia Street, with a similar mixture of land uses. The alignment continues along Ball Road into Cypress, through a small portion of Los Alamitos, and into Long Beach, past mostly residential, commercial, and park uses. Here, Ball Road becomes Wardlow Road and the alignment passes along the edges of a large regional park and crosses the San Gabriel River. After crossing the river, the alignment passes through an almost entirely residential area, on Keynote Street, Iroquois Avenue, and Conant Street, with limited local commercial uses. At Clark Avenue in Long Beach, the alignment turns south and then quickly west along the edge of Skylinks Golf Course and across a portion of the Long Beach Airport.

On the west side of the airport, the alignment is located in Bixby Road, passing a mixture of commercial, industrial/warehouse, residential, school, and park land uses. The alignment passes north and west around the edge of Los Cerritos Park and then follows Del Mar Avenue for a short distance before crossing the Los Angeles River near Carson Street, with a mix of land uses.

On Carson Street the alignment enters the city of Carson, passing through a mixture of residential, commercial, and industrial/warehousing, turning south on Acarus Avenue and then crossing the Dominguez Channel and I-405, turning west again on 220th Street. Along 220th Street, the land uses are primarily residential, with limited commercial and other uses.

When the alignment on 220th Street crosses I-110, it enters an unincorporated area of Los Angeles County and then the city of Los Angeles, with a wide mix of urban land uses. At Western Avenue, the alignment turns south, with similar mixed uses. At 262nd Street, the Second Lower Feeder turns west and enters the city of Lomita, which is primarily residential along the alignment. The alignment turns south on Oak Street and enters the city of Rolling Hills Estates, continuing on Palos Verdes

Drive. In Rolling Hills Estates, the land uses are primarily residential, parks, and golf courses. The Second Lower Feeder alignment terminates at the Palo Verdes Reservoir.

4.0.5.5 Sepulveda Feeder

The Sepulveda Feeder was constructed in the 1970s and is located in Los Angeles County. It is 42 miles long. Approximately 2 miles of the PCCP segment has already been rehabilitated, leaving 35 miles still needing rehabilitation or replacement. This pipeline begins at the Joseph Jensen Water Treatment Plant in the Granada Hills neighborhood of the city of Los Angeles and ends at the Second Lower Feeder Interconnection in the city of Torrance.

The starting point for the Sepulveda Feeder is the connection to the Jensen Plant effluent conduit. From this point, the pipeline continues southward for approximately 2.1 miles under residences and portions of the Knollwood Golf Course to the interconnection to West Valley Feeder No. 1, located at the intersection of Hayvenhurst Avenue and Rinaldi Street. This portion of the pipeline is a 150-inch-diameter PCCP pipeline and is entirely within the city of Los Angeles neighborhood of Granada Hills.

From the West Valley Feeder No. 1 Interconnection, the pipeline continues south along Hayvenhurst Avenue under the State Route 118 (SR-118) overpass for approximately 1 mile to Chatsworth Street before transitioning to a 96-inch-diameter pipeline. The pipeline then continues south within the Hayvenhurst Avenue right-of-way to a 54-inch sectionalizing valve located near the intersection of Roscoe Boulevard and Hayvenhurst Avenue.

The Sepulveda Feeder continues south in residential neighborhoods within the Hayvenhurst Avenue right-of-way, southeast beneath the south end of Van Nuys Airport, east along Vanowen Street, south along Valjean Avenue, and east along Haynes Street, extending under I-405.

Once across I-405, the pipeline alignment travels south along Blucher Avenue, then southeast along the east side of I-405 to a 54-inch-diameter sectionalizing valve near Peach Avenue and Hatteras Street. The pipeline continues south and follows the Sepulveda Boulevard right-of-way until it reaches Valley Vista Boulevard before crossing to the western side of I-405. It then continues south until it reaches Valley Meadows Road before crossing under residential properties and an undeveloped hillsides area. The alignment parallels the western side of I-405 and transitions to 97-inch-diameter welded steel pipe approximately 340 feet before reaching the Sepulveda Canyon Pressure Control Facility.

From the Sepulveda Canyon Pressure Control Facility, the 97-inch-diameter welded steel pipe travels approximately 520 feet before transitioning to 96-inch-diameter PCCP and continues southeastward to cross to the eastern side of I-405. The pipeline then continues south within the Sepulveda Boulevard right-of-way and crosses to the west side of I-405 near the intersection of Sepulveda Boulevard and Moraga Drive. It continues southeastward, alongside the west side of the I-405 right-of-way, until just north of the West Los Angeles Veterans Administration campus near Chenault Street, where it crosses I-405 again. The pipeline continues in a southeasterly direction on Sepulveda Boulevard to the Santa Monica Feeder Interconnection located near the intersection of Sepulveda Boulevard and Ohio Avenue in West Los Angeles. From the Santa Monica Feeder Interconnection, the pipeline is composed of PCCP until Missouri Avenue, when it changes to a 97-inch-diameter welded steel pipe. The pipeline continues in a southeasterly direction for 3.1 miles to the Venice Pressure Control Structure (PCS) and Hydroelectric Plant in Culver City.

From the Venice PCS, a 94-inch-diameter steel segment of the pipeline continues southeastward to the Ballona Pressure Relief Structure near the intersection of Lucerne Avenue and Sepulveda Boulevard in the city of Los Angeles. It then extends under the Ballona Creek flood control channel, where it crosses back into Culver City. The Sepulveda Feeder continues in a southeasterly direction through Culver City, changing to a 96-inch-diameter PCCP pipeline near the Slauson Avenue/Hannum Avenue intersection. It extends under State Route 90 (SR-90) before bearing eastward adjacent to commercial properties in the Fox Hills neighborhood of Culver City.

The Sepulveda Feeder continues under the public right-of-way adjacent to residences along 61st Street through the unincorporated Ladera Heights area, and it crosses into the city of Inglewood under La Cienega Boulevard near Fairview Boulevard. The alignment follows Fairview Boulevard for approximately 1 mile, passing by primarily residences before reaching a 54-inch sectionalizing valve near the intersection of Fairview Boulevard and Overhill Drive. From the sectionalizing valve, the 96-inch-diameter PCCP section bears east on Fairview Boulevard then southeast on Gay Street until meeting and following Florence Avenue, where the Sepulveda Feeder passes into the city of Los Angeles. The pipeline bears south within the Victoria Avenue right-of-way, then heads east on 76th Street for 0.6 mile.

At 5th Avenue, the Sepulveda Feeder crosses back into the city of Inglewood and bears south, passing adjacent to residences and Freeman Elementary School. The alignment passes under a park before trending southeast on Byrd Avenue and bearing south on Van Ness Avenue. The alignment travels south along Van Ness Avenue, crossing under Interstate 105 (I-105), for approximately 3 miles to a 42-inch sectionalizing valve by El Segundo Boulevard. From the sectionalizing valve, the alignment continues south, crossing within or adjacent to the jurisdictions of Inglewood, the city of Los Angeles, the unincorporated Los Angeles County communities of Westmont and West Athens, and the cities of Hawthorne, Gardena, and Torrance.

The Sepulveda Feeder reduces its size from 96-inch-diameter PCCP to 84-inch-diameter PCCP at the sectionalizing valve near El Segundo Boulevard. At Del Amo Boulevard, the pipeline follows the public right-of-way to the east and bears south on Western Avenue. The alignment travels approximately 1.2 miles on Western Avenue to a 42-inch sectionalizing valve near 219th Street before connecting with the Second Lower Feeder on 220th Street. From this juncture, flows can continue along the Second Lower Feeder, southward through the Oak Street PCS and into the second inlet of the Palos Verdes Reservoir or eastward into the Second Lower Feeder toward the Carbon Creek PCS and toward Orange County.

Section 4.1
Aesthetics

4.1.1 Introduction

This section describes the existing conditions for aesthetics, the regulatory framework associated with aesthetics, the impacts on aesthetics that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant aesthetics impacts.

4.1.2 Existing Conditions

The study area for aesthetics is the area that is visible from the pipeline easements or rights-of-way, called the *viewshed*. The approximate viewsheds for each pipeline are shown in Figures 4.1-1 through 4.1-5. These approximate viewsheds represent the views from the closest adjacent development or areas within 0.5 mile from the pipeline location, whichever is narrower. (Note: The pipelines themselves are underground but, during rehabilitation, construction would be visible above ground; therefore, the surface area above the pipelines and areas that can view this surface area are considered the viewshed or study area for aesthetics. Intervening topography and landscaping were not considered for this program-level analysis.)

The following section describes the aesthetic setting in the areas surrounding the proposed program. Aesthetic elements considered in the discussion include the following.

- In areas with dense development, viewing distances are limited to the immediate surroundings, while in more open areas viewing distances are increased.
- In urban and heavily populated areas, the number of viewers is high, while rural settings have fewer viewers.
- In urban areas, major roadways tend to be well lit at night, while open spaces and/or rural areas are not.

4.1.2.1 Allen-McColloch Pipeline

The existing Allen-McColloch Pipeline travels underground through portions of unincorporated Orange County, and the cities of Yorba Linda, Anaheim, Orange, Tustin, Irvine, Lake Forest, and Mission Viejo. The entire Allen-McColloch Pipeline is underground, with the only components visible being access manhole covers, valve boxes, and other minor elements.

The Allen-McColloch Pipeline alignment originates at Metropolitan's Diemer facility and travels southeast under the Black Gold Golf Club course and the foothills of the Chino State Park. It continues generally south through Anaheim and passes through mostly residential and commercial land uses, with denser residential development north of State Route 91 (SR-91) in Yorba Linda. The pipeline continues in a southeast direction through the city of Orange, with mixed land use to the west (newer residential, commercial, and some industrial buildings) and Santiago Oaks Regional Park to the east. It then continues southeast and runs alongside residential development in Tustin

immediately to the west and under the northern end of Peters Canyon Regional Park. Between Jamboree Road and State Route 133 (SR-133), the Allen-McColloch Pipeline traverses vacant land with varied topography through Limestone Canyon Regional Park and the Loma Ridge foothills. In this stretch, the alignment line runs just east of Rattlesnake Reservoir. It then travels through vacant land with very sparse development between State Route 241 (SR-241) and Alton Parkway, with the exception of newer residential development west of the alignment just north of Portola Parkway. Topography also varies in this area. From Alton Parkway to Bake Parkway, the pipeline passes through an area with industrial land uses for approximately 0.5 mile. Mostly residential land uses surround the Allen-McColloch Pipeline from Bake Parkway until it reaches its southern terminus. Notable non-residential land uses in this stretch include El Toro Memorial Park adjacent to and east of the pipeline's alignment along Trabuco Road and Old Trabuco Road south of Lake Forest Drive. The southern terminus of the Allen-McColloch Pipeline is in Lake Forest at the El Toro Reservoir.

Scenic Resources

Table 4.1-1 describes designated scenic resources within the study area of the Allen-McColloch Pipeline. Designated scenic resources listed below were identified in the general plans for each jurisdiction.

Table 4.1-1. Designated Scenic Resources within the Allen-McColloch Pipeline Study Area

Jurisdiction	Scenic Resource
County of Orange	None (Orange County 2014).
City of Yorba Linda	None (City of Yorba Linda 1993).
City of Anaheim	None (City of Anaheim 2004).
City of Orange	None (City of Orange 2010), but see discussion of Santiago Canyon Road and Jamboree Road as County-designated viewscape corridors in *Scenic Highways*, below.
Tustin	Jamboree Road is identified as an Existing Landscape Corridor and Scenic Resource from Edinger Avenue to the southwest to the Tustin city limits to the northeast (City of Tustin 2013). The Allen-McColloch Pipeline is under Jamboree Road between Patriot Way and Pioneer Road in this area.
Irvine	Jeffrey Road is classified as a local scenic roadway (City of Irvine 2012). The Allen-McColloch Pipeline alignment crosses under Jeffrey Road between Portola Parkway and SR-241.
Lake Forest	None (City of Lake Forest 1994), but see discussion of El Toro Road as a County-designated landscape corridor in *Scenic Highways*, below.
Mission Viejo	None (City of Mission Viejo 2013).

Scenic Highways

Scenic highways are designated by the State of California to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment (Caltrans 2016a). A portion of SR-91, from State Route 55 (SR-55) to the Anaheim city limits, is designated as a State Scenic Highway (Caltrans 2016b). The Allen-McColloch Pipeline crosses under the freeway approximately 0.2 mile east of Imperial Highway in this area.

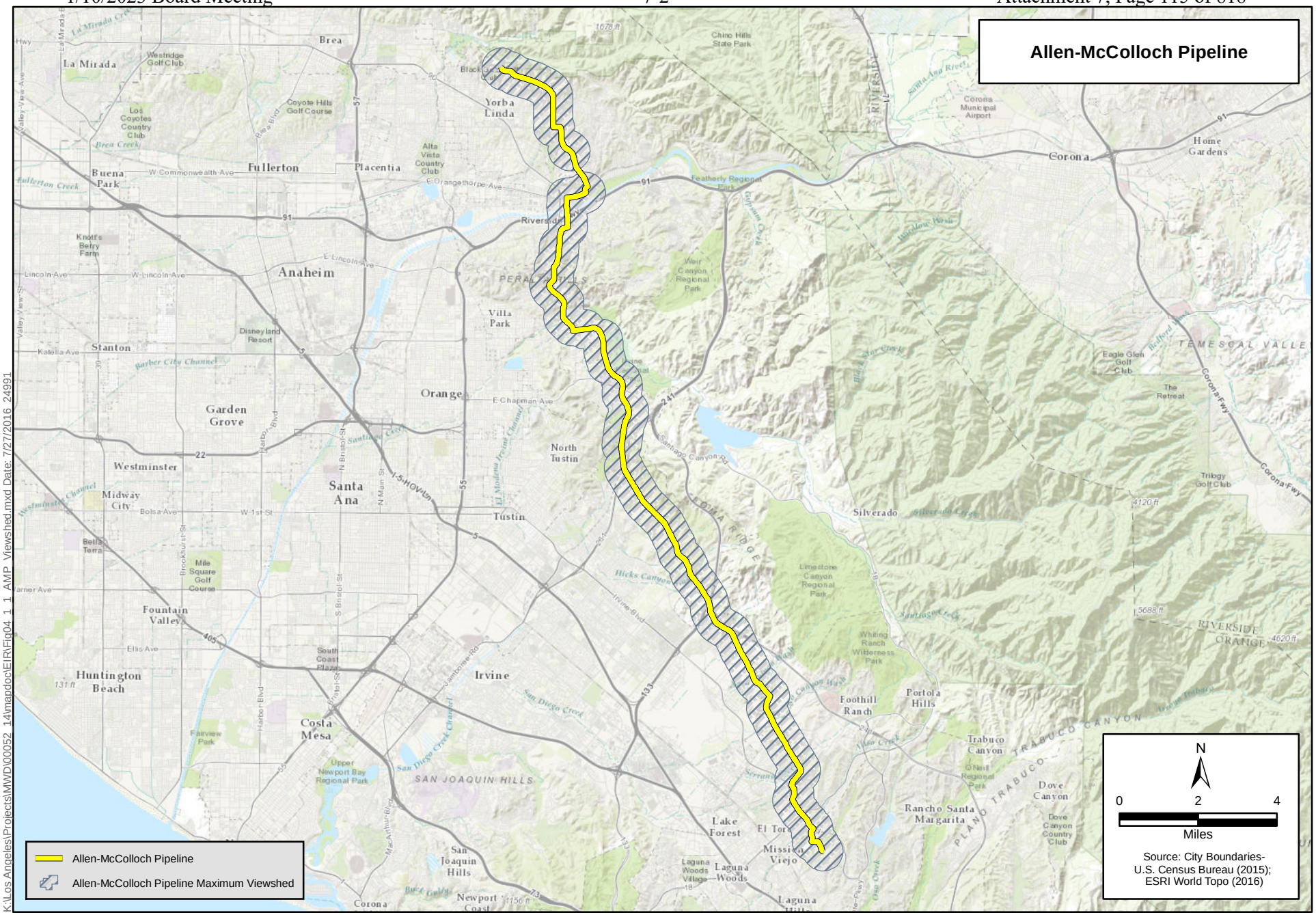


Figure 4.1-1
Allen-McColloch Pipeline Viewshed
Metropolitan Water District PCCP Rehabilitation Program

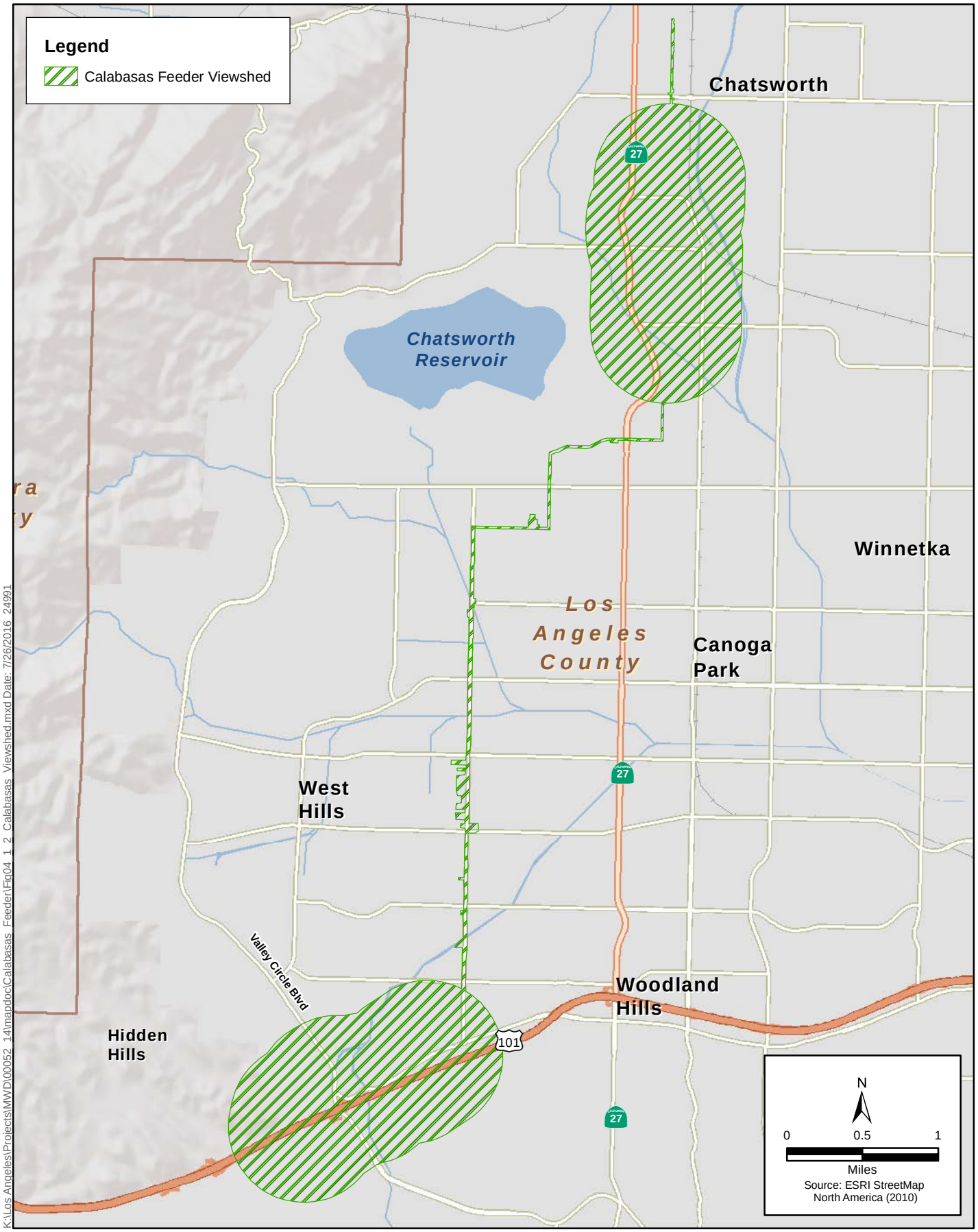


Figure 4.1-2
Calabasas Feeder Viewshed
Metropolitan PCCP Program

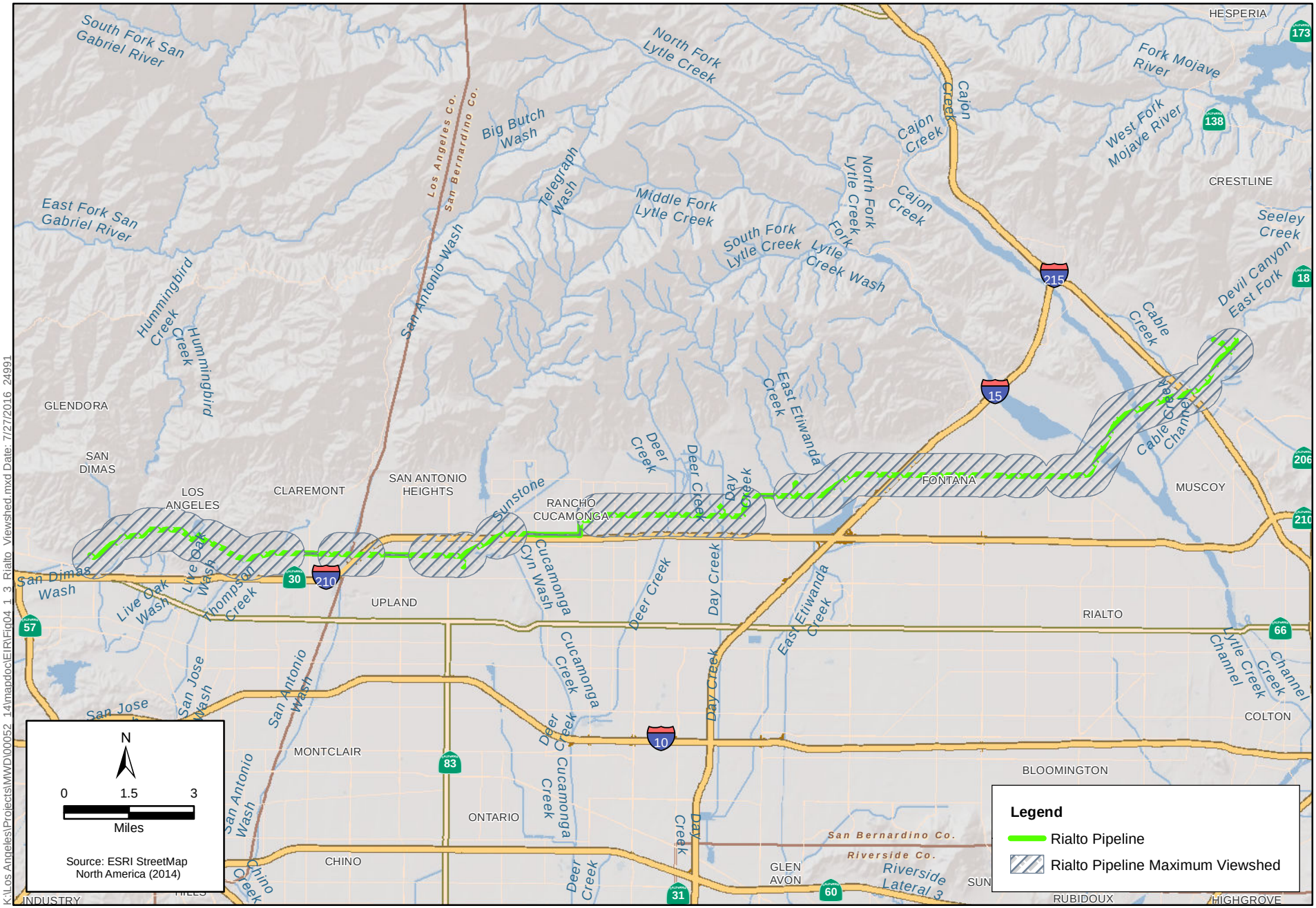
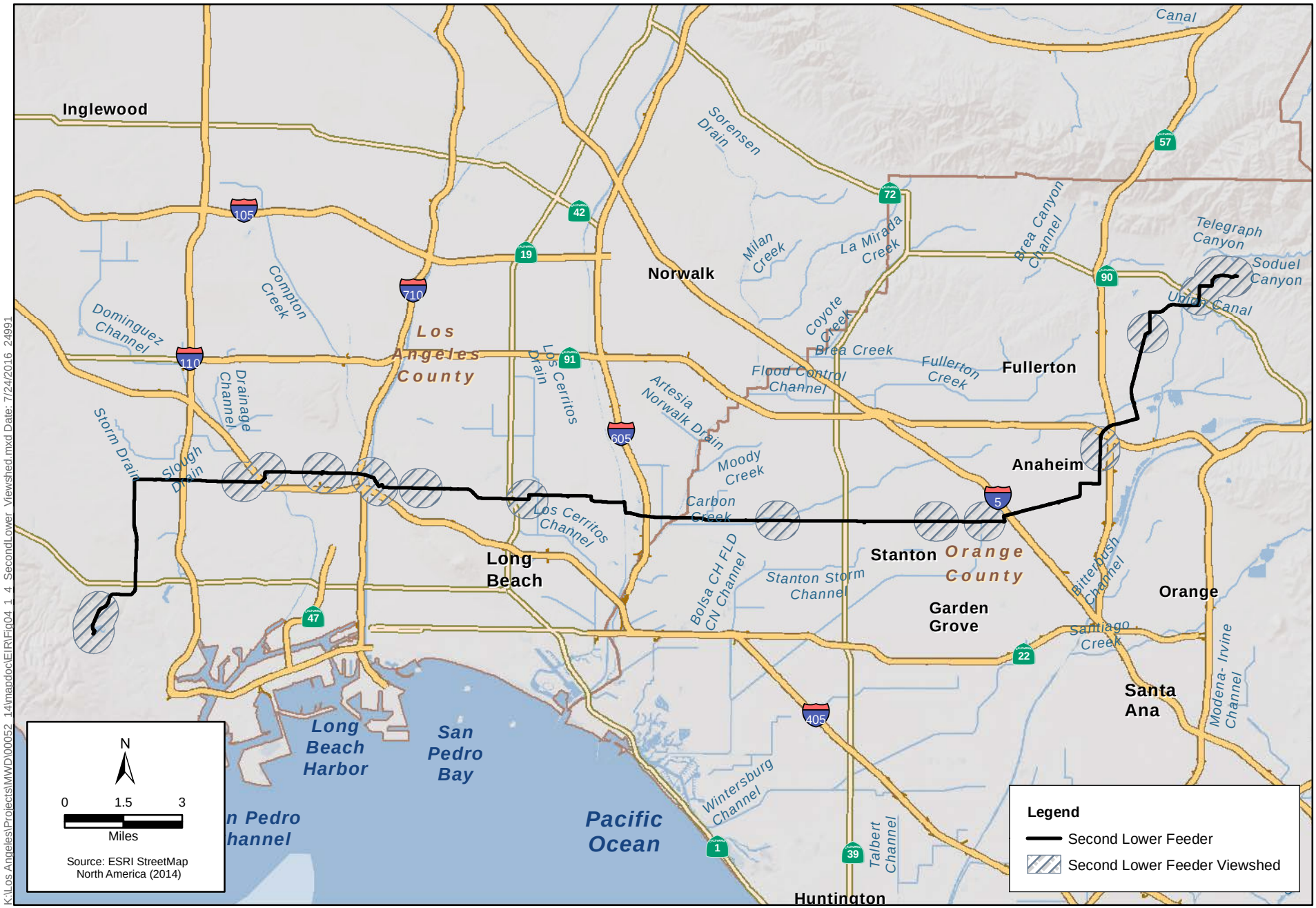


Figure 4.1-3
Rialto Pipeline Viewshed
Metropolitan PCCP Program



K:\Los Angeles\Projects\MWD\00052_14\mapdoc\EIR\Fig04_1_4_SecondLower_Viewshed.mxd Date: 7/24/2016 24991

Figure 4.1-4
Second Lower Feeder Viewshed
Metropolitan PCCP Program

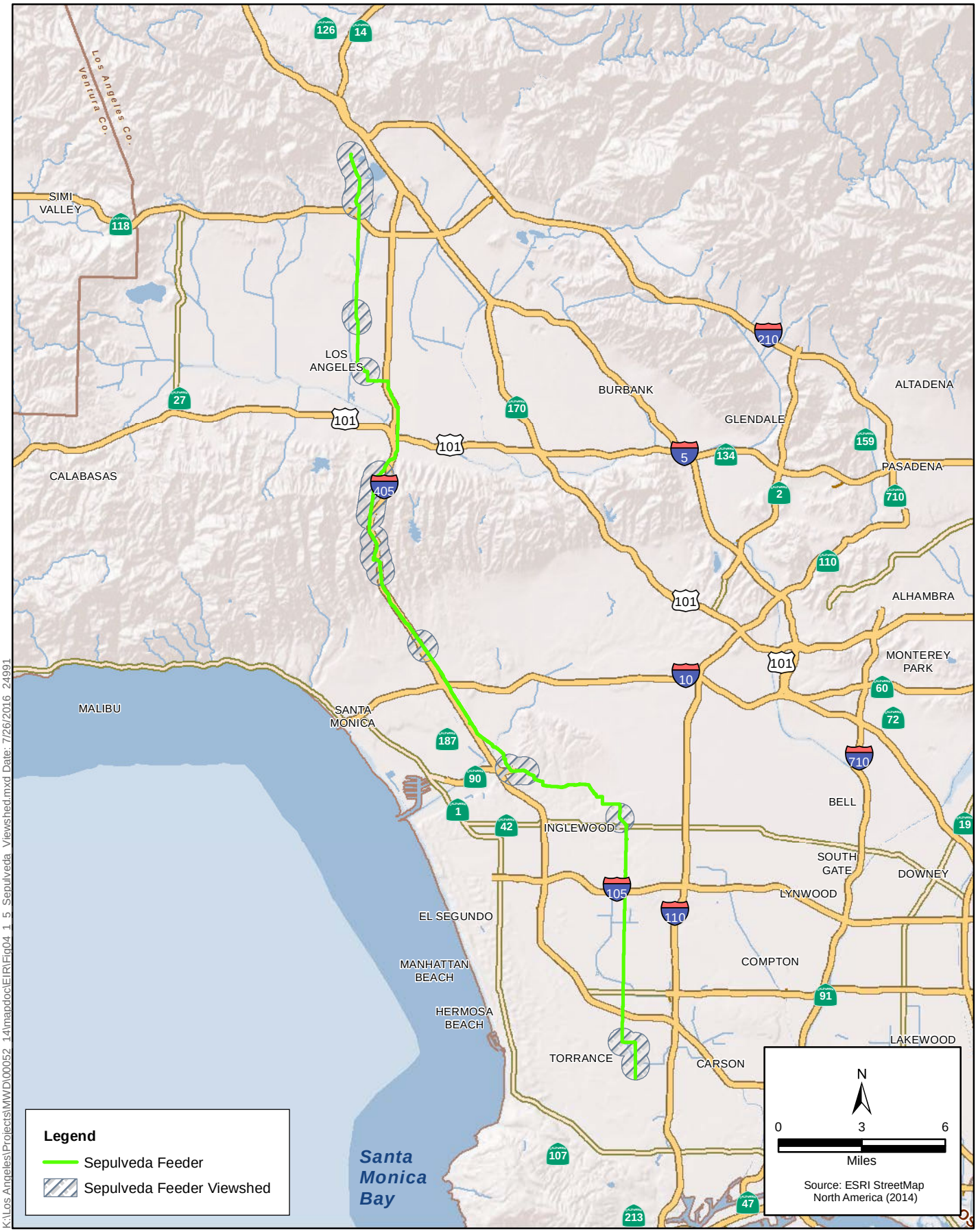


Figure 4.1-5
Sepulveda Feeder Viewshed
Metropolitan PCCP Program

As part of the County of Orange General Plan's Transportation Element, the County has designated scenic highways in two categories: viewscape corridors and landscape corridors. A *viewscape corridor* is defined as having unique or unusual scenic resources and aesthetic values. A *landscape corridor* traverses developed or developing areas and has been designated for special treatment to provide a pleasant driving environment as well as community enhancement (Orange County 2014). Two viewscape corridors intersect at Santiago Canyon Road and Jamboree Road in the city of Orange. The Allen-McColloch Pipeline alignment passes under this intersection. In Lake Forest, El Toro Road is designated as a landscape corridor. The Allen-McColloch Pipeline crosses under El Toro Road (Orange County 2016).

4.1.2.2 Calabasas Feeder

The Calabasas Feeder travels mostly through a portion of the city of Los Angeles, and just barely through portions of Hidden Hills and Calabasas. The entire Calabasas Feeder is underground, with the only components visible being access manhole covers, valve boxes, and other minor elements.

For most of its route, the Calabasas Feeder is under city streets, passing through residential areas. Topography along the pipeline's route is generally flat. It originates in the Chatsworth neighborhood of the city of Los Angeles in a residential area and runs generally south. There are commercial land uses at some intersections and industrial land uses south of Lassen Street. Near the intersection of Fallbrook Avenue and Hatteras Street, the Calabasas Feeder crosses under the Arroyo Calabasas, which is in a concrete channel at this location. Just north of U.S. Highway 101 (US-101), the alignment turns west. There are more commercial land uses in this portion of the alignment, especially along Ventura Boulevard. Near Valley Circle Boulevard just north of US-101, the Calabasas Feeder goes through a densely vegetated area that is occupied by a nursery/tree farm. Here the feeder runs along the north side of US-101 for a short distance, barely entering the city of Hidden Hills, before turning south, under the freeway, ending just inside the boundary of the city of Calabasas.

Scenic Resources

Table 4.1-2 describes designated scenic resources in the study area for the Calabasas Feeder.

Table 4.1-2. Designated Scenic Resources within the Calabasas Feeder Study Area

Jurisdiction	Scenic Resource
City of Los Angeles	US-101 is designated a scenic corridor from Valley Circle Boulevard to the west and Woodlake Avenue to the east (City of Los Angeles 2016). The southern end of the Calabasas Feeder runs parallel to and under US-101.
City of Hidden Hills	None (City of Hidden Hills 1995).
City of Calabasas	US-101 is designated a scenic corridor from Valley Circle Boulevard to the east to the Calabasas city limits to the west (City of Calabasas 2015). The southern terminus of the Calabasas Feeder crosses under US-101 just west of Valley Circle Boulevard.

Scenic Highways

There are no state-designated scenic highways in the study area for the Calabasas Feeder. See Table 4.1-2 for the designation of US-101 as a scenic corridor by local jurisdictions.

4.1.2.3 Rialto Pipeline

The Rialto Pipeline travels through portions of the cities of San Bernardino, Rialto, Fontana, Rancho Cucamonga, Upland, Claremont, La Verne, and San Dimas, and through unincorporated portions of San Bernardino and Los Angeles counties. The pipeline route is near the base of the San Bernardino Mountains, crossing under many of the creeks and washes that drain from these mountains. The topography is relatively flat along the majority of the route, except for the westernmost portion in La Verne and San Dimas, where it is within the foothills. Much of the alignment is near the edge of the expanding urban environment.

The Rialto Pipeline originates in the Devil Canyon area in the foothills of the San Bernardino National Forest in the city of San Bernardino. It runs southwest through a residential area of San Bernardino. Heading west, it crosses under Interstate 215 (I-215) and a small industrial area before traversing the wide Cajon Wash, which is mostly open space with some areas used for mining. This wide wash is in an unincorporated part of San Bernardino County. On the west side of the wash, the Rialto Pipeline enters the city of Rialto and passes under a small industrial area and then an area with a mixture of adjacent land uses, including residential, industrial/warehousing, and a park at the corner of West Casa Grande Drive and Alder Avenue.

After crossing under Mango Avenue, the alignment enters the city of Fontana and traverses an open space area, with small amounts of residential land uses, until it crosses under Interstate 15 (I-15). West of I-15, the Rialto Pipeline follows a corridor of open space with transmission lines. While this corridor is bordered by a few residential neighborhoods, most of the surrounding area is open space created by creeks and washes. Within this stretch of the alignment, the Rialto Pipeline is partially in the city of Rancho Cucamonga and partially in unincorporated San Bernardino County. Eventually, the alignment leaves the transmission line corridor and travels through an area that includes a mix of land uses, including open space, residential neighborhoods, Cucamonga Water District facilities, parks, elementary schools, Los Osos High School, and Chaffey College. When the alignment crosses under Cucamonga Creek, it enters the city of Upland.

The Rialto Pipeline now turns slightly south under the creek and Interstate 210 (I-210), passing by a mining operation and then traveling under a commercial mall. It then turns west again, passing through a mostly residential area, until it again crosses under I-210, and under San Antonio Creek. At this point, it enters the city of Claremont.

West of San Antonio Creek, the Rialto Pipeline alignment is bordered by a mixture of land uses. Although this area is primarily residential, there are other land uses mixed in, including wastewater treatment facilities, small-scale farming, and a park. When the pipeline gets to the western edge of Claremont, it enters an area dominated by open space with a few residences in unincorporated Los Angeles County. It then enters the city of La Verne, passing under residential communities, primarily using open space corridors. It crosses under several golf courses and enters the city of San Dimas, before terminating near the intersection of Sycamore Canyon Road and San Dimas Canyon Road.

Scenic Resources

Table 4.1-3 describes designated scenic resources in the study area for the Rialto Pipeline.

Table 4.1-3. Designated Scenic Resources within the Rialto Pipeline Study Area

Jurisdiction	Scenic Resource
City of San Bernardino	None (City of San Bernardino 2005).
San Bernardino County	None (San Bernardino County 2014).
City of Rialto	None (City of Rialto 2010).
City of Fontana	None (City of Fontana 2003).
City of Rancho Cucamonga	Etiwanda, Haven, and Archibald Avenues are designated as View Corridors (City of Rancho Cucamonga 2010). The Rialto Pipeline crosses under each of these roadways.
City of Upland	None (City of Upland 2015).
City of Claremont	None (City of Claremont 2009).
Los Angeles County	None (Los Angeles County 2015).
City La Verne	Wheeler Avenue is designated as a Scenic Corridor from Baseline Road to Golden Hills Road (City of La Verne 1999). The Rialto Pipeline runs from just north of Birdie Drive to just north of Via Arroyo. San Dimas Canyon Road is designated as a Scenic Corridor from I-210 to the northern city limits (City of La Verne 1999). The Rialto Pipeline runs under San Dimas Canyon Road from just north of Terrebonne Avenue to Sycamore Canyon Road.
San Dimas	None (City of San Dimas 1991).

Scenic Highways

There are no state-designated scenic highways in the study area for the Calabasas Feeder. See Table 4.1-3 for the designation of local view corridors and scenic corridors in Rancho Cucamonga and La Verne.

4.1.2.4 Second Lower Feeder

The Second Lower Feeder travels through portions of the cities of Yorba Linda, Placentia, Anaheim, Buena Park, Cypress, Lomita, Long Beach, Lakewood, Carson, Los Angeles, Torrance, Los Alamitos, and Rolling Hills Estates, and unincorporated areas of Orange and Los Angeles counties.

The Second Lower Feeder originates at Metropolitan's Diemer facility in unincorporated Orange County and travels southwest into Yorba Linda, under the westernmost part of the Black Gold Golf Club. It then travels through mostly residential areas, with some commercial land uses and a large school at the corner of Bastanchury Road and Rose Drive. The pipeline continues generally south and west through the city of Placentia with a similar mixture of mostly residential neighborhoods with some commercial uses. It passes El Dorado High School on Brookhaven Avenue south of Bastanchury Road and Kraemer Middle School on Angelina Drive south of Alta Vista Street.

When the Second Lower Feeder crosses Crowther Avenue, it enters the City of Anaheim, and the land uses become more industrial. The alignment continues south and west, crossing under the State

Route 57 (SR-57) and SR-91 interchange. South of this point, it enters a mostly residential area again with a few commercial uses. The alignment passes by Pioneer Park along Sunkist Street between La Palma Avenue and Underhill Avenue and Boysen Park at the southwest corner of State College Boulevard and Vermont Avenue. After crossing under Interstate 5 (I-5), the pipeline turns west for several miles under Ball Road. This stretch has a mixture of land uses, including residential neighborhoods, commercial uses, Gilbert High School, and Magnolia High School.

The Second Lower Feeder crosses briefly into the city of Buena Park under Ball Road between Fremont Street and Holder Street, where it is bordered by residential uses. The alignment then enters the city of Cypress. Through Cypress the land uses are mostly residential, with a few commercial areas at intersections and small parks and schools. After crossing briefly into the city of Los Alamitos, between Bloomfield Street and Coyote Creek, which is residential and commercial, the pipeline enters the city of Long Beach. At the Coyote Creek channel, the alignment passes under the Coyote Creek Bikeway.

In Long Beach, the Second Lower Feeder alignment is bordered by residential uses west of Coyote Creek, and then passes under the El Dorado Regional Park and the San Gabriel River. It then traverses an area that is almost entirely residential before reaching Clark Avenue, where it passes a small park and the Skylinks Golf Course, and then passes under a portion of the Long Beach Airport (though not under any runways). West of the airport, the land uses are mostly residential again with a small amount of commercial uses and several schools. Near the west edge of Long Beach, the pipeline goes under Los Cerritos Park, the Los Angeles River Bike Path, the Los Angeles River, and I-710 before entering the city of Carson.

In Carson, the Second Lower Feeder passes through a variety of land uses, including commercial, residential, and large-scale warehousing and industrial uses. It also crosses under a railyard, the Wilmington Channel, and Interstate 405 (I-405). Crossing Interstate 110 (I-110), the pipeline crosses briefly into an area of unincorporated Los Angeles County and then into the city of Los Angeles. On the western boundary of the city, the pipeline turns south on Western Avenue and borders the city of Torrance, with mostly residential land uses on the Los Angeles side and large-scale industrial/warehousing on the Torrance side. South of 242nd Place, the pipeline passes by Narbonne High School. Here, the pipeline is bordered by the city of Lomita on the west, though it is still in the city of Los Angeles, in a primarily residential area. The pipeline turns first southwest, and then west on 262nd Street and enters into the city of Lomita, traveling through a residential area. When it turns south again on Oak Street and Palos Verdes Drive East, it enters the city of Rolling Hills Estates. The land uses in this area include residential, surface mining, golf courses, parks, and a reservoir. There are also hiking and equestrian trails along the roadways in this area. The Second Lower Feeder terminates just west of the Palos Verdes Reservoir.

Topography along the Second Lower Feeder is generally flat, with exception of the area immediately surrounding its northeastern and southwestern ends.

Scenic Resources

Table 4.1-4 describes designated scenic resources in the study area for the Second Lower Feeder.

Table 4.1-4. Designated Scenic Resources within the Second Lower Feeder Study Area

Jurisdiction	Scenic Resource
County of Orange	None (Orange County 2014).
City of Yorba Linda	None (City of Yorba Linda 1993).
City of Anaheim	None (City of Anaheim 2004).
City of Buena Park	None (City of Buena Park 2010).
City of Cypress	None (City of Cypress 2001).
City of Los Alamitos	None (City of Los Alamitos 2015).
City of Long Beach	None (City of Long Beach 2013; City of Long Beach 2005).
City of Lakewood	None (City of Lakewood 1996).
City of Carson	None (City of Carson 2006).
County of Los Angeles	None (Los Angeles County 2015).
City of Los Angeles	None (City of Los Angeles 2016).
City of Torrance	None (City of Torrance 2010).
City of Lomita	None (City of Lomita 1998).
City of Placentia	None (City of Placentia 1982).
City of Rolling Hills Estates	Palos Verde Drive East and Palos Verdes Drive North are considered scenic corridors. Near its southwestern terminus, the Second Lower Feeder is under Palos Verdes Drive East and crosses Palos Verdes Drive North (City of Rolling Hills Estates 1992).

Scenic Highways

There are no state-designated scenic highways in the study area for the Second Lower Feeder. See Table 4.1-4 for the designation of local scenic corridors in Rolling Hills Estates.

4.1.2.5 Sepulveda Feeder

The Sepulveda Feeder travels through portions of the cities Los Angeles, Culver City, Inglewood, Hawthorne, Gardena, and Torrance, and unincorporated portions of Los Angeles County.

The Sepulveda Feeder originates at the Metropolitan facility in Granada Hills in the city of Los Angeles and heads south through residential land uses and along the easternmost portion of the Knollwood Golf Course. The feeder line then merges onto Hayvenhurst Avenue heading south and travels along dense residential land uses until it reaches Chase Street in the community of North Hills, where it passes a sparsely developed sod farm, adjacent and to the east, and an industrial area to the west. South of Roscoe Boulevard, the Sepulveda Feeder travels alongside the Van Nuys Airport to the east, with industrial land use to the west. The pipeline then heads southeast under Sepulveda Boulevard on the eastern side of I-405. Residential land use dominates the landscape east of Sepulveda Boulevard with commercial uses on the west. The Sepulveda Feeder crosses under I-405 in the Sherman Oaks community. The feeder line continues south through hills with varying

topography surrounded by residential development until it reaches Mulholland Drive. South of Mulholland Drive, the Sepulveda Feeder travels under the hills of the Westridge-Canyonback Wilderness Park (adjacent to I-405). As it heads southeast beyond the Westridge-Canyonback Wilderness Park, the pipeline passes under mixed land uses with some residential and commercial land uses, as well as the Los Angeles National Cemetery along Sepulveda Boulevard. South of Ohio Avenue, the pipeline is surrounded primarily by commercial land uses until it reaches Exposition Boulevard, where the land uses are a mixture of residential and commercial.

From Venice Boulevard to Canterbury Drive in Culver City, land use is predominantly commercial with small areas of residential land use. Heading southeast beyond Canterbury Drive, the Sepulveda Feeder travels through mostly residential areas with some commercial properties at major intersections in the city of Inglewood. At Florence Avenue and West Boulevard, the pipeline is just north of the Inglewood Park Cemetery and continues briefly to the east and then south through residential areas, with commercial properties at major intersections. South of Interstate 105 (I-105), the pipeline passes through commercial and industrial land uses to the west and the Chester Washington Golf Course to the east along Van Ness Avenue in the city of Hawthorne. South of El Segundo Boulevard, in the cities of Gardena and later Torrance, land uses consist of a mixture of residential, commercial, and industrial until the feeder line reaches the area south of I-405. This area consists of large industrial sites, including a tank farm on the west side of Van Ness Avenue. The Sepulveda Feeder then heads east briefly before traveling under Western Avenue going south until it reaches its terminus under 220th Street. This area consists of residential land uses on the eastern side of Western Avenue and commercial uses on the west.

Topography along the Sepulveda Feeder is generally flat, with the exception of the elevated areas south of Ventura Boulevard and north of Wilshire Boulevard.

Scenic Resources

Table 4.1-5 describes designated scenic resources in the study area for the Sepulveda Feeder.

Table 4.1-5. Designated Scenic Resources within the Sepulveda Feeder Study Area

City	Scenic Resource
City of Los Angeles	None (City of Los Angeles 2016).
County of Los Angeles	None (Los Angeles County 2015).
City of Culver City	None (City of Culver City 1996).
City of Inglewood	None (City of Inglewood 1992).
City of Hawthorne	None (City of Hawthorne 1989).
City of Gardena	None (City of Gardena 2006).
City of Torrance	None (City of Torrance 2010).

Scenic Highways

There are no state-designated scenic highways in the study area for the Sepulveda Feeder.

4.1.3 Regulatory Framework

This section describes the plans, policies, and regulations related to aesthetics that are applicable to the proposed program.

4.1.3.1 Federal

There are no federal regulations related to aesthetics applicable to the program.

4.1.3.2 State

State Scenic Highway Program

The California Department of Transportation (Caltrans) manages the State Scenic Highway Program, providing guidance and assisting local government agencies, community organizations, and citizens with the process to officially designate scenic highways. The State Scenic Highway Program is intended to "establish the State's responsibility for the protection and enhancement of California's natural scenic beauty by identifying those portions of the State highway system which, together with adjacent scenic corridors, require special conservation treatment" (Caltrans 2008).

As described in Section 4.1.2.1, the Allen-McColloch Pipeline study area includes one designated state scenic highway. There are no additional state scenic highways in the study areas for any of the other pipelines in the proposed program.

4.1.3.3 Local

Table 4.1-6 lists the applicable aesthetics regulations for the proposed program.

Table 4.1-6. Applicable Aesthetics Regulations for Proposed Program

Title of Plan, Policy, Regulation (date)	Applicable Regulation
Allen-McColloch Pipeline	
Orange County General Plan, Transportation Element (Orange County 2014)	**Scenic Highway Plan Goal 1:** Preserve and enhance unique or special aesthetic and visual resources through sensitive highway design and the regulation of development within the scenic corridor. **Objective 1.3:** Preserve established scenic highways in order to protect the existing scenic qualities of these corridors. [Applicable to SR-91] **Objective 1.5:** Develop the roadway portion of the scenic corridors in a manner that recognizes the natural scenic resources of the corridor and is sensitive to them to the maximum extent feasible. [Applicable to Santiago Canyon Road, Jamboree Road, and El Toro Road] *None of the policies under these goals and objectives are applicable to the proposed program.*
City of Tustin General Plan (City of Tustin 2013)	*Although the City of Tustin General Plan has identified Jamboree Road as an existing landscape corridor and scenic resource, it does not include any applicable policies related this resource.*

Title of Plan, Policy, Regulation (date)	Applicable Regulation
City of Irvine General Plan, Land Use Element, (City of Irvine 2012)	*Although the Irvine General Plan has identified Jeffrey Road as a local scenic roadway, it does not include any applicable policies related this resource.*
Calabasas Feeder	
City of Los Angeles Mobility Plan 2035 (City of Los Angeles 2016)	**Policy 2.16, Scenic Highways**: Ensure that future modifications to any scenic highway do not impact the unique identity or characteristic of that scenic highway. [Applicable to US-101] **Scenic Highways Guideline 3c:** Outstanding specimens of existing trees and plants located within public right-of-way of a scenic highway shall be retained to the maximum extent feasible within the same public right-of-way.
City of Calabasas General Plan, Community Design Element (City of Calabasas 2015)	**Policy IX-44:** Preserve large areas of natural hillsides and other dominant natural environmental features visible from the Ventura Freeway [US-101].
Rialto Pipeline	
City of Rancho Cucamonga General Plan (City of Rancho Cucamonga 2010)	*Although the City of Rancho Cucamonga General Plan has identified Etiwanda, Haven, and Archibald Avenues as designated view corridors, it does not include any applicable policies related to this resource.*
City of La Verne General Plan, Resources Element (City of La Verne 1999)	**Goal 3:** Protect and promote our scenic vistas and routes [applicable to Wheeler Avenue] **Policy 3.1:** Preserve our scenic vistas. **Implementation Measure 3.1c:** Encourage the preservation of the existing native plan and heritage resources in our city.
Second Lower Feeder	
City of Rolling Hills Estate General Plan, Conservation Element	**Policy 5.3:** Preserve the existing rural road character of Palos Verdes Drive North by maintaining the roadway's designation as a scenic corridor/roadway part of a peninsula wide loop.
Sepulveda Feeder	
None	

4.1.4 Thresholds and Methodology

4.1.4.1 Thresholds of Significance

Table 4.1-7 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to aesthetics. These thresholds are addressed in the PEIR.

Table 4.1-7. CEQA Thresholds for Aesthetics

Threshold *Would the proposed program:*	
a.	Have a substantial adverse effect on a scenic vista?
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?
d.	Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

4.1.4.2 Methodology

Scenic Resources

As documented in Section 4.1.2, this PEIR identifies known scenic resources within the study area (viewshed) of the pipeline alignments. (CEQA requires the analysis of adverse effects on "scenic vistas" but does not define the term *scenic vista*. For this analysis, *scenic vistas* are defined as views of scenic resources identified in local planning documents, such as general plans.) For this program-level analysis, the potential for impacts to occur on any of these scenic resources during rehabilitation anywhere along the pipeline is evaluated. Examples of these impacts are removal of street landscaping, blocking of views of a scenic resource, or incompatible nighttime lighting levels during construction. (As part of the program, Metropolitan's contractors would be required to restore landscaping to pre-construction conditions; see Section 3.7.6, *Site Restoration*.) The only permanent changes to the visible condition would be the addition of above-ground valve boxes and electrical panels. The potential impacts of these permanent changes on identified scenic resources are considered.

The locations of construction staging areas has not been determined at this time, and would depend on the availability of suitable land in proximity to construction sites when individual rehabilitation projects are implemented. In some cases, these staging areas may be outside the study area for this program. The types of impacts on scenic resources that could occur during the time these staging areas are being utilized are identified in this analysis. The need for mitigation and/or further analysis once the locations of staging areas are known is also identified.

As part of the program, Metropolitan has agreed to implement the following environmental commitment related to these aesthetics, and this commitment is considered part of the program for analysis purposes.

- Each of the excavation sites/work zones and staging areas would be fenced and screened.

Scenic Highways

As documented in Section 4.1.2, this PEIR identifies state scenic highways within the study area of the pipeline alignments. For this program-level analysis, the potential for impacts to occur on views from these scenic highways during rehabilitation anywhere along the pipeline is evaluated. Examples of these impacts are removal of street landscaping, blocking of views from scenic highways, or incompatible nighttime lighting levels during construction. (As part of the program,

Metropolitan's contractors would be required to restore landscaping to pre-construction conditions; see Section 3.7.6, *Site Restoration*.) The only permanent changes to the visible condition would be the addition of above-ground valve boxes and electrical panels. The potential impacts of these permanent changes on identified scenic resources are considered.

The locations of construction staging areas have not been determined at this time, as discussed above. The types of impacts on scenic highways that could occur during the time these staging areas are being utilized are identified in this analysis. The need for mitigation and/or further analysis once the locations of staging areas are known is also identified.

As part of the program, Metropolitan has agreed to implement an environmental commitment to fence and screen excavation sites/work zones and staging areas, and this is considered part of the program for analysis purposes.

Visual Character and Quality

Section 4.1.2 describes the general visual character and quality of the study areas along the pipelines. Only minimal permanent changes would be visible along the pipelines after rehabilitation is complete because the pipelines and most of the secondary components are underground. Only new above-ground valve boxes and electrical panels would be visible. The potential for these permanent features to affect visual character and quality are addressed in this analysis, along with the temporary impacts on visual character and quality. The potential for temporary impacts on visual character and quality near construction staging areas is also evaluated.

Light and Glare

Section 4.1.2 identifies general lighting conditions along the pipelines. Although nighttime work may be required for some projects within the PCCP program, this program-level analysis assumes only daytime work (see Section 3.7.1, *Construction Activities*). ~~(Any projects requiring nighttime work would require supplemental environmental analysis and documentation to determine the location and severity of impacts.)~~ The only nighttime lighting assumed to be part of the program for this analysis is temporary security lighting at excavation sites and at construction staging areas. The potential impacts from such lighting are evaluated in this document. No new permanent lighting would be included in the proposed program.

4.1.5 Impacts Analysis

4.1.5.1 Program Analysis

Threshold AES-A: Have a Substantial Adverse Effect on a Scenic Vista

The proposed program pipeline rehabilitation would occur at various locations along approximately 100 miles of the Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder combined. As discussed in Section 4.1.2, *Existing Conditions*, the study areas for the Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, and Second Lower Feeder all traverse local scenic resources at the specified locations and, in the case of the Allen-McColloch Pipeline, also traverse a State Scenic Highway (as designated by Caltrans). As such, there is potential

for the proposed program to affect scenic resources at these locations and result in aesthetic impacts. (No scenic resources were identified in the Sepulveda Feeder study area.)

Construction

Aesthetic impacts related to the proposed program are most likely to occur only during construction because most program elements are underground and out of public view. Multiple excavation areas would be needed to rehabilitate pipelines and buried equipment vaults. Excavation footprints are expected to be approximately 20 feet wide and 50 feet long, and existing surface improvements, such as road pavements, sidewalks, and landscaping, would be removed at each excavation area to facilitate construction activities. Where new pipeline replacement would occur along portions of the Allen-McColloch Pipeline and the Second Lower Feeder, rehabilitation would involve excavating trenches, installing new pipe, backfilling the trench, and restoring the site to preconstruction conditions. The existing pipeline would either be demolished and removed or abandoned in place. Excavation areas and pipeline replacement areas are expected to be fenced and screened during rehabilitation activities. Excavation and pipeline replacement locations are currently unknown, but if situated within a scenic resource area, the removal of surface improvements and/or fencing (creating a visual obstruction) around work areas could result in potential aesthetic impacts.

In addition to excavation and pipeline replacement locations, staging areas would be established to provide storage space for construction materials and equipment, and to provide space for contractor trailers and parking. Ideally, staging areas would be close to work areas, but space limitations may require them to be located farther away. The size of a staging area would vary depending on several factors, including proximity to the work area, land leasing fees, contractor work methods, land uses in the vicinity, and services the staging area would provide. Staging area locations are also unknown and, if situated within a scenic resource area, could result in potential aesthetic impacts due to potential removal of surface improvements and/or the fencing surrounding the staging area perimeter.

Although rehabilitation and staging areas have the potential to result in aesthetic impacts during construction, these impacts would be temporary (occurring only during the construction phase). Furthermore, site restoration would be required to restore work areas to pre-construction conditions, including backfilling excavation areas, replacing and restoring landscaping, and restoring existing roads or sidewalks damaged during rehabilitation activities. As a result, potential impacts would be less than significant.

Post-Construction

Permanent visible changes after construction would be expected to result in only minimal impacts because only new manhole covers, air release/vacuum valves, and electrical panels would be visible above ground. Air release/vacuum valves would be located in a small enclosure, less than 5 feet tall and 5 feet wide, along the sidewalk and within the public right-of-way. Electrical panels would also be located within small enclosures approximately 8 to 10 feet high and approximately 3 feet wide, with a telemetry pole of a maximum height of 20 feet. As with work and staging areas, locations of valves and electrical panels are unknown. If any of these above-ground structures are located within a scenic resource area, their impacts would be expected to be less than significant on scenic resources or vistas due to their negligible footprint and the fact that they would likely be placed intermittently and not grouped together.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold AES-B: Substantially Damage Scenic Resources, Including, but Not Limited to, Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway

As discussed in the Section 4.1.2.1, the Allen-McColloch Pipeline crosses under SR-91, which is designated as a state scenic highway. Consequently, there is potential for the proposed program to affect scenic resources within this area.

Construction

Although the Allen-McColloch Pipeline crosses under SR-91, it is not expected that rehabilitation activities would result in substantial damage to scenic resources along the highway. Potential work areas and staging areas during construction would only be used temporarily. Furthermore, site restoration would be required to restore work areas to pre-construction conditions, including the replacement and restoration of any landscaping potentially affected by the rehabilitation activities. As such, the proposed program construction activities would not substantially damage a scenic resource within a state scenic highway. Impacts would be less than significant.

Post-Construction

After rehabilitation is complete, only small program components would potentially be visible from SR-91 (manhole covers, valve boxes, and electrical panels). Such small components would not result in substantial damage to scenic resources along a designated state scenic highway. Impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold AES-C: Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings

Construction

As discussed under Impact AES-A, construction activities have the potential to affect scenic resources and therefore have the potential to contribute to the degradation of the existing visual character and quality of the site and the immediate surroundings. During construction, vehicles,

equipment, stockpiled material, and other elements could be observed by viewers near the proposed program work areas and staging areas. However, potential work and staging area impacts would only be temporary and short term. Therefore, the proposed program construction activities would not substantially degrade the existing visual character or quality of a site or its surroundings. Impacts would be less than significant.

Post-Construction

Permanent visible changes after construction would be expected to result in only minimal impacts related to new manhole covers, valve boxes, and electrical panels. These components are not expected to have a significant impact on visual character or quality due to their negligible footprint and intermittent placement. Impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold AES-D: Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area

Construction

Nighttime lighting may be required in construction work areas and staging areas for safety and security purposes. During construction and at staging areas, lighting may spill over into adjacent light-sensitive areas, especially residential land uses. Though temporary, this spillover light may result in significant impacts.

Post-Construction

No permanent lighting would be included in the program. Therefore, there would be no impacts related to light and glare after construction is complete.

Mitigation Measures

MM AES-1 In order to prevent impacts related to spillover lighting into light-sensitive land uses, all safety and security lighting at construction work areas and staging areas will be directed downward and shielded to avoid light spilling over into residential areas.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM AES-1 would reduce these impacts so that residual impacts would be less than significant.

4.1.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

Impacts of the proposed program related to aesthetics would generally be minimal and/or temporary. Aesthetic impacts usually do not combine with impacts of other projects to result in cumulative impacts unless projects are very near to each other (i.e., in the same viewshed). The less-than-significant impacts related to scenic resources, scenic highways, and visual character and quality would not represent considerable contributions to cumulative impacts. Impacts related to light and glare (spillover lighting) would not result in a significant impact after mitigation. Even this mitigated impact would be temporary. Therefore, the proposed program would not result in a considerable contribution to a cumulative impact related to light and glare.

Section 4.2
Agriculture and Forestry Resources

4.2.1 Introduction

This section describes the existing conditions for agriculture and forestry resources, the regulatory framework associated with agriculture and forestry resources, the impacts on agriculture and forestry resources that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program is not located within proximity to forestry resources; therefore, forestry resources are not discussed in this chapter.

4.2.2 Existing Conditions

The study area for agriculture includes land within 0.25 mile on each side of the pipeline alignments (a 0.5-mile-wide corridor). For this analysis, Important Farmland was identified, which is defined as areas identified in the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) as Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Farmland of Local Importance. These Important Farmland categories are defined as follows.

- **Prime Farmland**. Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Unique Farmland**. Farmland of lesser-quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.
- **Farmland of Statewide Importance**. Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Farmland of Local Importance**. Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. (Note: No Farmland of Local Importance was identified in the study areas for any of the pipelines in the PCCP Rehabilitation Program.)

4.2.2.1 Allen-McColloch Pipeline

The Allen-McColloch Pipeline study area includes Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in the cities of Irvine and Lake Forest and the County of Orange. Figure 4.2-1 shows where the Allen-McColloch Pipeline study area crosses Important Farmland as defined above, including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance.

Approximately 142.6 acres of Prime Farmland, 20.8 acres of Farmland of Statewide Importance, and 500.2 acres of Unique Farmland occur within the Allen-McColloch Pipeline study area.

The Allen-McColloch Pipeline crosses the Santiago Hills and Northern Flatlands landforms located in the northeastern portion of the city of Irvine. According to the Conservation and Open Space Element of the City of Irvine General Plan (City of Irvine 2012), the Santiago Hills form the City of Irvine's northern sphere of influence boundary. The Santiago Hills consist of moderately steep to steep, unbuildable slopes, canyons, plateaus, and narrow ridges, which obtain an elevation of 1,700 feet. This area contains limited agricultural activities and grazing lands. The Northern Flatlands extend from the Santiago Hills to Interstate (I) 5. This area, known as the Tustin Plain, is nearly flat and gradually slopes from the northeast to the southeast. Generally, surface soils within the Northern Flatlands consist of fine-grained mixtures of sands, silts, and clay and are classified as "prime" Class I and II agricultural soils by the U.S. Soils Conservation Service. Farmland in this area includes orchards and row crops. Approximately 4.5 acres of Farmland of Statewide Importance and 2.7 acres of Unique Farmland occur within the Allen-McColloch Pipeline study area in the City of Irvine.

The Allen-McColloch Pipeline enters the city of Lake Forest in the northeastern portion of the city. Although this area is designated Low-Medium Density Residential by the City of Lake Forest General Plan, the California Department of Conservation (DOC) has identified this area as Farmland of Statewide Importance and Unique Farmland (City of Lake Forest 2014; DOC 2015a). Approximately 3.8 acres of Unique Farmland occur within the Allen-McColloch Pipeline study area in the city of Lake Forest.

The Allen-McColloch Pipeline study area includes various areas of Important Farmland designated in unincorporated Orange County, including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. As shown on Figure 4.2-1, this farmland mainly occurs near State Routes (SR) 261, 241, and 133 near north Tustin and north Irvine. This area is also designated Suburban Residential, Open Space, and Open Space Reserve by the Orange County General Plan (County of Orange 2014).

4.2.2.2 Calabasas Feeder

The Calabasas Feeder study area (0.25 mile on either side of the pipeline) overlaps with Unique Farmland in the cities of Los Angeles and Hidden Hills. Figure 4.2-2 shows where the Calabasas Feeder crosses Important Farmland as designated by the FMMP. Approximately 26.18 acres of Unique Farmland occur within the Calabasas Feeder study area.

Only a few parcels of land in the city of Los Angeles remain designated as Important Farmland. The largest of these is the open space portion of Pierce College in Woodland Hills, which is related to the college's educational curriculum (City of Los Angeles 2001). The study area for the Calabasas Feeder includes approximately 25.5 acres of Unique Farmland in the city of Los Angeles near the southwest portion of Woodland Hills immediately adjacent to Hidden Hills.

The Calabasas Feeder enters the city of Hidden Hills in the east-southeast corner of the city. Although this area is designated Commercial Restricted, Single-Family Residential, and Public/Community Use by the Hidden Hills General Plan, DOC has identified this area as Unique Farmland (City of Hidden Hills 1995; DOC 2015a). Approximately 0.68 acre of Unique Farmland occurs within the Calabasas Feeder study area in the city of Hidden Hills.

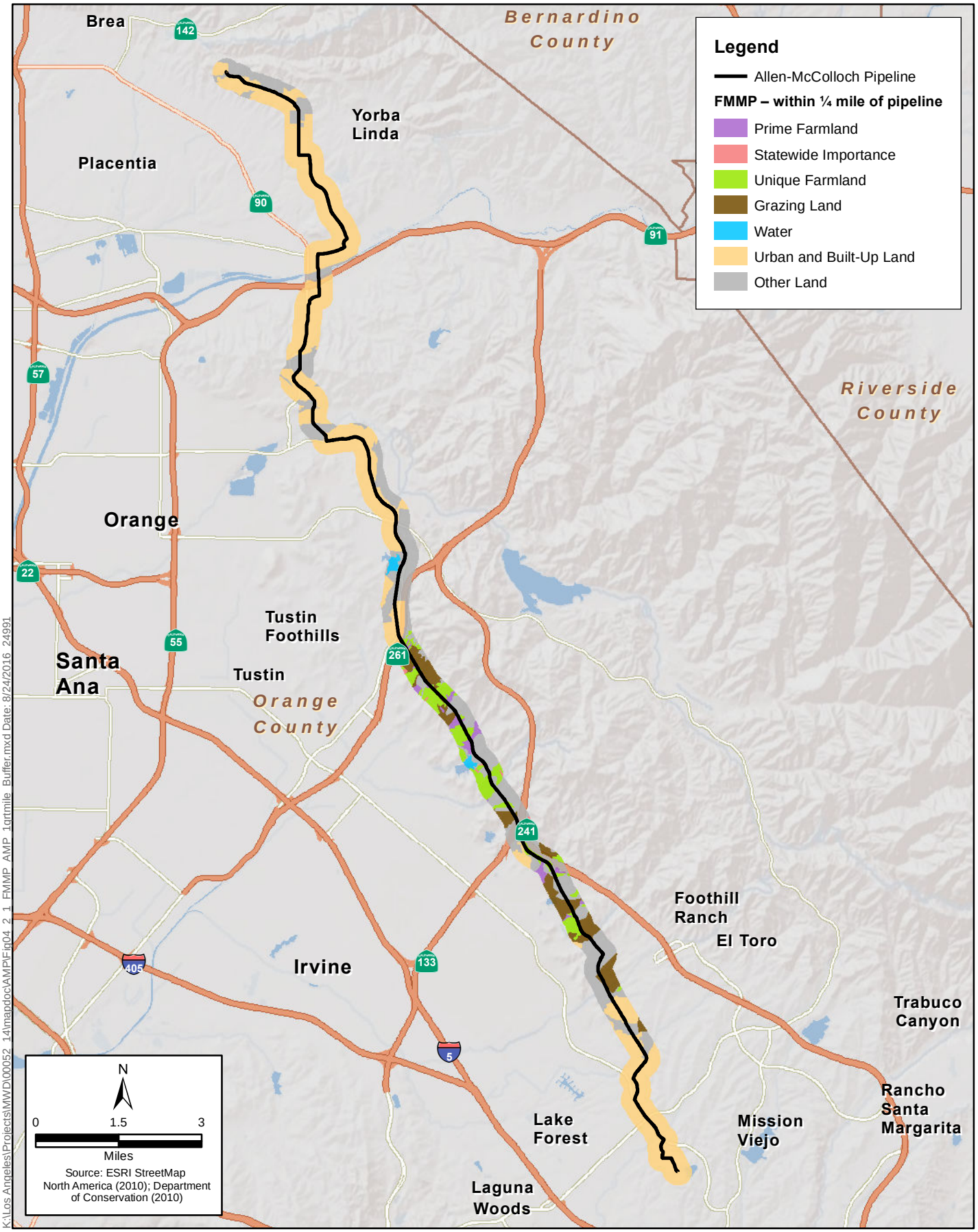


Figure 4.2-1
Important Farmland near the Allen-McColloch Pipeline
Metropolitan PCCP Program

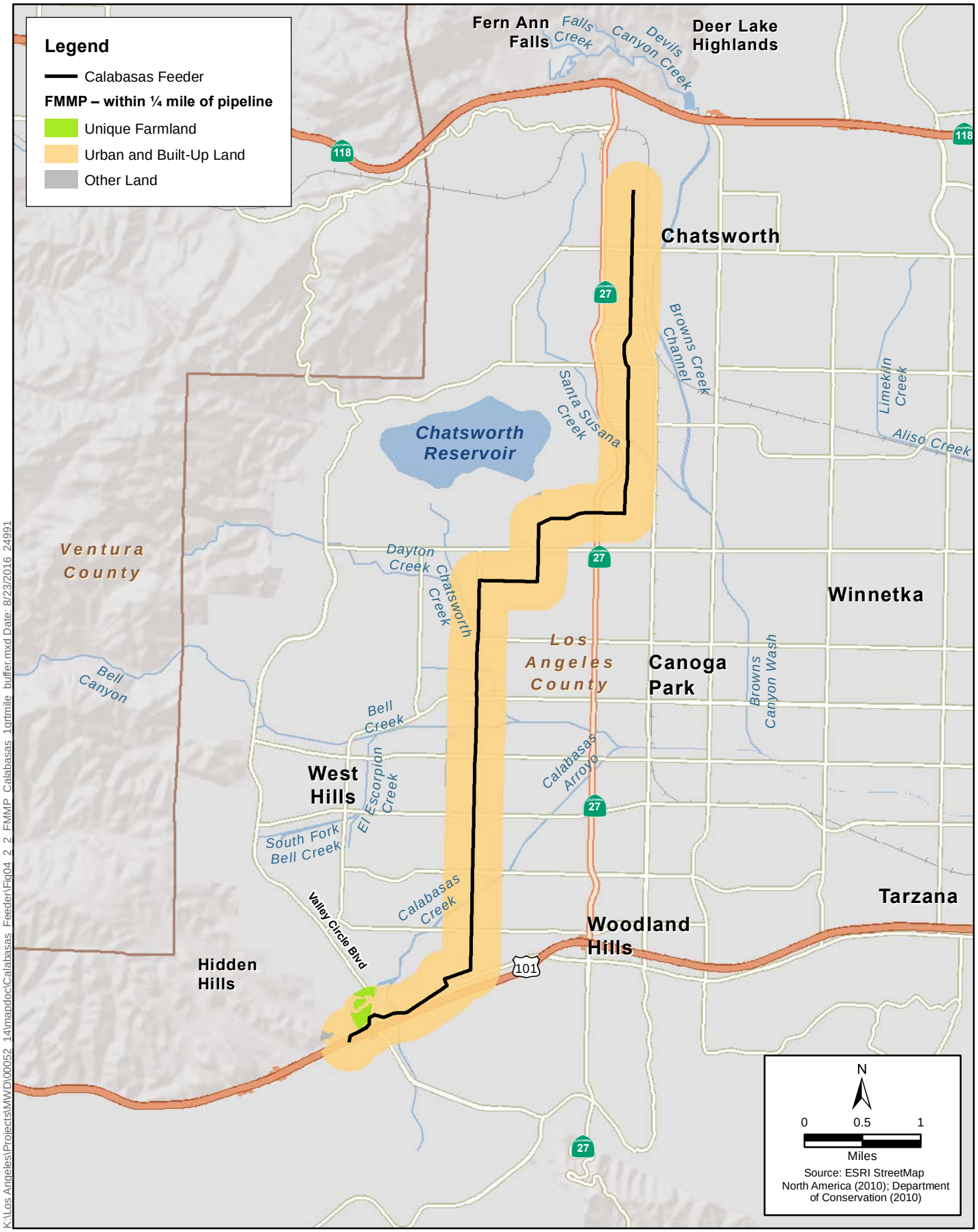


Figure 4.2-2
Important Farmland near the Calabasas Feeder
Metropolitan PCCP Program

4.2.2.3 Rialto Pipeline

The Rialto Pipeline study area (0.25 mile on either side of the pipeline) does not include any Important Farmland designated by the FMMP. See Figure 4.2-3.

4.2.2.4 Second Lower Feeder

The Second Lower Feeder study area (0.25 mile on either side of the pipeline) includes Unique Farmland in the cities of Yorba Linda, Anaheim, and Stanton. Figure 4.2-4 shows where the Second Lower Feeder crosses Important Farmland as designated by the FMMP. Approximately 17.42 acres of Unique Farmland occur within the Second Lower Feeder study area.

The Second Lower Feeder begins at the Diemer Water Treatment Plant in the northern portion of the city of Yorba Linda and terminates at the Palos Verdes Reservoir in the city of Rolling Hills Estates. The city of Yorba Linda is predominantly a residential community with a limited amount of undeveloped land. According to the Recreation and Resources Element of the City of Yorba Linda General Plan (City of Yorba Linda 1993), although some of this undeveloped land is currently used for small-scale agricultural uses, it is unlikely that it will continue as agricultural land in the future. DOC has designated Important Farmland in the northern portion of the city. This is also where the Second Lower Feeder study area overlaps with approximately 7.5 acres of Unique Farmland in the city of Yorba Linda.

The Second Lower Feeder enters the city of Anaheim in the northeast portion of the city and overlaps with Important Farmland designated by the FMMP in the southwest portion of the city near its border with the city of Stanton. This area is also designated Open Space by the city's General Plan (City of Anaheim 2004). According to the Land Use Element of the City of Anaheim General Plan (City of Anaheim 2004), there are nearly 3,400 acres of land in the city of Anaheim vacant or utilized for agricultural purposes; however, very little remains that is not already entitled for future development. The primary exceptions are the many utility easements that are envisioned to serve as trail connections, passive open space, or low-intensity commercial uses. Approximately 9.7 acres of Unique Farmland occur within the Second Lower Feeder study area in the city of Anaheim.

Although the Second Lower Feeder itself does not run through the city of Stanton, a portion of the study area crosses the northern portion of the city. This area is designated Open Space by the City of Stanton General Plan and is also identified as Unique Farmland by the FMMP (City of Stanton 2008; DOC 2015a). Approximately 0.22 acres of Unique Farmland occur within the Second Lower Feeder study area in the city of Stanton.

4.2.2.5 Sepulveda Feeder

The Sepulveda Feeder study area (0.25 mile on either side of the pipeline) does not include any Important Farmland designated by the FMMP. See Figure 4.2-5.

4.2.3 Regulatory Framework

This section describes the plans, policies, and regulations related to agriculture that are applicable to the proposed program.

4.2.3.1 Federal

There are no federal regulations related to agriculture applicable to the program.

4.2.3.2 State

Farmland Mapping and Monitoring Program

DOC administers various programs to conserve California farmland and open space resources, including the FMMP. The goal of the FMMP is to provide consistent, timely, and accurate data to decision makers for use in planning for the present and future of California's agricultural land resources. The FMMP produces maps and statistical data used for analyzing impacts on agricultural resources in the state. Agricultural land is rated according to soil quality and irrigation status. The maps are updated every 2 years with the use of a computer mapping system, aerial imagery, public review, and field reconnaissance.

The list below encompasses all categories mapped by DOC. Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land are referred to as "agricultural land" (DOC 2015b).

- **Prime Farmland**. Defined in Section 4.2.2, *Existing Conditions*
- **Farmland of Statewide Importance**. Defined in Section 4.2.2, *Existing Conditions*
- **Unique Farmland**. Defined in Section 4.2.2, *Existing Conditions*
- **Farmland of Local Importance**. Defined in Section 4.2.2, *Existing Conditions*
- **Grazing Land**. Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.
- **Urban and Built-up Land**. Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land**. Land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.
- **Water**. Perennial water bodies with an extent of at least 40 acres.

4.2.3.3 Local

California Government Code Section 53091 exempts Metropolitan, as a regional public water purveyor and utility, from local zoning and building ordinances. Therefore, the PCCP Rehabilitation Program is not subject to local zoning regulations related to agriculture. In addition, there are no

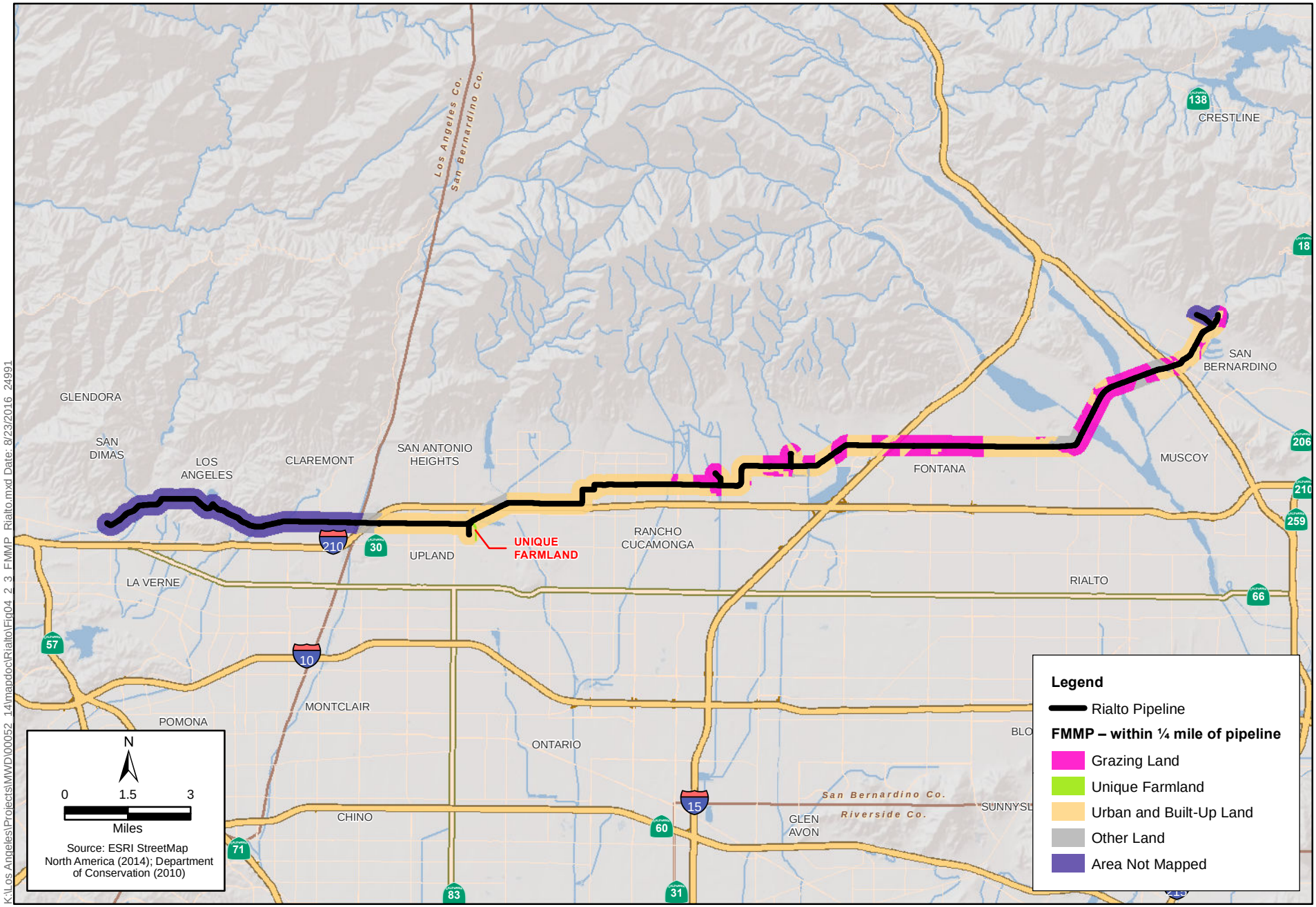


Figure 4.2-3
Important Farmland near the Rialto Pipeline
Metropolitan PCCP Program

Figure 4.2-4
Important Farmland near the Second Lower Feeder
Metropolitan PCCP Program

Figure 4.2-5
Important Farmland near the Sepulveda Feeder
Metropolitan PCCP Program

Farmlands of Local Importance determined by county boards of supervisors and local advisory committees within the study areas for the pipelines in the PCCP Rehabilitation Program.

4.2.4 Thresholds and Methodology

4.2.4.1 Thresholds of Significance

Table 4.2-1 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to agriculture and forestry resources. It also indicates which impacts were determined to be less than significant in the Initial Study and therefore do not require additional analysis, and which impacts must be analyzed in the PEIR for the proposed program.

Table 4.2-1. CEQA Thresholds for Agriculture and Forestry Resources**

Threshold *Would the proposed program:*	**Analysis Required for the Proposed Program**
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	X
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	N/A*
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined by Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 551104(g))?	N/A*
d. Result in the loss of forest land or conversion of forest land to non-forest use?	N/A*
e. Involve other changes in the existing environment that, because of their location or nature, could result in the conversion of Farmland to non-agricultural use or the conversion of forest land to non-forest use?**	X

* Determined to be less than significant in the Initial Study (Appendix A)

** Because the Initial Study did not identify any forest land in the study area for the proposed program, that portion of the threshold will not be addressed in this document.

4.2.4.2 Program Methodology

Direct Farmland Conversion

As documented in Section 4.2.2, *Existing Conditions*, this PEIR identifies Important Farmland within the study area for the pipeline alignments (within 0.25 mile of the pipeline). For this program-level analysis, the potential for impacts on Important Farmlands would occur if the rehabilitation of the pipelines would remove any such land from agricultural production, either permanently or temporarily. Because most of the pipelines are within public rights-of-way, typically under roadways, the pipeline rehabilitation projects discussed in this program would not permanently convert Important Farmland to other uses. During construction, temporary work areas extending

beyond the public rights-of-way or construction staging activities could be located on land designated as Important Farmland. The impacts resulting from this temporary use are evaluated.

Indirect Farmland Conversion

Other changes in the environment can sometimes cause the conversion of Important Farmland to non-agricultural use. Examples of this are pollution impacts on the soil's productivity, impacts on water quality or availability of water used for irrigation, impacts on air quality negatively affecting agricultural productivity, limiting or removing access to Important Farmlands, and increased noise (for confined animal agriculture). The agriculture analysis considers whether the proposed program would result in any impacts that would indirectly lead to the conversion of Important Farmland to non-agricultural use.

As part of the program, Metropolitan has agreed to implement the following environmental commitments that would limit indirect impacts on Important Farmlands; these commitments are considered part of the program for analysis purposes.

- Rehabilitation activities would comply with the South Coast Air Quality Management District's Rule 403 to minimize fugitive dust, construction traffic, and particulate matter releases.
- Rehabilitation activities would incorporate water quality Best Management Practices, including a Stormwater Pollution Prevention Plan, as applicable, for sediment and erosion control, pollutant treatment, outlet protection, and general site management.
- A Spill Emergency Response Plan would be prepared prior to the start of construction to ensure that hazardous materials and waste are handled, stored, and disposed of in accordance with applicable federal and state laws and regulations. All materials and fuels within the staging areas, excavation sites, and work zones would be stored in a manner that reduces the potential for spills.

4.2.5 Impacts Analysis

4.2.5.1 Program Analysis

Threshold AGR-A: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmland) to Non-Agricultural Use

Although there are designated agricultural lands within the study area for the PCCP program, the proposed program would not permanently convert any farmland to non-agricultural use. The proposed program would rehabilitate existing pipelines, usually located in existing roadway rights-of-way. Even where the pipelines cross agricultural lands, they are existing underground facilities.

During construction, agricultural lands may be temporarily used for access to the pipeline or for staging construction equipment. However, all land would be restored to its pre-construction condition once rehabilitation is completed (see Section 3.7.6, *Site Restoration*). Therefore, the proposed program would not permanently convert Important Farmland to non-agricultural use and impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold AGR-E: Involve Other Changes in the Existing Environment that, Because of Their Location or Nature, Could Result in the Conversion of Farmland to Non-Agricultural Use

The proposed program would rehabilitate existing pipelines, usually located in existing roadway rights-of-way. Even where the pipelines cross agricultural lands, they are existing underground facilities. The proposed program could have temporary impacts that could affect agriculture in the study area, such as impacts on access or use of land for construction staging. Contractors for the rehabilitation work are required to maintain access to adjacent land, so while access may be changed during construction, access would not be precluded. If contractors use agricultural land for construction staging, they would be required to return it to pre-construction conditions. Therefore, there would be no changes to the existing environment that could lead to permanent conversion of farmland to non-agricultural use and impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

4.2.5.2 Cumulative Analysis

The proposed program would not permanently convert farmland to non-agricultural use, either directly or indirectly. Therefore, the program would not make a considerable contribution to a cumulative impact on farmland.

Section 4.3
Air Quality

4.3.1 Introduction

This section describes the existing conditions for air quality, the regulatory framework associated with air quality, the impacts on air quality that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant air quality impacts. Impacts related to greenhouse gas emissions are provided in Section 4.7, *Greenhouse Gas Emissions.*

4.3.2 Existing Conditions

The study area for air quality is the South Coast Air Basin (Basin). See Figure 4.3-1.

4.3.2.1 Regional Setting

The proposed program lies within the Los Angeles County portion of the Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD has jurisdiction over an area of approximately 10,743 square miles, including all of Orange County; Los Angeles County, except for the Antelope Valley; the non-desert portion of western San Bernardino County; and the western and Coachella Valley portions of Riverside County. The Basin is a sub-region of SCAQMD's jurisdiction. Although air quality in this area has improved, the Basin requires continued diligence to meet air quality standards.

4.3.2.2 Climate and Meteorological Conditions

The proposed program would occur within the Basin, which covers approximately 6,745 square miles and is bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The Southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) as well as human-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

4.3.2.3 Regional and Localized Air Quality

Criteria Pollutants

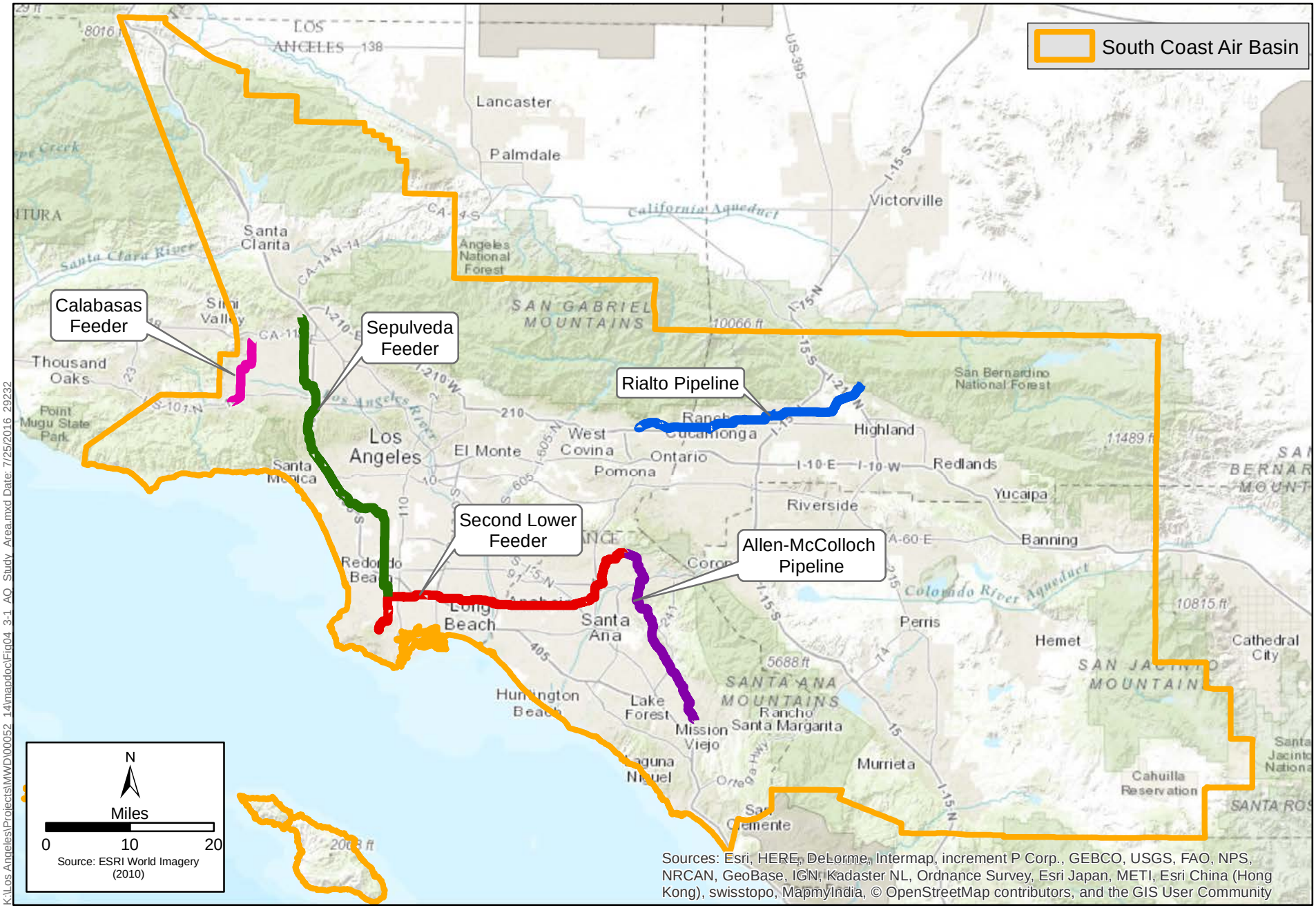
Air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. These regulated air pollutants, which are known as criteria air pollutants, are categorized as primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOCs), nitrogen oxides (NO_X), sulfur dioxide (SO_2), and most fine particulate matter (particulate matter 10 microns or less in diameter [PM10], particulate matter 2.5 microns or less in diameter [PM2.5]), including lead (Pb) and fugitive dust, are primary air pollutants. Of these, CO, SO_2, PM10, and PM2.5 are criteria pollutants. VOCs and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants. Presented below is a description of each of the primary and secondary criteria air pollutants and their known health effects (SCAQMD 2005).

Ozone

Ozone, a colorless toxic gas, is found in two regions of the Earth's atmosphere, at ground level and in the upper regions of the atmosphere. Both types of ozone have the same chemical composition (O_3). Although upper atmospheric O_3 protects the Earth from the sun's harmful rays, ground-level O_3 is the main component of smog (EPA 2016a). It enters the bloodstream and interferes with the transfer of oxygen, depriving sensitive tissues in the heart and brain of oxygen. It also damages vegetation by inhibiting growth. Although O_3 is not directly emitted, it forms in the atmosphere through a photochemical reaction between VOCs and NO_X in the presence of sunlight. O_3 is present in relatively high concentrations within the Basin, and the damaging effects of photochemical smog are generally related to the concentration of O_3. Meteorology and terrain play major roles in O_3 formation. Ideal smog conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies but can also occur during the winter months in high-elevation areas in the western United States with high levels of local VOC and NO_X emissions when snow is on the ground and temperatures are near or below freezing (EPA 2012). The greatest source of smog-producing gases is the automobile (SCAQMD 2012a).

Organic Gases—Precursors to Ozone

There are several subsets of organic gases, including reactive organic gases (ROGs) and VOCs. Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. ROGs include all hydrocarbons except those exempted by ARB. Therefore, ROGs are a set of organic gases based on state rules and regulations. VOCs are similar to ROGs in that they include all organic gases except those exempted by federal law. Both VOCs and ROGs are emitted from incomplete combustion of hydrocarbons or other carbon-based fuels. Combustion engine exhaust, oil refineries, and oil-fueled power plants are the primary sources of hydrocarbons. Another source of hydrocarbons is evaporation from petroleum fuels, solvents, dry-cleaning solutions, and paint. Generally speaking, and in this analysis, ROGs and VOCs are used interchangeably to refer to the hydrocarbons that are a precursor to O_3 formation. However, because SCAQMD uses VOCs in the formulation of its thresholds, VOCs are presented herein.



K:\Los Angeles\Projects\MWD\00052_14\mapdoc\Fig04_3-1_AO_Study_Area.mxd Date: 7/25/2016 29232

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Figure 4.3-1
South Coast Air Basin
Metropolitan Water District PCCP Rehabilitation Program

The primary health effects of hydrocarbons result from the formation of O_3 and its related health effects. High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. There are no separate National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS) for VOCs or ROGs (EPA 2012). Carcinogenic forms of VOCs and ROGs are considered to be toxic air contaminants (TACs), which are described below. An example is benzene, which is a carcinogen.

Carbon Monoxide

Carbon monoxide is a colorless, odorless gas that can interfere with the transfer of oxygen to the brain. It can cause dizziness and fatigue and impair central nervous system functions. CO is emitted almost exclusively from incomplete combustion of fossil fuels. In urban areas, CO is emitted by motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. Automobile exhaust releases most of the CO in urban areas. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. The highest CO concentrations in Los Angeles County are typically recorded during the winter (SCAQMD 2005).

Nitrogen Dioxide

Nitrogen dioxide is a brownish gas that irritates the lungs. It can cause breathing difficulties at high concentrations. Similar to O_3, NO_2 is not directly emitted but is formed through a reaction between NO and atmospheric oxygen. Nitric oxide (NO) and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM10 (see discussion of PM10 below). At atmospheric concentrations, NO_2 is only potentially irritating. In high concentrations, the result is a brownish-red cast to the atmosphere and reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (2 to 3 years old) has also been observed at concentrations below 0.3 part per million (ppm) (SCAQMD 2005).

Particulate Matter

Particulate matter pollution consists of very small liquid and solid particles floating in the air. These can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. PM10 and PM2.5 represent fractions of particulate matter. PM10 refers to particulate matter less than 10 microns in diameter, about $^1/_{7^{th}}$ the thickness of a human hair. PM2.5 refers to particulate matter that is 2.5 microns or less in diameter, roughly $^1/_{28^{th}}$ the diameter of a human hair. Major sources of PM10 include motor vehicles; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. PM2.5 results from fuel combustion (from motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, PM10 and PM2.5 can be formed in the atmosphere from gases such as SO_2, NO_X, and VOCs.

Both PM10 and PM2.5 pose a greater health risk than larger size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. PM10 and PM2.5 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates, and nitrates, can cause lung damage directly. These substances can be absorbed into the bloodstream and cause damage elsewhere in the body; they can also transport absorbed gases such as chlorides or ammonium into the lungs and cause injury. Whereas particles measuring 2.5 to 10 microns in diameter tend to collect in the upper portion of the respiratory system, particles measuring 2.5 microns or less are so tiny that they can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle and contribute to haze and reduce regional visibility (SCAQMD 2005).

Secondary PM2.5 Formation

PM2.5 particles are both directly emitted into the atmosphere (i.e., primary particles) and formed through atmospheric chemical reactions from precursor gases (i.e., secondary particles). Primary PM2.5 includes diesel soot, combustion products, road dust, and other fine particles. Secondary PM2.5, which includes products such as sulfates, nitrates, and complex carbon compounds, is formed from reactions with directly emitted NO_X, SO_X, VOCs, and ammonia. Secondary formation of smaller particles can lead to elevated PM2.5 concentrations in the inland valley areas of the Basin (SCAQMD 2012a). The analysis herein focuses on the effects of direct PM2.5 emissions, consistent with the recommendations of SCAQMD (SCAQMD 2006).

Sulfur Dioxide

Sulfur dioxide is a product of high-sulfur-fuel combustion. The main sources of SO_2 are coal and oil used in power stations, industries, and domestic heating. Industrial chemical manufacturing is another source of SO_2. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 can also cause plant leaves to turn yellow and erode iron and steel. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary-source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 concentrations have been reduced to levels well below the state and national standards, but further reductions are needed to attain compliance with standards for sulfates and PM10, to which SO_2 is a contributor (SCAQMD 2012a).

Lead

Lead is a natural constituent of air, water, and the biosphere and listed as both a criteria pollutant and a carcinogenic TAC. Pb is neither created nor destroyed in the environment, so it essentially persists forever. Pb was used several decades ago to increase the octane rating in automotive fuel. Because gasoline-powered automobile engines were a major source of airborne Pb through the use of leaded fuels and because the use of leaded fuel has been mostly phased out, the ambient concentrations of Pb have dropped dramatically. Short-term exposure to high levels of Pb can cause vomiting, diarrhea, convulsions, coma, or even death. However, even small amounts of Pb can be harmful, especially to infants, young children, and pregnant women. Symptoms of long-term exposure to lower Pb levels may be less noticeable but are still serious. Anemia is common, and damage to the nervous system may cause impaired mental function. Other symptoms are appetite

loss, abdominal pain, constipation, fatigue, sleeplessness, irritability, and headache. Continued excessive exposure, as in an industrial setting, can affect the kidneys.

Emissions of Pb have dropped substantially over the past 40 years. However, sources of Pb emissions within the Basin remain, primarily the lead-acid battery recycling industry. Emissions from two large battery recycling facilities are responsible for the Basin's recent nonattainment designation under the NAAQS for Pb for Los Angeles County (SCAQMD 2012b).

Toxic Air Contaminants

With respect to criteria pollutants, federal and/or state ambient air quality standards represent the exposure level (with an adequate margin of safety) deemed safe for humans. No ambient air quality standards exist for TACs because no exposure level has been deemed safe for humans. Pollutants are identified as TACs because of their potential to increase the risk of developing cancer or their acute or chronic health risks. For TACs that are known or suspected carcinogens, ARB has consistently found that there are no levels or thresholds below which exposure is risk free. Individual TACs vary greatly in the risk they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor, called a Hazard Index, is used to evaluate risk. In the early 1980s, ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks (ARB 2010). AB 2588 requires local air districts like SCAQMD to designate high, intermediate, and low priority categories and report on facilities that may pose a risk to the public.

To date, ARB has identified 21 TACs and adopted the U.S. Environmental Protection Agency's (EPA) list of hazardous air pollutants as TACs. In August 1998, ARB identified diesel exhaust particulate matter (DPM) emissions as a TAC (ARB 1998). In September 2000, ARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan was to reduce DPM emissions and the associated health risk by 75 percent by 2010 and by 85 percent by 2020 (ARB 2000).

Ambient Air Monitoring Stations

SCAQMD maintains a network of air quality monitoring stations throughout the Basin, each of which provides ambient air monitoring data for specific areas of the Basin. The proposed program would occur within numerous monitoring areas of the Basin. Monitoring data from sites near the proposed program are provided below. Although these monitoring locations may not be representative of every location in which program rehabilitation activities would occur, they provide context on the existing air quality at the local level.

Allen-McColloch Pipeline

The Mission Viejo – 26081 Via Pera Monitoring Station (ARB Site Number 30002) is 0.1 mile to the west of the southern end of the Allen-McColloch Pipeline and collects data for O_3, PM10, and PM2.5. Exceedances of the state 1-hour O_3 standard as well as the state and federal 8-hour O_3 standard were recorded at this site over the 3-year monitoring period from 2013 to 2015.

Table 4.3-1. Ambient Background Concentrations for Mission Viejo – 26081 Via Pera Monitoring Station (ARB Site Number 30002)

Pollutant Standards	**2013**	**2014**	**2015**
1-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.104	0.115	0.099
Number of Days Standard Exceeded			
CAAQS 1-hour Standard (> 0.09 ppm)	2	4	2
8-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.082	0.088	0.088
National Maximum Concentration (ppm)	0.082	0.088	0.088
National Fourth-Highest Concentration (ppm)	0.074	0.078	0.075
National Design Value (ppm)	0.072	0.074	0.075
Number of Days Standard Exceeded			
CAAQS 8-hour Standard (> 0.070 ppm)	5	10	8
NAAQS 8-hour Standard (> 0.075 ppm)	2	5	3
Carbon Monoxide (CO)			
Maximum Concentration 8-hour Period (ppm)	N/A	N/A	N/A
Number of Days Standard Exceeded			
NAAQS 8-hour Standard (≥ 9 ppm)	N/A	N/A	N/A
CAAQS 8-hour Standard (≥ 9.0 ppm)	N/A	N/A	N/A
Nitrogen Dioxide (NO_2)			
Maximum National 1-hour Concentration (ppm)	N/A	N/A	N/A
Maximum State 1-hour Concentration (ppm)	N/A	N/A	N/A
Annual Average Concentration (ppm)	N/A	N/A	N/A
Number of Days Standard Exceeded			
CAAQS 1-Hour Standard (0.18 ppm)	N/A	N/A	N/A
NAAQS 1-Hour Standard (100 ppb)	N/A	N/A	N/A
Suspended Particulates (PM10)			
Maximum State 24-hour Concentration (μg/m^3)	50.0	40.0	48.0
Maximum National 24-hour Concentration (μg/m^3)	51.0	41.0	49.0
State Annual Average Concentration (μg/m^3)	19.0	19.8	N/A
Number of Days Standard Exceeded			
CAAQS 24-hour Standard (> 50 μg/m^3)	0	0	0
NAAQS 24-hour Standard (> 150 μg/m^3)	0	0	0

Pollutant Standards	2013	2014	2015
Suspended Particulates (PM2.5)			
Maximum National 24-hour Concentration (µg/m^3)	28.0	25.5	31.5
24-hour Standard 98th Percentile (µg/m^3)	17.5	N/A	15.1
National Annual Average Concentration (µg/m^3)	8.0	N/A	7.0
State Annual Average Concentration (µg/m^3)	8.1	N/A	7.0
Number of Days Standard Exceeded			
NAAQS 24-hour Standard (> 35 µg/m^3)	0	0	0
ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; N/A = data not available. Sources: ARB 2016b; EPA 2016b; ICF International 2016 (see Appendix C).			

Calabasas Feeder

The Reseda Monitoring Station (ARB Site Number 70074) is 5.2 miles east of the Calabasas Feeder and 2.3 miles west of Sepulveda Feeder. The station collects data for O_3, NO_X, and PM2.5. Exceedances of the state 1-hour O_3 standard, the state and federal 8-hour O_3 standard, and the PM2.5 federal standard were recorded at this site over the 3-year monitoring period from 2013 to 2015.

Table 4.3-2. Ambient Background Concentrations for Reseda Monitoring Station (ARB Site Number 70074)

Pollutant Standards	2013	2014	2015
1-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.124	0.116	0.119
Number of Days Standard Exceeded			
CAAQS 1-hour Standard (> 0.09 ppm)	7	6	11
8-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.092	0.093	0.095
National Maximum Concentration (ppm)	0.092	0.092	0.094
National Fourth-Highest Concentration (ppm)	0.084	0.084	0.087
National Design Value (ppm)	0.090	0.087	0.084
Number of Days Standard Exceeded			
CAAQS 8-hour Standard (> 0.070 ppm)	21	31	34
NAAQS 8-hour Standard (> 0.075 ppm)	11	11	15
Carbon Monoxide (CO)			
Maximum Concentration 8-hour Period (ppm)	N/A	N/A	N/A
Number of Days Standard Exceeded			
NAAQS 8-hour Standard (≥ 9 ppm)	N/A	N/A	N/A
CAAQS 8-hour Standard (≥ 9.0 ppm)	N/A	N/A	N/A
Nitrogen Dioxide (NO_2)			
Maximum National 1-hour Concentration (ppm)	0.0581	0.0589	0.0725
Maximum State 1-hour Concentration (ppm)	0.058	0.058	0.072
Annual Average Concentration (ppm)	N/A	N/A	0.013

Pollutant Standards	2013	2014	2015
Number of Days Standard Exceeded			
CAAQS 1-Hour Standard (0.18 ppm)	0	0	0
NAAQS 1-Hour Standard (100 ppb)	0	0	0
Suspended Particulates (PM10)			
Maximum State 24-hour Concentration (µg/m³)	N/A	N/A	N/A
Maximum National 24-hour Concentration (µg/m³)	N/A	N/A	N/A
State Annual Average Concentration (µg/m³)	N/A	N/A	N/A
Number of Days Standard Exceeded			
CAAQS 24-hour Standard (> 50 µg/m³)	0	0	0
NAAQS 24-hour Standard (> 150 µg/m³)	0	0	0
Suspended Particulates (PM2.5)			
Maximum National 24-hour Concentration (µg/m³)	41.8	27.2	36.8
24-hour Standard 98th Percentile (µg/m³)	23.0	N/A	28.4
National Annual Average Concentration (µg/m³)	9.8	N/A	8.8
State Annual Average Concentration (µg/m³)	9.9	N/A	N/A
Number of Days Standard Exceeded			
NAAQS 24-hour Standard (> 35 µg/m³)	1	0	1

ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; N/A = data not available.
Sources: ARB 2016b; EPA 2016b; ICF International 2016 (see Appendix C).

Rialto Pipeline

The Fontana-Arrow Highway Monitoring Station (ARB Site Number 36197) is 3.6 miles south of the Rialto Pipeline. The station collects data for O_3, NO_X, PM10, and PM2.5. Exceedances of the state 1-hour O_3 standard, the state and federal O_3 standard, the state PM10 standard, and the PM2.5 federal standard were recorded at this site over the 3-year monitoring period from 2013 to 2015.

Table 4.3-3. Ambient Background Concentrations for Fontana-Arrow Highway Monitoring Station (ARB Site Number 36197)

Pollutant Standards	2013	2014	2015
1-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.151	0.127	0.133
Number of Days Standard Exceeded			
CAAQS 1-hour Standard (> 0.09 ppm)	34	31	36
8-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.123	0.106	0.111
National Maximum Concentration (ppm)	0.122	0.105	0.111
National Fourth-Highest Concentration (ppm)	0.100	0.093	0.100
National Design Value (ppm)	0.103	0.099	0.097
Number of Days Standard Exceeded			
CAAQS 8-hour Standard (> 0.070 ppm)	68	52	59
NAAQS 8-hour Standard (> 0.075 ppm)	42	37	39

Pollutant Standards	2013	2014	2015
Carbon Monoxide (CO)			
Maximum Concentration 8-hour Period (ppm)	N/A	N/A	N/A
Number of Days Standard Exceeded			
NAAQS 8-hour Standard (≥ 9 ppm)	N/A	N/A	N/A
CAAQS 8-hour Standard (≥ 9.0 ppm)	N/A	N/A	N/A
Nitrogen Dioxide (NO_2)			
Maximum National 1-hour Concentration (ppm)	0.0817	0.0704	0.0891
Maximum State 1-hour Concentration (ppm)	0.081	0.070	0.089
Annual Average Concentration (ppm)	0.020	N/A	0.018
Number of Days Standard Exceeded			
CAAQS 1-Hour Standard (0.18 ppm)	0	0	0
NAAQS 1-Hour Standard (100 ppb)	0	0	0
Suspended Particulates (PM10)			
Maximum State 24-hour Concentration (µg/m³)	86.0	65.0	92.0
Maximum National 24-hour Concentration (µg/m³)	90.0	68.0	96.0
State Annual Average Concentration (µg/m³)	38.8	N/A	N/A
Number of Days Standard Exceeded			
CAAQS 24-hour Standard (> 50 µg/m³)	15	10	13
NAAQS 24-hour Standard (> 150 µg/m³)	0	0	0
Suspended Particulates (PM2.5)			
Maximum National 24-hour Concentration (µg/m³)	43.6	34.9	50.5
24-hour Standard 98th Percentile (µg/m³)	33.1	N/A	37.7
National Annual Average Concentration (µg/m³)	12.2	N/A	11.0
State Annual Average Concentration (µg/m³)	12.3	N/A	11.0
Number of Days Standard Exceeded			
NAAQS 24-hour Standard (> 35 µg/m³)	1	0	3

ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; N/A = data not available.
Sources: ARB 2016b; EPA 2016b; ICF International 2016 (see Appendix C).

Second Lower Feeder

The Anaheim-Pampas Lane Monitoring Station (ARB Site Number 30178) is 0.9 mile north of the Second Lower Feeder. The station collects data for O_3, NO_X, PM10, and PM2.5. Exceedances of the state 1-hour O_3 standard, the state and federal 8-hour O_3 standard, the state PM10 standard, and the PM2.5 federal standard were recorded at this site over the 3-year monitoring period from 2013 to 2015.

Table 4.3-4. Ambient Background Concentrations for Anaheim-Pampas Lane Monitoring Station (ARB Site Number 30178)

Pollutant Standards	2013	2014	2015
1-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.084	0.111	0.100
Number of Days Standard Exceeded			
CAAQS 1-hour Standard (> 0.09 ppm)	0	2	1
8-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.070	0.082	0.081
National Maximum Concentration (ppm)	0.070	0.081	0.080
National Fourth-Highest Concentration (ppm)	0.063	0.076	0.065
National Design Value (ppm)	0.064	0.068	0.068
Number of Days Standard Exceeded			
CAAQS 8-hour Standard (> 0.070 ppm)	0	6	1
NAAQS 8-hour Standard (> 0.075 ppm)	0	4	1
Carbon Monoxide (CO)			
Maximum Concentration 8-hour Period (ppm)	N/A	N/A	N/A
Number of Days Standard Exceeded			
NAAQS 8-hour Standard (≥ 9 ppm)	N/A	N/A	N/A
CAAQS 8-hour Standard (≥ 9.0 ppm)	N/A	N/A	N/A
Nitrogen Dioxide (NO_2)			
Maximum National 1-hour Concentration (ppm)	0.0815	0.0758	0.0591
Maximum State 1-hour Concentration (ppm)	0.081	0.075	0.059
Annual Average Concentration (ppm)	N/A	N/A	0.014
Number of Days Standard Exceeded			
CAAQS 1-Hour Standard (0.18 ppm)	0	0	0
NAAQS 1-Hour Standard (100 ppb)	0	0	0
Suspended Particulates (PM10)			
Maximum State 24-hour Concentration (µg/m³)	77.0	84.0	59.0
Maximum National 24-hour Concentration (µg/m³)	77.0	85.0	59.0
State Annual Average Concentration (µg/m³)	25.2	26.7	25.3
Number of Days Standard Exceeded			
CAAQS 24-hour Standard (> 50 µg/m³)	1	2	2
NAAQS 24-hour Standard (> 150 µg/m³)	0	0	0
Suspended Particulates (PM2.5)			
Maximum National 24-hour Concentration (µg/m³)	37.8	45.0	45.8
24-hour Standard 98th Percentile (µg/m³)	22.7	N/A	N/A
National Annual Average Concentration (µg/m³)	10.0	N/A	N/A
State Annual Average Concentration (µg/m³)	10.1	16.1	14.6
Number of Days Standard Exceeded			
NAAQS 24-hour Standard (> 35 µg/m³)	1	4	3

ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; N/A = data not available.
Sources: ARB 2016b; EPA 2016b; ICF International 2016 (see Appendix C).

Sepulveda Feeder

The Los Angeles – LAX (Westchester Parkway) Monitoring Station (ARB Site Number 70111) is 2.9 miles southwest of the Sepulveda Feeder. The station collects data for O_3, NO_X, and PM10. Exceedances of the state 1-hour O_3 standard and the state and federal 8-hour O_3 standard were recorded at this site over the 3-year monitoring period from 2013 to 2015.

Table 4.3-5. Ambient Background Concentrations for Los Angeles – LAX (Westchester Parkway) Monitoring Station (ARB Site Number 70111)

Pollutant Standards	2013	2014	2015
1-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.105	0.114	0.096
Number of Days Standard Exceeded			
CAAQS 1-hour Standard (> 0.09 ppm)	1	1	1
8-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.082	0.080	0.078
National Maximum Concentration (ppm)	0.081	0.080	0.077
National Fourth-Highest Concentration (ppm)	0.060	0.075	0.069
National Design Value (ppm)	N/A	0.064	0.68
Number of Days Standard Exceeded			
CAAQS 8-hour Standard (> 0.070 ppm)	1	6	3
NAAQS 8-hour Standard (> 0.075 ppm)	1	3	1
Carbon Monoxide (CO)			
Maximum Concentration 8-hour Period (ppm)	N/A	N/A	N/A
Number of Days Standard Exceeded			
NAAQS 8-hour Standard (≥ 9 ppm)	N/A	N/A	N/A
CAAQS 8-hour Standard (≥ 9.0 ppm)	N/A	N/A	N/A
Nitrogen Dioxide (NO_2)			
Maximum National 1-hour Concentration (ppm)	0.0778	0.0873	0.0870
Maximum State 1-hour Concentration (ppm)	0.077	0.087	0.087
Annual Average Concentration (ppm)	N/A	0.012	0.011
Number of Days Standard Exceeded			
CAAQS 1-Hour Standard (0.18 ppm)	0	0	0
NAAQS 1-Hour Standard (100 ppb)	0	0	0
Suspended Particulates (PM10)			
Maximum State 24-hour Concentration (µg/m^3)	37.0	45.0	42.0
Maximum National 24-hour Concentration (µg/m^3)	38.0	46.0	42.0
State Annual Average Concentration (µg/m^3)	N/A	21.9	N/A
Number of Days Standard Exceeded			
CAAQS 24-hour Standard (> 50 µg/m^3)	0	0	0
NAAQS 24-hour Standard (> 150 µg/m^3)	0	0	0

Pollutant Standards		2013	2014	2015
Suspended Particulates (PM2.5)				
	Maximum National 24-hour Concentration (µg/m^3)	N/A	N/A	N/A
	24-hour Standard 98th Percentile (µg/m^3)	N/A	N/A	N/A
	National Annual Average Concentration (µg/m^3)	N/A	N/A	N/A
	State Annual Average Concentration (µg/m^3)	N/A	N/A	N/A
Number of Days Standard Exceeded				
	NAAQS 24-hour Standard (> 35 µg/m^3)	N/A	N/A	N/A
ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; N/A = data not available. Sources: ARB 2016b; EPA 2016b; ICF International 2016 (see Appendix C).				

Sensitive Receptors

SCAQMD defines sensitive receptor locations as residential, commercial, and industrial land use areas as well as other locations where sensitive populations may be present. Other sensitive receptor locations include schools, hospitals, convalescent homes, day care centers, and other locations where children, chronically ill individuals, or other sensitive persons could be exposed (SCAQMD 2005).

Each of the pipelines in the proposed program is within close proximity of residences, schools, and recreational facilities, with such receptor locations occurring adjacent to the roadway or at other locations in the immediate vicinity.

4.3.3 Regulatory Framework

This section describes the plans, policies, and regulations related to air quality that are applicable to the proposed program.

4.3.3.1 Federal

Federal Clean Air Act

The Federal Clean Air Act (CAA) was first enacted in 1963, but has been amended numerous times in subsequent years (1967, 1970, 1977, and 1990). The CAA establishes the NAAQS and specifies future dates for achieving compliance. The CAA also mandates that the states submit a State Implementation Plan for regions that fail to meet the standards. The plans must include pollution control measures that demonstrate how the standards will be met. The City of Los Angeles is within the Basin, which is designated as a nonattainment area for certain pollutants that are regulated under the CAA.

The 1990 amendments to the CAA identify specific emissions-reduction goals for areas that fail to meet the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. The sections of the CAA that would most substantially affect development of the proposed program include Title I (Nonattainment Provisions) and Title II (Mobile-Source Provisions). Title I provisions were established with the goal of attaining the NAAQS for criteria

pollutants. Table 4.3-6 shows the NAAQS that are currently in effect for each criteria pollutant. Table 4.3-7 shows the region's attainment status for the NAAQS. The NAAQS were amended in July 1997 to include an 8-hour standard for O_3 and adopt a standard for PM2.5. The 8-hour O_3 NAAQS was further amended in October 2015. EPA will designate O_3 attainment and nonattainment areas in late 2017.

Table 4.3-6. Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]
O_3	1 hour 8 hour	0.09 ppm[c] 0.070 ppm	— 0.070 ppm
CO	1 hour	20 ppm	35 ppm
	8 hour	9.0 ppm	9 ppm
NO_2	1 hour	0.18 ppm	100 ppb
	Annual Arithmetic Mean	0.030 ppm	53 ppb
SO_2	1 hour	0.25 ppm	75 ppb
	24 hour	0.04 ppm	0.14 ppm
PM10	24 hour	50 µg/m^3 [c]	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	—
PM2.5	24 hour	—	35 µg/m^3
	Annual Arithmetic Mean	12 µg/m^3	12.0 µg/m^3
Sulfates	24 hour	25 µg/m^3	—
Pb	30 day average	1.5 µg/m^3	—
	Calendar quarter	—	1.5 µg/m^3
	Rolling 3-Month Average	—	0.15 µg/m^3
Hydrogen Sulfide	1 hour	0.03 ppm	—
Vinyl Chloride	24 hour	0.01 ppm	—

Notes:

[a] The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM10, and PM2.5 are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

[b] The NAAQS, other than O_3 and those pollutants using annual arithmetic mean, are not to be exceeded more than once a year. The O_3 standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than 1.

[c] ppm = parts per million by volume; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.

Source: ARB 2016a.

Table 4.3-7. Federal and State Attainment Status for the South Coast Air Basin

Pollutants	Federal Classification	State Classification
O_3 (1-hour standard)	—	Nonattainment
O_3 (8-hour standard)	Nonattainment, Extreme	Nonattainment
PM10	Attainment/Maintenance	Nonattainmen
PM2.5	Nonattainment	Nonattainment
CO	Attainment/Maintenance	Attainment
NO_2	Attainment/Maintenance	Attainment
SO_2	Attainment	Attainment
Pb	Nonattainment	Attainment
Note that only the Los Angeles County portion of the Basin is nonattainment for NAAQS Pb. The remainder of the Basin is in attainment. Sources: ARB 2013b; EPA 2015; Appendix C.		

4.3.3.2 State

California Clean Air Act

The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practical date. The CAAQS incorporate additional standards for most of the criteria pollutants and set standards for other pollutants recognized by the state. In general, the California standards are more health protective than the corresponding NAAQS. California has also set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The Basin is in compliance with the California standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. Table 4.3-6 details the current CAAQS, and Table 4.3-7 provides the Los Angeles County portion of the Basin's attainment status with respect to CAAQS.

State Tailpipe Emission Standards

To reduce emissions from off-road diesel equipment, on-road diesel trucks, and harbor craft, ARB established a series of increasingly strict emission standards for new engines. New construction equipment used for the program, including heavy-duty trucks and off-road construction equipment, will be required to comply with the standards.

Toxic Air Contaminants

California regulates TACs primarily through the Toxic Air Contaminant Identification and Control Act (Tanner Act) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 ("Hot Spots" Act). In the early 1980s, ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Act created California's program to reduce exposure to air toxics. The "Hot Spots" Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

ARB identified DPM as a TAC in 1998 (ARB 1998). Shortly thereafter, ARB approved a comprehensive Diesel Risk Reduction Plan to reduce emissions from both new and existing diesel-

fueled engines and vehicles (ARB 2000). The goal of the plan is to reduce DPM (respirable particulate matter) emissions and the associated health risk by 75 percent in 2010 and by 85 percent by 2020. The plan identifies 14 measures that ARB will implement over the next several years. Because ARB measures would be enacted before any phase of construction, the proposed program would be required to comply with applicable diesel control measures.

4.3.3.3 Regional

South Coast Air Quality Management District Rules and Regulations

SCAQMD has adopted a series of air quality management plans (AQMPs) to meet the CAAQS and NAAQS. These plans require, among other emissions-reducing activities, control technology for existing sources, control programs for area sources and indirect sources, an SCAQMD permitting system that allows no net increase in emissions from any new or modified (i.e., previously permitted) emissions sources, and transportation control measures. The most recent AQMP is the 2012 AQMP. The Final 2012 AQMP was adopted by the SCAQMD Governing Board on December 7, 2012. Control measure IND-01 was approved for adoption and inclusion in the Final 2012 AQMP at the February 1, 2013 Governing Board meeting. ARB approved the 2012 AQMP on January 25, 2013, and the AQMP has been submitted to EPA as a revision to the California State Implementation Plan (ARB 2013a). The 2012 AQMP addresses CAA requirements and includes a 24-hour PM2.5 plan; additional 8-hour O_3 measures, with a vehicle-miles-traveled (VMT) offset demonstration; and a 1-hour O_3 attainment demonstration with VMT offset demonstration. SCAQMD is in the process of developing the 2016 AQMP, which will be primarily focused on addressing the O_3 and PM2.5 standards. SCAQMD is expected to release the draft 2016 AQMP and environmental review in the spring of 2016 and adopt and submit the final 2016 AQMP by the summer of 2016.

SCAQMD published the *CEQA Air Quality Handbook* in November 1993[1] to help local governments analyze and mitigate project-specific air quality impacts. This handbook provides standards, methodologies, and procedures for conducting air quality analyses as part of CEQA documents prepared within SCAQMD's jurisdiction. In addition, SCAQMD has published two guidance documents: *Localized Significance Threshold Methodology for CEQA Evaluations* (2003, revised 2008) and *Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology* (2006). These publications provide guidance for evaluating localized effects from mass emissions during construction. Both were used in the preparation of this analysis (SCAQMD 2006, 2008).

SCAQMD Rule 402—Nuisance

This rule prohibits the discharge of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; endanger the comfort, repose, health, or safety of any such persons or the public; or cause, or have a natural tendency to cause, injury or damage to business or property. Odors are regulated under this rule.

SCAQMD Rule 403—Fugitive Dust

This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remains visible beyond the property line of the emission's source. During construction, best available control measures identified in the rule would be required to

[1] Section updates provided on the SCAQMD website: http://www.aqmd.gov/ceqa/hdbk.html

minimize fugitive dust emissions from proposed earthmoving and grading activities. These measures would include site pre-watering and re-watering as necessary to maintain sufficient soil moisture content. Additional requirements apply to construction projects on properties with 50 or more acres of disturbed surface area or any earthmoving operation with a daily earthmoving or throughput volume of 5,000 cubic yards or more three times during the most recent 365-day period. These requirements include submittal of a dust control plan, maintenance of dust control records, and designation of an SCAQMD-certified dust control supervisor.

SCAQMD Rule 1108—Cutback Asphalt

This rule specifies VOC content limits for cutback asphalt.

SCAQMD Rule 1470—Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines

This rule specifies requirements for stationary diesel engines, including emergency standby generators. It requires owners or operators of emergency standby generators to keep monthly logs of usage, limits maintenance and testing to 20 hours per year, and requires emission rates to not exceed 0.40 gram per brake-horsepower hour.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial counties. SCAG addresses regional issues related to transportation, the economy, community development, and the environment, and is the federally designated metropolitan planning organization for a majority of the region and the largest metropolitan planning organization in the nation. As required by federal and state law, SCAG develops plans pertaining to transportation, growth management, hazardous waste management, housing, and air quality. SCAG data are used in the preparation of air quality forecasts and the consistency analysis included in the AQMP.

4.3.3.4 Local

Although local actions have important implications for air quality, regulation of air quality occurs primarily at the federal, state, and regional levels.

4.3.4 Thresholds and Methodology

4.3.4.1 Thresholds of Significance

Table 4.3-8 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to air quality. These thresholds are addressed in the PEIR.

Table 4.3-8. CEQA Thresholds for Air Quality

Threshold *Would the proposed ~~project or~~ program:*
a. Conflict with or obstruct implementation of the applicable air quality plan?
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
c. Result in a cumulatively considerable net increase in any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?
d. Expose sensitive receptors to substantial pollutant concentrations?
e. Create objectionable odors that would affect a substantial number of people?

Appendix G of the State CEQA Guidelines further states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the determinations in Table 4.3-8. As such, SCAQMD has established significance thresholds intended to more specifically define CEQA Thresholds A through E.

Under Threshold A, SCAQMD thresholds consider whether the proposed program would:

- Result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards.
- Exceed the assumptions in the AQMP.

SCAQMD's current significance thresholds relative to CEQA Thresholds B through E are presented in Table 4.3-9. This information is used to analyze:

- The daily regional emissions for construction activities.
- Daily local emissions occurring at or around a particular site.
- Maximum incremental carcinogenic risk and hazard indices for TACs.

Both regional and local impact analyses are performed for certain thresholds where appropriate. A regional impact analysis is based on attaining or maintaining regional emissions standards, and a local impact analysis compares the on-site emissions of a pollutant to a health-based standard.

As indicated in the first column of Table 4.3-9, SCAQMD's thresholds are used to determine impacts relative to applicable Appendix G CEQA checklist questions (Questions A through E from Table 4.3-8). Some Appendix G CEQA checklist questions require multiple SCAQMD thresholds to determine impacts. For example, with respect to CEQA Threshold B, both regional emission thresholds (B1) and local emission thresholds (B2) are considered to determine significance. Therefore, a significant impact would occur if the proposed program would exceed SCAQMD's established daily emission rate, risk value, or concentration thresholds identified in Table 4.3-9.

Table 4.3-9. SCAQMD Air Quality Thresholds

CEQA Threshold	Pollutant	Daily Regional Emissions Thresholds (pounds/day)
A1/B1/C1	VOC	75
	NO_X	100
	CO	550
	PM10	150
	PM2.5	55
	SO_X	150
		Daily Local Emissions Thresholds (pounds/day) [1]
B2/C2/D1	NO_X	46
	CO	231
	PM10	4
	PM2.5	3
		Other Thresholds
D2	TACs	Maximum Incremental Carcinogenic Risk ≥ 10 in 1 million
D3		Chronic and Acute Hazard Index ≥ 1.0 (project increment)
E1	Odor	Project creates an odor nuisance pursuant to Rule 402

Notes:
Letter:1 indicates regional emissions
Letter:2 indicates local emissions
[1] Program activities would occur in at least 18 of the source receptor areas (SRAs) within the Basin, which include SRAs 2, 3, 4, 6, 10, 11, 16, 17, 20, 21, 23, 24, 25, 30, 32, 33, 34, and 37. Because each SRA has its own localized significance threshold (LST) based on the location, size of the site, and distance to the nearest receptor, the LST for SRA No. 12 (South Central LA County) is being used because it represents the most stringent standard in the Basin. A 1-acre site and 25-meter receptor distance for this location was selected on the basis that it has the most stringent LST.
Source: SCAQMD 2008.

SCAQMD developed localized significance threshold (LST) methodology and mass rate look-up tables in 2003 and updated them in 2008. This information is used to determine whether or not a project may generate significant adverse localized air quality impacts (SCAQMD 2008). LSTs represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. They are developed based on the ambient concentrations of that pollutant for each of the 37 source receptor areas (SRAs) within the SCAQMD. It should be noted that use of LSTs is voluntary. LSTs are applicable at the project-specific level and generally are not applicable to regional projects such as local general plans unless specific projects are identified in the general plans (SCAQMD 2008). Applicable SRA Zones for the proposed program include the following: 2, 3, 4, 6, 10, 11, 16, 17, 20, 21, 23, 24, 25, 30, 32, 33, 34, and 37.

4.3.4.2 Methodology

Because the proposed program intends to extend the service life of PCCP and appurtenant structures for these facilities to continue operating as they do at present, there would be no change in the operational characteristics relative to existing conditions once rehabilitation activities are

complete. Therefore, no operational air quality impacts are considered and the following analysis is limited to the construction period.

Construction phasing information, construction equipment that would be used, excavation and paving quantities, and truck trips were obtained from Metropolitan. Pollutant estimates were based on a combination of assumptions based on Metropolitan's experience with similar types of projects, information from Table 3-2 in Chapter 3, *Program Description*, and defaults derived from sources identified herein, as described below and in Table 4.3-10.

- Emission factors for off-road construction equipment (e.g., loaders, cranes) were obtained from the California Emissions Estimator Model (CalEEMod) *User's Guide* (CAPCOA 2013) Appendix D, which provides values per unit of activity (in grams per horsepower-hour) for each calendar year. Equipment load factors and engine horsepower ratings were also obtained from CalEEMod. Emissions from off-road equipment were estimated by multiplying the CalEEMod default data by the equipment inventory in Table 3-2 in Chapter 3, *Program Description*.
- Emission factors for on-road employee commute vehicles were obtained from ARB's EMFAC2011 web tool (ARB 2011). Factors are based on weighted average vehicle speeds for EMFAC's light-duty truck vehicle category. One-way trip lengths are based on CalEEMod defaults, which are 14.7 miles per employee trip (Los Angeles County portion of Basin, home-work trip) (CAPCOA 2013). All employees were conservatively assumed to make two trips to the project site per day. Emissions generated by employee vehicles were estimated by multiplying the number of employee vehicle trips by the EMFAC2011 emission factors and default mileage.
- Emission factors for on-road haul trucks were obtained from ARB's EMFAC2011 web tool (ARB 2011). Factors for on-site trucks are based on EMFAC's T7 Tractor category for vehicles traveling at 5 miles per hour. Emission factors for off-site haul trucks are based on weighted average vehicle speeds for EMFAC's T7 Tractor vehicle category. Criteria pollutants and GHGs generated by on-site and off-site trucks were estimated by multiplying the EMFAC2011 emission factors by vehicle mileage estimates. Because the fleet of on-road haul trucks would use diesel fuel, all emissions would be the result of incomplete diesel fuel combustion.
- Fugitive re-entrained road dust emissions are based on EPA's AP-42 methodology and VMT data (EPA 2011).
- Fugitive PM10 and PM2.5 dust emissions associated with earthwork are based on daily intensity rates (acres graded per day) and fugitive dust calculation methodologies contained in the CalEEMod *User's Guide* (CAPCOA 2013). Unmitigated emissions were reduced by 61 percent from uncontrolled levels to reflect required compliance with SCAQMD Rule 403 (SCAQMD 1993:Table A11-9-A: A11-77). The dust-control methods for the program will be specified in the dust-control plan that would be submitted to the SCAQMD per Rule 403.

Table 4.3-10. Construction Emissions Sources and Quantification Methodology

Emissions Source	Location	Emission Factors	Quantification Method
Off-road Equipment	On site	Engine emission factors from CalEEMod *User's Guide*	Engine emission factors, horsepower, and load factors multiplied by daily operating activity (hours)
Employee Vehicles	Off site	Engine emission factors from EMFAC2011 (LDA/LDT category)	Engine emission factors multiplied by the number of daily employee trips and default trip mileage (14.7 miles)
Haul Trucks	On and off site	Engine emission factors from EMFAC2011 (T7 Tractor category)	Engine emission factors multiplied by daily vehicle mileage
Re-entrained Dust	On and off site	PM10 and PM2.5 emission factors (0.73 and 0.18 gram per mile, respectively) from ARB 2011	Dust emission factors multiplied by daily VMT
Earthwork and Grading[a]	On site	PM10 and PM2.5 emission factors (0.41 and 0.04 pound per acre, respectively) from CalEEMod	Dust emission factors multiplied by daily graded acres
Paving	On site	ROG emission factor (2.62 pounds per acre) from CalEEMod	ROG emission factor multiplied by daily paved area

[a] Accounts for 61 percent from uncontrolled levels to reflect required compliance with SCAQMD Rule 403.
LDA = light-duty automobile; LDT = light-duty truck

Emissions from each of the sources above are presented at the daily scale and compared with the SCAQMD construction thresholds identified above. Peak daily construction emissions were estimated by calculating emissions for the individual construction scenarios and then summing emissions from overlapping activities. For the purposes of this analysis, it was assumed that the phase of each of the following construction/rehabilitation activities with the highest emissions would take place concurrently.

- 10 typical excavation sites for relining and valve replacement
- Two new valves/meter vaults would be constructed and the existing vault would be demolished (the maximum size of the vault was assumed, as identified in Chapter 3)
- Three below-grade air-release/vacuum valves relocated to above ground
- A 1,000-foot segment of new pipeline would be installed parallel to the existing PCCP

The combination of sequences across all locations that produce the highest daily emissions in each construction year was selected as the peak day for analysis purposes. This approach is meant to convey a worst-case scenario, and is therefore not necessarily representative of emissions that would occur on a daily basis throughout the construction period.

Due to the consistent improvements in the emissions of construction equipment and vehicles and the fact that older, less efficient equipment and vehicles are phased out over time, the greatest emissions would occur in the near future as opposed to the more distant future. As such, the first 5 years of the program are quantified to show the greatest impacts. Although there would continue to be impacts in the more distant future, emissions would be lower.

All emissions calculation worksheets and modeling output files are provided in Appendix C, *Air Quality Calculations*.

Applicable Air Quality Plan

As discussed in Section 4.3.3.3 above, the Final 2012 AQMP is the most recently adopted AQMP. SCAQMD rules and guidance documents, such as the CEQA Air Quality Handbook and the *Localized Significance Threshold Methodology for CEQA Evaluations*, provide the means by which projects demonstrate their consistency with the AQMP.

Criteria for determining consistency for the AQMP is defined in the CEQA Air Quality Handbook. There are two key indicators of consistency:

- **Consistency Criterion No. 1**: Whether the project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- **Consistency Criterion No. 2**: Whether the project will exceed the assumptions in the AQMP or increments based on the year of project build-out and phase.

Air Quality Standards and Criteria Pollutants

The significance thresholds identified above are the project-level air quality standards that are used to evaluate program impacts.

Sensitive Receptors

The LST methodology identified above is used as the project-level air quality standard to evaluate localized impacts on sensitive receptors. The LST analysis, which addresses pollutant proximity to sensitive receptors, was performed using the closest receptor distance (25 meters) and most conservative site size (1 acre) in the lowest LST-thresholds area within the Basin (SRA No. 12).[2]

Objectionable Odors

The Initial Study for the proposed program determined that impacts related to objectionable odors would not occur as a result of program rehabilitation activities. Therefore, there is no discussion of odor impacts in this section.

[2] LST standards increase as the distance from emissions source increases, and as site acreage increases. As such, it is most conservative to assume the closest receptor distance and smallest construction site acreage.

4.3.5 Impacts Analysis

4.3.5.1 Program Analysis

Threshold AQ-A: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan

Criteria for determining consistency for the AQMP is defined in the CEQA Air Quality Handbook. There are two key indicators of consistency:

- **Consistency Criterion No. 1**: Whether the project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- **Consistency Criterion No. 2**: Whether the project will exceed the assumptions in the AQMP or increments based on the year of project build-out and phase.

Consistency Criterion No. 1 refers to violations of NAAQS and CAAQS. SCAQMD recommends an air quality modeling analysis be performed to identify project impacts. In order to be found consistent with Consistency Criterion No. 1, the analysis needs to demonstrate that project emissions would not increase the frequency or severity of existing violations or cause or contribute to new violations. Although there would be no changes in land use or pollutant emissions associated with operation of the proposed program, construction-period emissions would exceed regional mass emissions thresholds developed to aid the Basin in achieving attainment for those pollutants for which it is nonattainment (see the discussion for Threshold AQ-B). Mitigation Measure MM AIR-1 would reduce the exceedances of regional mass emissions, but impacts would remain significant. Therefore, the proposed program would conflict with Consistency Criterion No. 1. This would be a significant and unavoidable impact.

For Criterion No. 2, SCAQMD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the Basin is in nonattainment status. SCAQMD's most recent plan to achieve air quality standards is the 2012 AQMP, adopted by the SCAQMD Governing Board on December 7, 2012. The 2012 AQMP outlines a comprehensive control strategy to meet the requirement for expeditious progress toward attainment of the 24-hour PM2.5 NAAQS in 2014 through all feasible control measures. The 2012 AQMP also includes specific measures for implementing the O_3 strategy from the 2007 AQMP and attaining the 8-hour O_3 standard by 2023 (SCAQMD 2012a).

These strategies are based, in part, on regional population, housing, and employment projections prepared by the region's cities and counties and incorporated by SCAG. As such, projects that propose development that is consistent with the growth anticipated in the relevant land use plans used in the formulation of the AQMP are considered to be consistent with the AQMP.

Given that the proposed program would not involve changes to land use and would allow Metropolitan to extend the life of its facilities, the proposed program is considered consistent with the assumptions used in the development of the AQMP. Therefore, the proposed program would not conflict with Consistency Criterion No. 2.

Mitigation Measures

MM AIR-1 All off-road diesel-powered construction equipment greater than 50 horsepower will meet Tier 4 emission standards. All construction equipment will be outfitted with ARB best available control technology devices. Any emissions-control device used by the contractor will achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by ARB regulations. A copy of each unit's certified tier specification, best available control technology documentation, and ARB or SCAQMD operating permit will be provided to Metropolitan's Construction Inspector at the time of mobilization of each applicable unit of equipment.

Residual Impacts

Impacts that would result from the proposed program would be significant. Implementation of MM AIR-1 would reduce these impacts; however, residual impacts would still be significant and unavoidable.

Threshold AQ-B: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

Regional Mass Emissions

Pollutants would be emitted as a result of rehabilitation activities stemming from the use of construction equipment (primarily diesel-powered), haul and materials vehicle trips, and fugitive dust. Table 4.3-11 shows expected 2018 emissions for a single site associated with each of the modeled construction types. No exceedances of regional mass thresholds would occur when an individual site is considered.

Table 4.3-11. 2018 Daily Regional Mass Emissions for Single Sites (pounds per day)

	VOC	CO	NO_X	SO_X	PM10	PM2.5
Typical Excavation Site	7	37	60	<1	3	3
Typical New Valve/Meter Vault Structure	8	42	63	<1	3	3
Typical Below Grade Air-release/Vacuum Valve Relocation	7	32	58	<1	3	2
Pipeline Replacement/Parallel Piping	8	40	77	<1	3	3
Single-Site Maximum	8	42	77	<1	3	3
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Source: Calculations by ICF International 2016 (see Appendix C).						

However, as shown in Table 4.3-12, the 2018 emissions for the full construction scenario of 10 relining sites, two new valve/meter vaults, three relocations of air-release/vacuum valves, and a 1,000-foot section of parallel piping occurring at the same time with the phases with the greatest emissions overlapping would result in exceedances of regional mass emissions thresholds for VOC, CO, and NO_X. This would be a significant air quality impact.

Table 4.3-12. 2018 Daily Regional Mass Emissions for Full Construction Scenario (pounds per day)

	VOC	CO	NO_X	SO_X	PM10	PM2.5
Typical Excavation Site	74	372	604	1	31	30
Typical New Valve/Meter Vault Structure	16	85	127	<1	7	6
Typical Below Grade Air-release/Vacuum Valve Relocation	21	96	175	<1	8	7
Pipeline Replacement/Parallel Piping	8	40	77	<1	3	3
Single-Site Maximum	118	593	983	1	48	47
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*
Source: Calculations by ICF International 2016 (see Appendix C).						

With the implementation of MM AIR-1, impacts would be reduced to the levels shown in Table 4.3-13, but exceedances of the thresholds would occur for CO and NO_X.

Table 4.3-13. Mitigated Daily 2018 Regional Mass Emissions for Full Construction Scenario (pounds per day)

	VOC	CO	NO_X	SO_X	PM10	PM2.5
Typical Excavation Site (10)	43	372	129	1	5	5
Typical New Valve/Meter Vault Structure (2)	9	85	27	<1	1	1
Typical Below Grade Air-release/Vacuum Valve Relocation (3)	10	96	22	<1	1	1
Pipeline Replacement/ Parallel Piping (1,000 feet)	5	40	30	<1	1	1
Total for All Sites	68	593	208	1	9	8
Regional Mass Emissions Threshold	75	550	100	150	150	55
Total Exceeds Threshold?	*No*	*Yes*	*Yes*	*No*	*No*	*No*
Source: Calculations by ICF International 2016 (see Appendix C).						

As shown in Table 4.3-14, regional mass emissions would be reduced in each modeled year after 2018, but would remain significant through 2022 for CO and NO_X.

Table 4.3-14. Mitigated Daily Regional Mass Emissions for Full Construction Scenario (pounds per day)

	VOC	CO	NO_X	SO_X	PM10	PM2.5
2018 Total for All Sites	68	593	208	1	9	8
2019 Total for All Sites	62	584	193	1	8	7
2020 Total for All Sites	57	578	179	1	7	6
2021 Total for All Sites	53	572	164	1	7	6
2022 Total for All Sites	50	568	153	1	6	5
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	*No*	*Yes*	*Yes*	*No*	*No*	*No*
Source: Calculations by ICF International 2016 (see Appendix C).						

Localized Emissions

Localized emissions would result from those activities that would occur at a given site and in the immediate vicinity. Only on-site construction equipment and idling of truck trips required for hauling are considered, as all but a few of the emissions of on-road vehicles would occur away from the site. Due to the linear nature of the proposed program and the fact that sites would be spread out along the alignment, the emissions of single sites are considered in isolation of one another. Table 4.3-15 shows the on-site emissions for each of the modeled elements of the proposed program, which indicates that the LSTs would be exceeded for NO_X and PM2.5. This would be a significant impact.

Table 4.3-15. 2018 Daily Localized Emissions for Single Sites (pounds per day)

	VOC	CO	NO_X	SO_X	PM10	PM2.5
Typical Excavation Site	7	37	58	<1	3	3
Typical New Valve/Meter Vault Structure	8	42	61	<1	3	3
Typical Below Grade Air-release/Vacuum Valve Relocation	7	32	57	<1	2	2
Pipeline Replacement/Parallel Piping	7	36	57	<1	3	3
Single-Site Maximum	8	42	61	<1	3	3
Regional Mass Emissions Threshold	N/A	231	46	N/A	4	3
Single Site Exceeds Threshold?	*N/A*	*No*	*Yes*	*N/A*	*No*	*Yes*
Notes: 1-acre site and 25-meter receptor distances in SRA No. 12 South Central LA County are used, which have the most stringent LSTs; no LSTs have been established for VOC and SO_X. Source: Calculations by ICF International 2016 (see Appendix XXC).						

As shown in Table 4.3-16, with implementation of MM AIR-1, no exceedances of the LSTs would occur. Because no exceedances of the LSTs would occur in the mitigated 2018 condition, construction in the years following 2018 would also not exceed the LSTs, as newer, cleaner equipment would replace older, higher-emitting equipment.

Table 4.3-16. 2018 Mitigated Daily Localized Emissions for Single Sites (pounds per day)

	VOC	CO	NO_X	SO_X	PM10	PM2.5
Typical Excavation Site	4	37	10	<1	<1	<1
Typical New Valve/Meter Vault Structure	4	42	11	<1	1	1
Typical Below Grade Air-release/Vacuum Valve Relocation	3	32	6	<1	<1	<1
Pipeline Replacement/Parallel Piping	4	36	10	<1	<1	<1
Single-Site Maximum	4	42	11	<1	1	1
Regional Mass Emissions Threshold	N/A	231	46	N/A	4	3
Single Site Exceeds Threshold?	*N/A*	*No*	*No*	*N/A*	*No*	*No*

Notes: 1-acre site and 25-meter receptor distances in SRA No. 12 South Central LA County are used, which have the most stringent LSTs; no LSTs have been established for VOC and SO_X.
Source: Calculations by ICF International 2016 (see Appendix C).

Mitigation Measures

Implementation of MM AIR-1.

Residual Impacts

Impacts that would result from the proposed program would be significant. Implementation of MM AIR-1 would reduce these impacts; however, residual impacts would still be significant and unavoidable.

Threshold AQ-C: Result in a Cumulatively Considerable Net Increase in Any Criteria Pollutant for Which the Region Is in Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard

As discussed under Threshold AQ-B above, implementation of the proposed program would result in exceedances of the regional mass emission thresholds for CO and NO_X. With implementation of mitigation, these impacts would be reduced, but would remain significant and unavoidable.

Mitigation Measures

Implementation of MM AIR-1.

Residual Impacts

Impacts that would result from the proposed program would be significant. Implementation of MM AIR-1 would reduce these impacts; however, residual impacts would still be significant and unavoidable.

Threshold AQ-D: Expose Sensitive Receptors to Substantial Pollutant Concentrations

With regard to criteria pollutant emissions, the localized significance threshold analysis shown in Table 4.3-16 demonstrates that impacts would be significant with the implementation of MM AIR-1.

Mitigation Measures

Implementation of MM AIR-1.

Residual Impacts

Impacts that would result from the proposed program would be significant. Implementation of MM AIR-1 would reduce these impacts; however, residual impacts would still be significant and unavoidable.

Threshold AQ-F: Create Objectionable Odors that Would Affect a Substantial Number of People

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment facilities, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities. Rehabilitation includes none of these land uses. During the rehabilitation process, some limited odor may result from asphalt paving activities, which may be detectable by people immediately adjacent to work sites. However, asphalt paving would occur for a limited time period at each excavation site (less than 1 week), and the locations of paving activities would be distributed over several excavation sites along the entire alignment. Furthermore, SCAQMD Rule 402 prohibits the discharge of air contaminants that cause nuisance or annoyance to the public, including odors. Also SCAQMD maintains both a toll-free phone line (1-800-CUT-SMOG) and a web-based platform (http://www.aqmd.gov/contact/complaints) for reporting complaints related to air quality, including odors. Given the limited duration and location of asphalt paving, mandatory compliance with SCAQMD Rule 402, and ability for the public to report complaints to SCAQMD, rehabilitation would not create a significant level of objectionable odors. Impacts would be less than significant

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

4.3.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

Because the proposed program would exceed regional mass thresholds that have been developed to bring the Basin into attainment for all criteria pollutants and emissions would remain in excess of those thresholds with implementation MM AIR-1, impacts would be cumulatively considerable. The proposed program would comply with all applicable SCAQMD rules and regulations, including Rule 403 (Fugitive Dust Control) and Rule 1108 (Cutback Asphalt), during construction as well as all

other adopted AQMP emissions control measures to minimize emissions and impacts on nearby sensitive receptors.

Section 4.4
Biological Resources

4.4.1 Introduction

This section describes the existing conditions for biological resources, the regulatory framework associated with biological resources, the impacts on biological resources that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant biological resources impacts.

4.4.2 Existing Conditions

The study area for biological resources is the pipeline easements or rights-of-way and 0.25 mile on either side of the alignments (a half-mile corridor). Figures 4.4-1 through 4.4-5 show the biological resources study area and areas with potential for significant biological resources within these study areas.

4.4.2.1 Allen-McColloch Pipeline

The Allen-McColloch Pipeline alignment begins near the east side of the Robert B. Diemer Water Treatment Plant (Diemer Plant) and travels eastward and southward through an area of open space, a golf course, and undeveloped utility easements until it reaches Yorba Linda Boulevard. From this point until it crosses under the Santa Ana River, the pipeline is below street rights-of-way. Where the Allen-McColloch Pipeline crosses under the Santa Ana River, the river is a managed soft-bottomed channel used for flood control and groundwater recharge. After crossing the river, the alignment is again within street rights-of-way and developed areas until it crosses State Route 91 (SR-91). South of SR-91, the alignment is under increasingly larger areas of open space, first just small, isolated undeveloped areas and then mostly undeveloped open space between approximately State Route 261 (SR-261) and Alton Parkway. Past Alton Parkway, the alignment is within some open space areas, but also street rights-of-way. Once it reaches Trabuco Road, it is mostly in street rights-of-way until its southern terminus.

Special-status Species

Special-status species are plants or animals that are legally protected under the federal Endangered Species Act (FESA), California Endangered Species Act (CESA), California Native Plant Protection Act, or other regulations; for example, species that meet the definitions of rare, threatened, or endangered under State CEQA Guidelines Sections 15380 and 15125. Special-status species may also include species considered sufficiently rare by the scientific community.

Appendix D contains a list of the potential special-status species for Orange County from the California Natural Diversity Database. It is likely that a few of these species are found in the Allen-McColloch Pipeline study area. For example, California black walnut (*Juglans californica*), coastal cactus wren (*Campylorhynchus brunneicapillus couesi*), and coastal California gnatcatcher (*Polioptila californica californica*) are known to occur at the Diemer Plant (Metropolitan 2015). Special-status

species may also exist in open space areas in Orange, Tustin, Irvine, Lake Forest, and Mission Viejo. However, most of the species on this list would have low potential to occur and are not expected due to the lack of suitable habitat or other factors.

Riparian Habitat and Other Sensitive Natural Communities

A riparian area consists of the transitional habitat between terrestrial and aquatic ecosystems. Specifically, riparian areas are the vegetated areas between a seasonal riverine feature and the outer drip line of the adjacent vegetation. Riparian vegetation supports a unique set of physical and biological processes, including temperature regulation and wildlife habitat, and provides valuable aquatic food web services (inputs for nutrient cycling and food availability) to adjacent aquatic ecosystems. Riparian areas can be wetlands or nonwetland areas.

Special-status plant communities (also referred to as sensitive natural communities) are plant communities that are of limited distribution statewide or within a county or region, and that are often vulnerable to the environmental impacts of projects.

The Allen-McColloch Pipeline crosses under the Santa Ana River, Santiago Creek, Borrego Canyon Wash, Serrano Creek, Aliso Creek, and smaller unnamed washes (see Figure 4.4-1). It also passes near Peters Canyon Reservoir. Most of these drainages have soft bottoms at the point where the pipeline crosses under them, though riparian vegetation is very limited because the channels are managed for flood control and groundwater recharge. Other sensitive natural communities are known to exist within the Allen-McColloch Pipeline study area. For example, there are areas of coastal sage scrub, southern cactus scrub, California walnut woodland, mulefat scrub, and southern willow scrub known to occur at the Diemer Plant property (Metropolitan 2015). These and other sensitive natural communities may also occur elsewhere in the Allen-McColloch Pipeline study area, especially where the pipeline crosses under large areas of open space, south and east of SR-261.

Wetlands

Wetlands and other waters are regulated by the federal government (U.S. Army Corps of Engineers) and the State of California (State Water Resources Control Board and California Department of Fish and Wildlife [CDFW]).

The federal Clean Water Act (CWA) (33 U.S.C. § 1251 et seq.) defines *waters of the U.S.* as follows: (1) all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce; (4) all impoundments of waters otherwise defined as waters of the U.S.; (5) tributaries to the foregoing types of waters; and (6) wetlands adjacent to the foregoing waters (33 C.F.R. § 328.3(a)). Wetlands are a sub-classification of waters of the U.S. The term *other waters of the U.S.* is used to describe waters of the U.S. exclusive of wetlands.

According to the *Corps of Engineers Wetland Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008), three criteria must be satisfied to classify an area as a jurisdictional wetland. These criteria are: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to

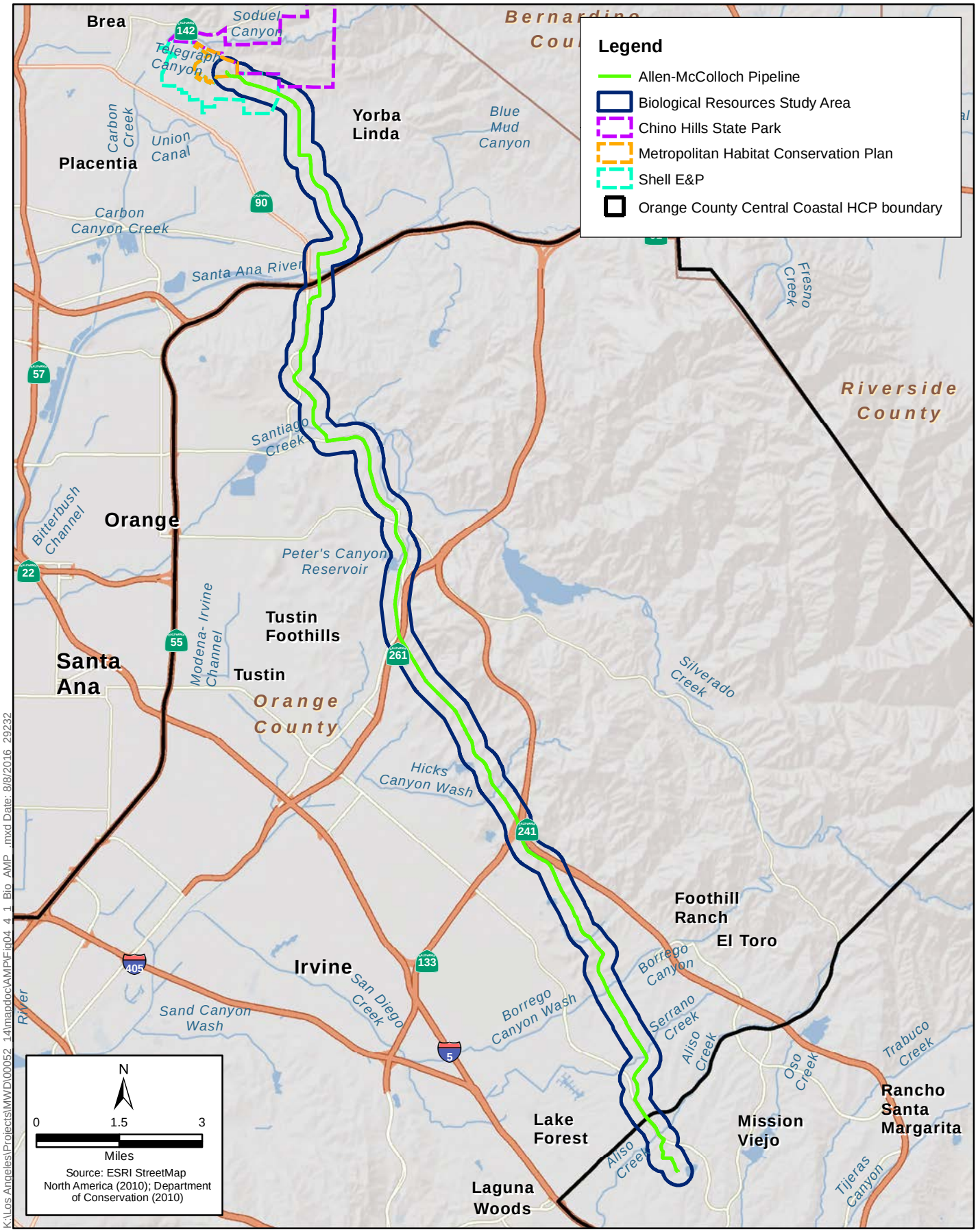


Figure 4.4-1
Allen-McColloch Pipeline Biological Resources
Metropolitan PCCP Program

develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

Waters of the state are broadly defined by the Porter-Cologne Water Quality Control Act (Cal. Water Code, § 13050(e)) to mean any surface water or groundwater, including saline waters within the boundaries of the state. Under this definition, isolated wetlands that may not be subject to regulation under federal law are considered waters of the state and regulated accordingly.

Wetlands and other waters occur along the alignment of the Allen-McColloch Pipeline, particularly where it crosses under the Santa Ana River, Santiago Creek, Borrego Canyon Wash, Serrano Creek, Aliso Creek, and smaller unnamed washes and at the adjacent Peters Canyon Reservoir (see Figure 4.4-1). Each of these channels and the reservoir are blue-line streams. Other wetlands may also occur in the Allen-McColloch Pipeline study area, especially in the undeveloped areas.

Wildlife Movement

Wildlife movement corridors are areas that are used by wildlife for movement on varying scales (e.g., daily foraging, seasonal migration, dispersal) and include areas that have been modeled for specific species based on different physical and biological parameters. Habitat linkages are areas of land used for a variety of purposes that potentially serve as a corridor for movement or migration of wildlife. Habitat linkages aid in the dispersal and distribution of wildlife and are crucial for maintaining healthy populations of multiple species. For the purposes of this section, the term *habitat linkage* is used synonymously with *wildlife movement corridor*.

Wildlife movement corridors are likely to occur at many locations along the Allen-McColloch Pipeline due to its route along the urban edges in Orange County. Wildlife movement often occurs along streams and channels. Wildlife movement and dispersal corridors may exist anywhere the Allen-McColloch Pipeline is located in open space areas, such as golf courses and in undeveloped areas.

Habitat Conservation Plans/Natural Community Conservation Plans

Portions of the Allen-McColloch Pipeline study area are within the Shell E&P and Metropolitan Habitat Conservation Plan (HCP), covering areas on and near the Diemer Plant, and the Central and Coastal Natural Community Conservation Plan (NCCP)/HCP covering areas near the southeastern portion of the Allen-McColloch Pipeline study area (see Figure 4.4-1). Metropolitan is a participant in both these HCPs/NCCPs.

4.4.2.2 Calabasas Feeder

The Calabasas Feeder is in street rights-of-way through developed areas for its entire length, with the exception of a small, isolated area in Hidden Hills where the alignment crosses under and adjacent to a commercial nursery/growing yard.

Special-status Species

Appendix D contains a list of the potential special-status species for Los Angeles County from the California Natural Diversity Database. It is unlikely that any of these species would be found in the Calabasas Feeder study area due to the high level of development throughout the study area.

Riparian Habitat and Other Sensitive Natural Communities

The Calabasas Feeder crosses under Santa Susana Creek, Chatsworth Creek, Bell Creek, and Calabasas Creek. All of these creeks are within concrete channels and there is no riparian habitat associated with these creeks in the study area. No other riparian habitat or other sensitive natural communities are known to exist within the Calabasas Feeder study area (see Figure 4.4-2).

Wetlands

Waters of the U.S./state occur along the alignment of the Calabasas Feeder where the alignment crosses under Santa Susana Creek, Chatsworth Creek, Bell Creek, and Calabasas Creek. However, because these are concrete-lined channels in the study area, there is no possibility that they include wetlands. It is unlikely that other wetlands occur in the Calabasas Feeder study area due to the high level of development.

Wildlife Movement

Wildlife movement corridors are not likely to occur within the Calabasas Feeder study area due to the high level of development.

Habitat Conservation Plans/Natural Community Conservation Plans

There are no HCPs or NCCPs applicable to the Calabasas Feeder study area.

4.4.2.3 Rialto Pipeline

The Rialto Pipeline alignment travels near the base of the San Bernardino Mountains, crossing under many creeks and washes that drain from these mountains. Much of the alignment is near the edge of the expanding urban environment.

The Rialto Pipeline begins in the Devils Canyon area, where it crosses under the edge of the Devils Canyon Percolation Basins. It passes under developed areas before crossing Cable Creek, Cajon Wash, and Lytle Creek, which are natural soft bottom in the Rialto Pipeline study area (see Figure 4.4-3). The alignment then runs under developed areas before crossing under East Etiwanda Creek, Day Creek, and Deer Creek. East Etiwanda Creek is concrete lined in the study area, but Day Creek and Deer Creek are partially natural soft bottom (and partially concrete lined). The alignment then continues under developed areas until it crosses under Cucamonga Creek and San Antonio Creek, which are both concrete lined in the study area. The Rialto Pipeline is again under developed areas until it crosses under Marshall Creek and San Dimas Wash, both of which are natural soft bottom. Near the western end of the Rialto Pipeline, the alignment is under or adjacent to undeveloped foothill areas and golf courses, such as along Webb Canyon Road and San Dimas Canyon Road.

Special-status Species

Appendix D contains a list of the potential special-status species for San Bernardino County and Los Angeles County from the California Natural Diversity Database. It is possible that a few of these species are found in the Rialto Pipeline study area, mainly in the undeveloped areas at the edges of the development and where the alignment crosses creeks and washes. For example, the following species are known to occur within the proposed North Fontana Multi-species Habitat Conservation Plan (MSHCP) (City of Fontana 2004) (see Figure 4.4-3):

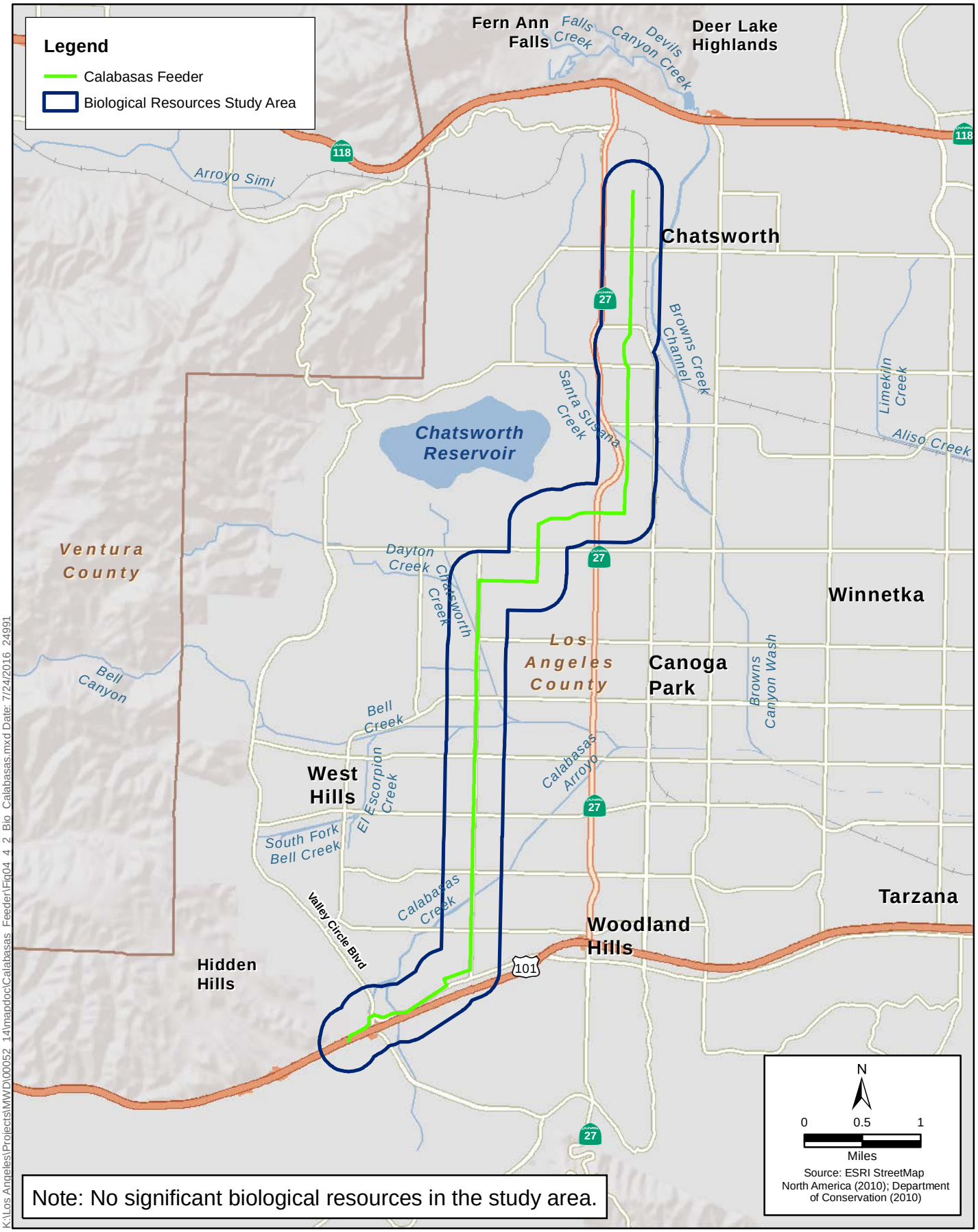


Figure 4.4-2
Calabasas Feeder Biological Resources
Metropolitan PCCP Program

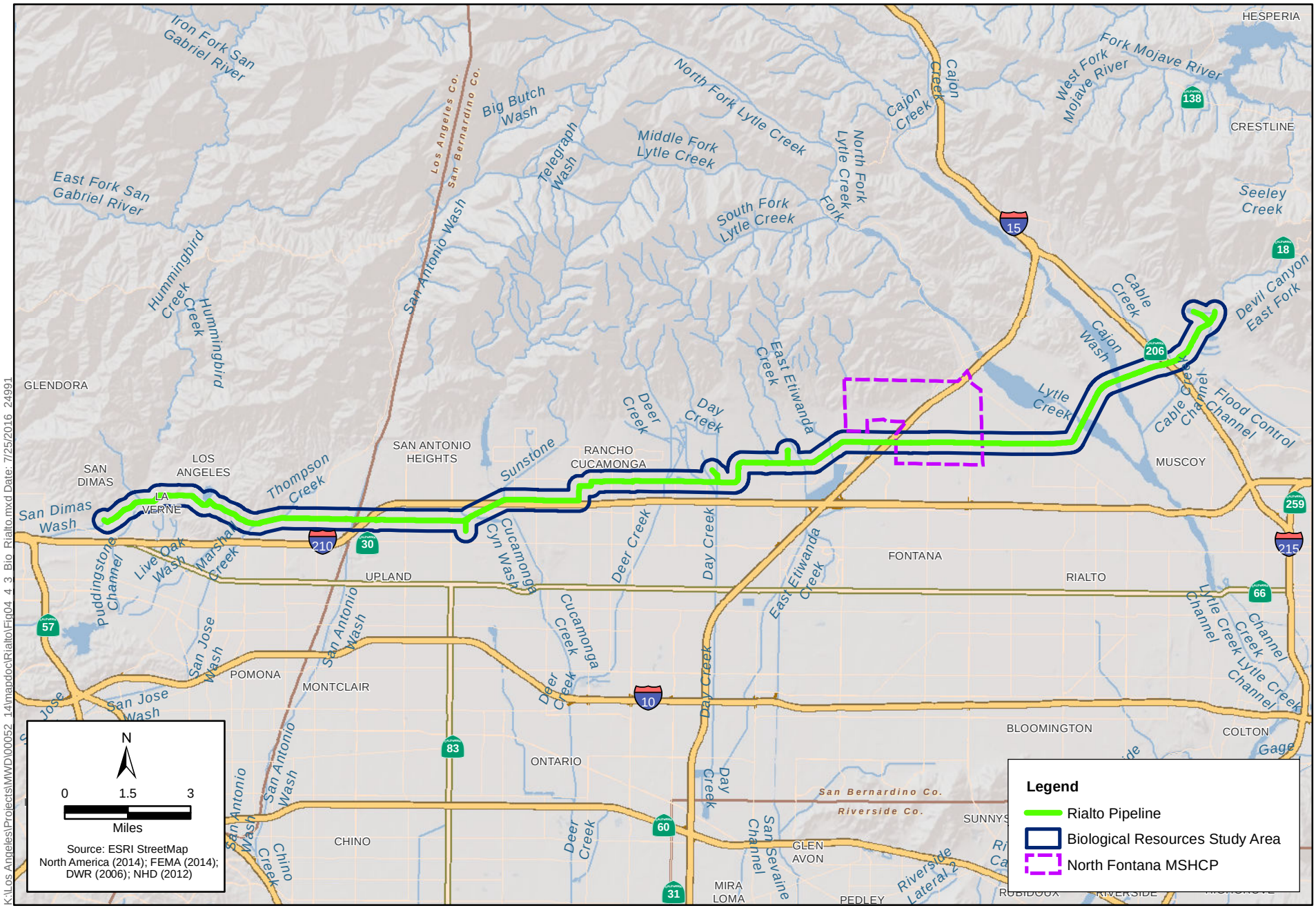


Figure 4.4-3
Rialto Pipeline Biological Resources
Metropolitan PCCP Program

- Slender-horned spineflower (*Dodecahema leptoceras*)
- Plummer's mariposa lily (*Calochortus plummerae*)
- Parry's spineflower (*Chorizanthe parryi* var. *parryi*)
- Lemon lily (*Lilium parryi*)
- San Bernardino kangaroo rat (*Dipodomys merriami parvus*)
- Coastal California gnatcatcher (*Polioptila californica californica*)
- Golden eagle (*Aquila chrysaetos*)
- Cooper's hawk (*Accipiter cooperii*)
- Northern harrier (*Circus cyanus*)
- Burrowing owl (*Athena cunicularia hypogea*)
- Loggerhead shrike (*Lanius ludovicianus*)
- San Diego horned lizard (*Phrynosoma coronatum blainvillii*)
- Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)

Riparian Habitat and Other Sensitive Natural Communities

The Rialto Pipeline crosses under several soft-bottomed (or partially soft-bottomed) creeks and washes, including Cable Creek, Cajon Wash, Lytle Creek, Day Creek, Deer Creek, Marshall Creek, and San Dimas Wash. Each of these has the potential to have riparian habitat along their channels. The Rialto Pipeline also crosses channels that are concrete lined, including East Etiwanda Creek, Cucamonga Creek, and San Antonio Creek. These channels do not host riparian habitat in the study area. Other sensitive natural communities may also exist in the Rialto Pipeline study area, especially in the areas that have not been subject to development. For example, Riversidian alluvial fan scrub and Riversidian sage scrub are known to occur in several areas in the study area, such as the northern portion of Fontana (City of Fontana 2004). These and other sensitive natural communities may also occur elsewhere in the Rialto Pipeline study area, especially where the pipeline crosses under large areas of open space, south and east of SR-261.

Wetlands

Wetlands and other waters occur along the alignment of the Rialto Pipeline, particularly where it crosses under Cable Creek, Cajon Wash, Lytle Creek, Day Creek, Deer Creek, Marshall Creek, and San Dimas Wash, all of which are partially or fully natural, soft-bottom channels through the study area. Other wetlands may also occur in the Rialto Pipeline study area, especially in the undeveloped areas.

Wildlife Movement

Wildlife movement corridors are likely to occur at many locations along the Rialto Pipeline due to its route along the urban edges in San Bernardino and Los Angeles counties. Wildlife movement often occurs along streams and channels. Wildlife movement and dispersal corridors may exist anywhere the Rialto Pipeline is located in open space areas, such as golf courses and in undeveloped areas.

Habitat Conservation Plans/Natural Community Conservation Plans

Portions of the Rialto Pipeline study area are within the proposed North Fontana MSHCP. The City of Fontana has prepared and submitted an MSHCP. While the MSHCP is being processed, the City of Fontana has issued the North Fontana Interim MSHCP Policy that is consistent with the intent and direction of the proposed MSHCP (City of Fontana 2004). The Rialto Pipeline travels through portions of the lands covered by the interim policy and the proposed MSHCP between approximately Sierra Avenue and Cherry Avenue in the city of Fontana. Metropolitan is not a participant in the MSHCP.

4.4.2.4 Second Lower Feeder

The Second Lower Feeder is in mostly urban areas, in street rights-of-way and other developed areas. It does, however, cross short distances of undeveloped or natural areas especially near the northeastern and southwestern termini, as described below.

The Second Lower Feeder begins on the southern side of the Diemer Plant and travels westward and southward through a golf course before entering a developed area in Yorba Linda and other cities in Orange and Los Angeles counties. In Anaheim, it crosses under the Anaheim Union Channel. This channel is concrete lined in the Second Lower Feeder study area. Also in Anaheim, it crosses under Carbon Creek twice, which is riprap lined or riprap and concrete lined in the study area. Near the Los Angeles County line, the pipeline crosses under the concrete-lined Coyote Creek. In Los Angeles County, the alignment crosses under Artesia-Norwalk Drain, San Gabriel River, an unnamed drainage, Los Angeles River, and Dominguez Channel Estuary, all of which are concrete-lined channels in the study area.

Just east of its San Gabriel River crossing, the Second Lower Feeder alignment passes adjacent to and through a large urban park, El Dorado Regional Park, a landscape with mostly nonnative plants. In Long Beach, the alignment is adjacent to a small urban park and the Skylinks Golf Course. Just east of the Los Angeles River, the Second Lower Feeder passes near and under a small urban park. Near its southwestern terminus, the pipeline is adjacent to golf courses and open space, including a small nature park in Rolling Hills Estates.

Special-status Species

Appendix D contains a list of the potential special-status species for Orange and Los Angeles counties from the California Natural Diversity Database. It is likely that a few of these species are found in the Second Lower Feeder study area. For example, California black walnut, coastal cactus wren, and coastal California gnatcatcher are known to occur at the Diemer Plant (Metropolitan 2015) (see Figure 4.4-4). However, most of the species on this list would have low potential to occur and are not expected due to the lack of suitable habitat or other factors.

Riparian Habitat and Other Sensitive Natural Communities

The Second Lower Feeder crosses under creeks, rivers, and channels. All of these water features are within concrete and/or riprap channels and there is no riparian habitat associated with the water features in the study area. Other sensitive natural communities are known to exist within the Second Lower Feeder study area. For example, there are areas of coastal sage scrub, southern

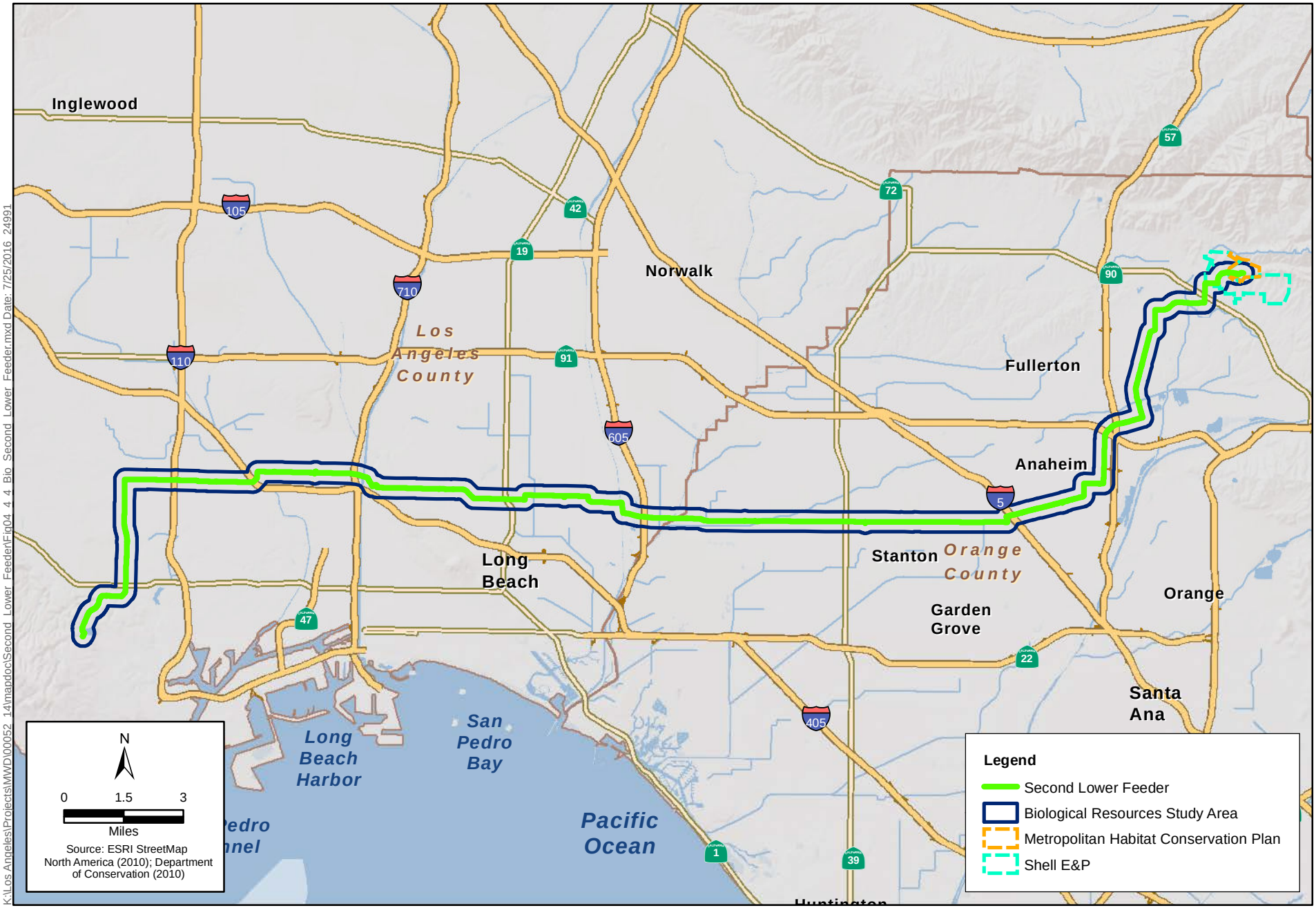


Figure 4.4-4
Second Lower Feeder Biological Resources
Metropolitan PCCP Program

cactus scrub, California walnut woodland, mulefat scrub, and southern willow scrub known to occur at the Diemer Plant property (Metropolitan 2015).

Wetlands

Waters of the U.S./state occur along the alignment of the Second Lower Feeder where it crosses under several creeks, rivers, and other channels. However, because these are concrete-lined and/or riprap-lined channels in the study area, there is no possibility that they include wetlands. It is possible that isolated wetlands may occur in the limited open spaces in the study area.

Wildlife Movement

The potential for wildlife movement corridors to occur in the Second Lower Feeder study area is limited. Only at the northeastern end, on the Diemer Plant property and the adjacent golf course, and near the southwestern end where the alignment is adjacent to somewhat connected open spaces, is there much opportunity for wildlife movement or dispersion. Elsewhere, the small amounts of open space are too isolated for wildlife movement. Creeks and rivers within this corridor are all concrete and/or riprap lined, making them ineffective for wildlife movement.

Habitat Conservation Plans/Natural Community Conservation Plans

Portions of the Second Lower Feeder study area are within the Shell E&P and Metropolitan HCP, covering areas on and near the Diemer Plant. Metropolitan is a participant in this HCP.

4.4.2.5 Sepulveda Feeder

The majority of the study area for the Sepulveda Feeder is in urbanized areas with few biological resources. However, there are exceptions, as discussed below.

Near its northern end, the Sepulveda Feeder passes under portions of the Knollwood Golf Course. It also passes by a sod farm, just north of State Route 118 (SR-118). Farther south, after crossing under Interstate 405 (I-405), the Sepulveda Feeder crosses under a portion of the Westridge-Canyonback Wilderness Park (see Figure 4.4-5). After crossing I-405 again, the alignment is adjacent to Los Angeles National Cemetery. In the city of Hawthorne, the Sepulveda Feeder runs under Van Ness Avenue, adjacent to the Chester Washington Golf Course.

The Sepulveda Feeder crosses the Los Angeles River and the Dominguez Channel. Both waterways are concrete lined in the Sepulveda Feeder study area. Another waterway in the study area, Bull Creek, is channelized underground in the study area.

Special-status Species

Appendix D contains a list of the potential special-status species for Los Angeles County from the California Natural Diversity Database. It is unlikely that any of these species would be found through most of the alignment in the Sepulveda Feeder study area due to the high level of development throughout the study area. However, the large Westridge-Canyonback Wilderness Park in the middle of the alignment has over 1,500 acres in which special-status species could occur.

Riparian Habitat and Other Sensitive Natural Communities

Except in the large Westridge-Canyonback Wilderness Park in the middle of the alignment, there is little opportunity for sensitive natural communities to occur in the Sepulveda Feeder study area. The remainder of the alignment is urbanized, with the alignment being usually in street rights-of-way. The only other location where the alignment is not in street rights-of-way is in the Knollwood Golf Course, which is a heavily managed nonnative landscape, with little opportunity for riparian or sensitive natural communities.

Wetlands

Except in the Knollwood Golf Course near the northern end of the Sepulveda Feeder and the large Westridge-Canyonback Wilderness Park in the middle of the alignment, wetlands are not likely to occur in the Sepulveda Feeder study area. The alignment does cross waters of the U.S/state (Bull Creek, Los Angeles River, and Dominguez Channel), but there are no wetlands associated with these concrete channels.

Wildlife Movement

Except in the large Westridge-Canyonback Wilderness Park and possibly the Knollwood Golf Course, there is little opportunity for wildlife movement to occur in the Sepulveda Feeder study area. However, these two locations may provide valuable wildlife movement and dispersal corridors in the otherwise urbanized environment.

4.4.3 Regulatory Framework

This section describes the plans, policies, and regulations related to biological resources that are applicable to the proposed program.

4.4.3.1 Federal

Federal Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.)

The FESA of 1973 provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The FESA regulates federally listed endangered or threatened wildlife and plant species, proposed listed species, and critical habitat. A species is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become an endangered species within the foreseeable future.

Clean Water Act (33 U.S.C. § 1251 et seq.)

The federal CWA of 1977, which amended the federal Water Pollution Control Act of 1972, establishes the basic structure for regulating discharges of pollutants into waters of the U.S. (not including groundwater). The CWA delegates authority to the U.S. Environmental Protection Agency to implement pollution control programs. Under the CWA, it is unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a National Pollutant Discharge Elimination System permit is obtained and implemented within compliance. In addition, the CWA

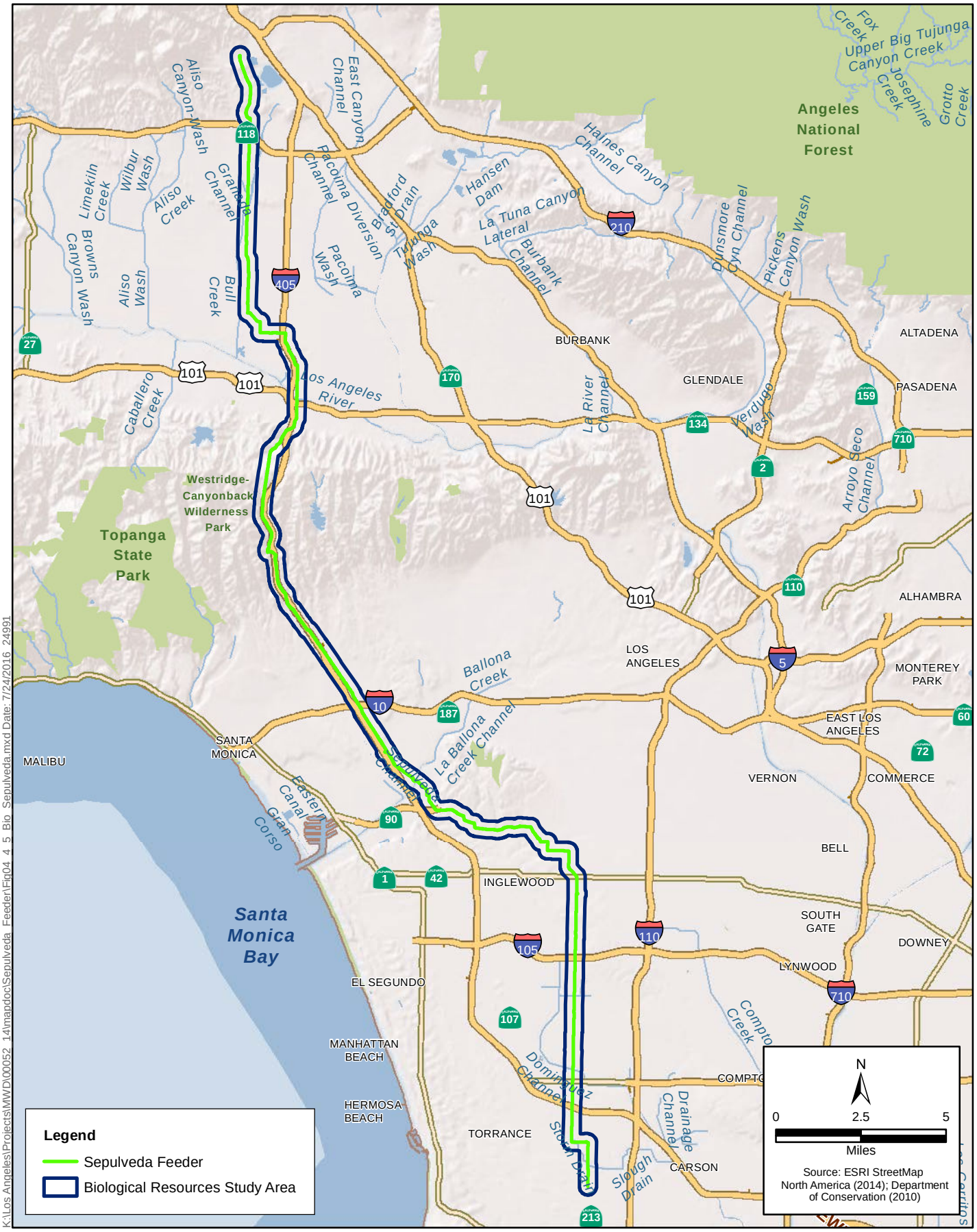


Figure 4.4-5
Sepulveda Feeder Biological Resources
Metropolitan PCCP Program

requires the states to adopt water quality standards for receiving water bodies and to have those standards approved by the U.S. Environmental Protection Agency. Water quality standards consist of designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing), along with water quality criteria necessary to support those uses.

Migratory Bird Treaty Act (16 U.S.C. §§ 703–712)

The Migratory Bird Treaty Act (MBTA) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The regulatory definition of "migratory bird" is broad and includes any mutation or hybrid of a listed species, as well as any part, egg, or nest of such bird. Migratory birds are not necessarily federally listed as endangered or threatened birds under the FESA. The MBTA makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird or attempt such actions, except as permitted by regulation.

4.4.3.2 State

California Fish and Game Code

Several sections of the California Fish and Game Code are applicable to the proposed program, as described below.

California Endangered Species Act (Cal. Fish and Game Code, §§ 2050–2085)

The CESA is similar to the main provisions of the FESA and is administered by CDFW. Under the CESA, the term *endangered species* is defined as a species of plant, fish, or wildlife that is "in serious danger of becoming extinct throughout all, or a significant portion of, its range," and is limited to species or subspecies native to California. The CESA prohibits the take (hunt, pursuit, catch, capture, kill, or attempt to hunt, pursue, catch, capture, or kill) of listed species except as otherwise provided in state law. Unlike its federal counterpart, the CESA also applies the take prohibitions to species petitioned for listing (state candidates).

Fully Protected Species Act (Cal. Fish and Game Code, §§ 3511, 4700, 5050, and 5515)

The classification of "fully protected" was the state's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles, and birds. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Bird Protections (Cal. Fish and Game Code, § 3503, 3503.5, and 3513)

California Fish and Game Code Section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders of *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy their nests or eggs. Section 3513 makes it unlawful to take or possess any migratory nongame bird as designated in the federal MBTA or any part of such migratory nongame bird.

Lake and Streambed Alteration (Cal. Fish and Game Code, § 1600 et seq.)

Under California Fish and Game Code Section 1602, CDFW has authority to regulate work that will substantially divert or obstruct the natural flow of or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake. CDFW also has authority to regulate work that will deposit or dispose of debris, water, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to any person, state or local governmental agency, or public utility. CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of definable bed and banks and existing fish or wildlife resources.

California Native Plant Protection Act (Cal. Fish and Game Code, §§ 1900–1913)

The Native Plant Protection Act of 1977 gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The CESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the California Fish and Game Code. To align with federal regulations, the CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals to threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered.

4.4.3.3 Local

Many cities and counties in the biological resources study area have land codes requiring protection of trees and other vegetation in their jurisdictions (Appendix X). Most call for tree removal permits and replacement.

4.4.4 Thresholds and Methodology

4.4.4.1 Thresholds of Significance

Table 4.4-2 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to biological resources. It indicates which impacts must be analyzed in the PEIR for the proposed program.

Table 4.4-1. CEQA Thresholds for Biological Resources

Threshold *Would the proposed program:*
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Threshold *Would the proposed program:*
c. Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal areas, etc.), through direct removal, filling, hydrological interruption, or other means?
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites?
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

4.4.4.2 Methodology

Special-status Species

Potential for special-status species and habitat for special-status species to occur is identified in Section 4.4.2. Potential impacts on special-status species from rehabilitations projects in the proposed program are identified in this analysis. Mitigation measures are included as necessary to reduce impacts and/or require further analysis when specific project locations and activities are known.

Riparian Habitat and Other Sensitive Natural Communities

Potential for riparian habitat and other sensitive natural communities to occur is identified in Section 4.4.2. Potential impacts on these habitats and communities from rehabilitation projects in the proposed program are identified in this analysis. Mitigation measures are included as necessary to reduce impacts and/or require further analysis when specific project locations and activities are known.

Wetlands

Potential for wetlands to occur is identified in Section 4.4.2. Potential impacts on wetlands from rehabilitation projects in the proposed program are identified in this analysis. Mitigation measures are included as necessary to reduce impacts and/or require further analysis when specific project locations and activities are known.

Wildlife Movement

Potential for wildlife movement corridors to occur within or be crossed by the study area is identified in Section 4.4.2. This biological analysis addresses whether rehabilitation projects in the proposed program could result in impacts on wildlife movement in these corridors or elsewhere. Mitigation measures are included as necessary to reduce impacts and/or require further analysis when specific project locations and activities are known.

Local Policies Protecting Biological Resources

The biological analysis addresses the proposed program's consistency with local policies, in particular local tree ordinances, and includes any mitigation required to reduce impacts and/or require further analysis when specific project locations and activities are known.

It should be noted that California Government Code Section 53091 exempts Metropolitan, as a regional public water purveyor and utility, from local zoning and building ordinances. This exemption applies to the pipeline infrastructure included in the proposed program because they are water transmission pipelines and a direct component of Metropolitan's treatment, storage, and transmission system. Despite this exemption from local land use planning jurisdiction, for purposes of full disclosure of potential impacts on the environment, this PEIR evaluates proposed program compatibility with relevant general plan policies of the cities along the pipeline alignments.

HCPs and NCCPs

HCPs or NCCPs potentially applicable to the study area are identified in Section 4.4.2. Impacts that may occur during rehabilitation projects under the proposed program are identified in this analysis. Mitigation measures are included as necessary to reduce impacts and/or require further analysis when specific project locations and activities are known.

4.4.5 Impacts Analysis

4.4.5.1 Program Analysis

Threshold BIO-A: Have a Substantial Adverse Effect, either Directly or through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-status Species in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service

Special-status species have the potential to occur in certain locations in the study areas for most of the pipelines. The areas most likely to include special-status species are listed below, but there is also potential for special-status species to occur in other areas along the pipelines.

- **Allen-McColloch Pipeline:** Diemer Plant and Black Hills Golf Course, especially within covered areas of the Shell E&P and Metropolitan HCP; open space areas in Orange, Tustin, Irvine, Lake Forest, and Mission Viejo, especially within covered areas of the Central Coastal NCCP/HCP.
- **Calabasas Feeder:** low potential throughout.
- **Rialto Pipeline:** Within undeveloped areas throughout, especially in the North Fontana MSHCP area.
- **Second Lower Feeder:** Diemer Plant and Black Hills Golf Course, especially within covered areas of the Shell E&P and Metropolitan HCP; open space areas near the southwestern terminus of the Second Lower Feeder.
- **Sepulveda Feeder:** Knollwood Golf Course; Westridge-Canyonback Wilderness Park.

Various rehabilitation activities could affect special-status species or their habitats. Vegetation clearing and excavation could remove habitat or individuals. Excavation, ground clearing, equipment and materials storage, access routes, and other activities could result in impacts on runoff and/or water quality, potentially affecting habitat. Excavation, ground clearing, and access routes could result in air quality impacts (dust, exhaust) that could affect adjacent individuals. Equipment or construction-related traffic could introduce hazardous materials into habitats. Equipment and construction-related traffic could result in noise impacts affecting noise-sensitive species. Equipment and construction personnel could also introduce harmful, noxious, and/or invasive species that could damage habitats (such as by tracking in weed seeds). Any of these effects could result in significant impacts on special-status species, but the level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measure MM BIO-1 may reduce these impacts, but potentially not to less-than-significant levels.

Even in fully developed areas, rehabilitation activities have the potential to result in impacts on protected species. Migratory birds, including most birds that nest in the study area, are protected by the federal MBTA, which forbids most forms of harm to birds, including to their active nests. In addition, California Fish and Game Code Section 3503 makes it unlawful to destroy nests or eggs of any bird. Where vegetation, and especially trees, is removed as part of construction, there is the potential for violations under the MBTA and Section 3503 of the California Fish and Game Code, which would be a significant impact, but the level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of MM BIO-2 may reduce this impact, but potentially not to a less-than-significant level.

Mitigation Measures

MM BIO-1 Take of Special-Status Species.

For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 300 feet of unpaved areas (except for landscaped developed areas) and that contain special-status species, a qualified biologist will visit the site ~~to determine if any special-status species have the potential to occur on the site~~. If the biologist determines that special-status species may occur, preconstruction surveys for special-status plants and/or wildlife will be completed prior to any construction and consultation with the appropriate resource agency will occur (U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife), if necessary, to determine measures to address impacts such as avoidance, minimization, restoration, or compensation.

MM BIO-2 Impacts on Nesting Birds.

For any projects within the program that require vegetation removal during the nesting season for sensitive species protected by the Migratory Bird Treaty Act and California Fish and Game Code Section 3513, including street trees and other landscaping, a qualified biologist will inspect the vegetation to be removed no more than 10 days prior to tree/vegetation removal to determine whether nesting birds are present. If a nest is found, the biologist will determine the site-specific measures necessary to avoid disturbing the nest until nesting activity has ceased. ~~including avoidance of the nest and establishment of an adequate buffer. Construction within the buffer area will not occur until the biologist has verified that nesting activity has ceased.~~

Nothing in this mitigation measure precludes the use of deterrent measures to prevent bird nesting.

Residual Impacts

Impacts that would result from the proposed program may be significant, but the severity or location of the impacts cannot be determined at this time. Implementation of MM BIO-1 and MM BIO-2 may reduce any potential significant impacts; however, residual impacts may still be significant and unavoidable. Further environmental analysis and documentation is necessary prior to construction to determine if a significant impact would occur and if mitigation would reduce the impact to a less-than-significant level.

Threshold BIO-B: Have a Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service

Riparian habitats and other sensitive natural communities are limited in the study area for the proposed program. The areas most likely to include riparian habitats or other sensitive natural communities are listed below, but there is also the potential for isolated areas of riparian habitat to occur in other areas along the pipelines.

- **Allen-McColloch Pipeline:** Diemer Plant and Black Hills Golf Course, especially within covered areas of the Shell E&P and Metropolitan HCP; open space areas in Orange, Tustin, Irvine, Lake Forest, and Mission Viejo, especially within covered areas of the Central Coastal NCCP/HCP.
- **Calabasas Feeder:** low potential throughout.
- **Rialto Pipeline:** Within undeveloped areas throughout.
- **Second Lower Feeder:** Diemer Plant and Black Hills Golf Course, especially within covered areas of the Shell E&P and Metropolitan HCP; open space areas near the southwestern terminus of the Second Lower Feeder.
- **Sepulveda Feeder:** Westridge-Canyonback Wilderness Park.

Various rehabilitation activities could affect riparian habitats and other sensitive natural communities. Vegetation clearing and excavation could remove habitat. Excavation, ground clearing, equipment and materials storage, access routes, and other activities could result in impacts on runoff and/or water quality, potentially affecting habitat. Excavation, ground clearing, and access routes could result in air quality impacts (dust, exhaust) that could affect adjacent habitat. Equipment or construction-related traffic could introduce hazardous materials into habitats. Equipment and construction personnel could also introduce harmful, noxious, and/or invasive species that could damage habitats (such as by tracking in weed seeds). Any of these effects could result in significant impacts on riparian habitats or sensitive natural communities, but the level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measures MM BIO-3 and MM BIO-4 may reduce these impacts, but potentially not to less-than-significant levels.

Mitigation Measures

MM BIO-3 Adverse Impacts on Riparian Habitat.

For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (except for landscaped developed areas) which contain riparian vegetation, a qualified biologist will visit the site to conduct pre-construction surveys ~~determine if any riparian habitat is present at the site~~. If the biologist determines that riparian vegetation is present, then habitat areas will be mapped and flagged for avoidance, or other measures will be taken, including applying for appropriate regulatory permits, as required ~~to protect the habitat, as appropriate~~.

MM BIO-4 Adverse Impacts on Sensitive Natural Communities.

Removal of or adverse impacts on sensitive natural communities will be minimized for rehabilitation projects in the program, except in accordance with adopted HCPs/NCCPs to which Metropolitan is a party for covered areas and covered activities. For such covered activities, Metropolitan will coordinate with the appropriate resource agencies, and Metropolitan's contractors will adhere to all requirements in the applicable plan. For any activities not covered by an adopted HCP/NCCP, the following shall apply:

For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (except for landscaped developed areas) and that contain sensitive natural communities, a qualified biologist will conduct pre-construction surveys ~~visit the site to determine if any sensitive natural communities may be present at the site If the biologist determines that such communities may be present, preconstruction surveys~~ for sensitive natural communities ~~will be required~~ prior to any construction. These surveys will be conducted by a qualified biologist within 100 feet of ground-disturbing activities. If sensitive natural communities are located during the surveys, then habitat areas will be mapped and flagged for avoidance, or other measures will be taken including applying for appropriate regulatory permits, as required ~~to protect the habitat~~.

Residual Impacts

Impacts that would result from the proposed program may be significant, but the severity or location of the impacts cannot be determined at this time. Implementation of MM BIO-3 and MM BIO-4 may reduce any potential significant impacts; however, residual impacts may still be significant and unavoidable. Further environmental analysis and documentation is necessary prior to construction to determine if a significant impact would occur and if mitigation would reduce the impact to a less-than-significant level.

Threshold BIO-C: Have a Substantial Adverse Effect on Federally Protected Wetlands, as Defined by Section 404 of the Clean Water Act, through Direct Removal, Filling, Hydrological Interruption, or Other Means

Wetlands are limited in the study area for the proposed program. The areas most likely to include wetlands are listed below, but there is also the potential for wetlands to occur in other areas along the pipelines.

- **Allen-McColloch Pipeline:** Diemer Plant and Black Hills Golf Course; open space areas in Orange, Tustin, Irvine, Lake Forest, and Mission Viejo.
- **Calabasas Feeder:** low potential throughout.
- **Rialto Pipeline:** Within undeveloped areas throughout.
- **Second Lower Feeder:** Diemer Plant and Black Hills Golf Course; open space areas near the southwestern terminus of the pipeline.
- **Sepulveda Feeder:** Knollwood Golf Course; Westridge-Canyonback Wilderness Park.

Various rehabilitation activities could affect wetlands if present near work areas. Excavation or ground clearing could remove wetlands or place fill in the wetlands, either temporarily or permanently. Excavation, ground clearing, equipment and materials storage, access routes, and other activities could result in impacts on runoff and/or water quality, potentially affecting wetlands. Equipment or construction-related traffic could introduce hazardous materials into wetlands. Equipment and construction personnel could also introduce harmful, noxious, and/or invasive species that could damage wetlands (such as by tracking in weed seeds). Any of these effects could result in significant impacts on wetlands, but the level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measure MM BIO-5 may reduce these impacts, but potentially not to less-than-significant levels.

Mitigation Measures

MM BIO-5 Adverse Impacts on Wetlands.

For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (including large landscaped areas, parks, and golf courses), <u>which contain wetlands,</u> a qualified biologist will visit the site to <u>conduct pre-construction surveys</u> ~~determine if wetlands may be present at the site~~. If the biologist determines that wetlands may be present, preconstruction wetlands jurisdictional delineations will be ~~required~~ <u>performed</u> prior to any construction. These delineations will be conducted by a qualified biologist within 100 feet of ground-disturbing activities. Any jurisdictional wetlands located during the delineations will be mapped and flagged for avoidance <u>or other measures may be taken, including applying for appropriate regulatory permits, as required</u> ~~or other measures will be taken to protect the habitat, as necessary~~.

Residual Impacts

Impacts that would result from the proposed program may be significant, but the severity or location of the impacts cannot be determined at this time. Implementation of MM BIO-5 may reduce any potential significant impacts; however, residual impacts may still be significant and unavoidable. Further environmental analysis and documentation is necessary prior to construction to determine if a significant impact would occur and if mitigation would reduce the impact to a less-than-significant level.

Threshold BIO-D: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors or Impede the Use of Native Wildlife Nursery Sites

Wildlife movement corridors and wildlife dispersal routes have the potential to occur in certain locations in the study areas for most of the pipelines. The areas most likely to include wildlife movement corridors are listed below, but there is also potential for wildlife movement to occur in other areas along the pipelines.

- **Allen-McColloch Pipeline:** Diemer Plant and Black Hills Golf Course; along soft-bottom waterways (but not those lined with concrete); open space areas in Orange, Tustin, Irvine, Lake Forest, and Mission Viejo.
- **Calabasas Feeder:** low potential throughout.
- **Rialto Pipeline:** Within undeveloped areas throughout; along soft-bottom waterways (but not those lined with concrete).
- **Second Lower Feeder:** Diemer Plant and Black Hills Golf Course; El Dorado Regional Park and the adjacent San Gabriel River area; Skylinks Golf Course; open space areas near the southwestern terminus of the Second Lower Feeder.
- **Sepulveda Feeder:** Knollwood Golf Course; sod farm north of SR-118; Los Angeles National Cemetery; Westridge-Canyonback Wilderness Park; Chester Washington Golf Course.

Various rehabilitation activities could affect wildlife movement and dispersal in the vicinity of construction. Vegetation clearing and excavation could remove habitat used by wildlife for safe passage. Excavation, ground clearing, equipment and materials storage, access routes, and other activities could result in impacts on runoff and/or water quality, potentially affecting habitat used for wildlife movement. Excavation, ground clearing, and access routes could result in air quality impacts (dust, exhaust) that could affect habitat used for wildlife movement. Equipment or construction-related traffic could introduce hazardous materials into habitats used for wildlife movement. Equipment and construction-related traffic could result in noise impacts affecting noise-sensitive species, causing them to avoid or divert movement through the affected area. Equipment and construction personnel could also introduce harmful, noxious, and/or invasive species that could damage habitats used for wildlife movement. Nighttime lighting for security or safety could result in impacts on nighttime wildlife movement. Any of these effects could result in significant impacts on wildlife movement, but the level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measure MM BIO-6 may reduce these impacts, but potentially not to less-than-significant levels.

Mitigation Measures

MM BIO-6 Impacts on Wildlife Movement.

For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 300 feet of unpaved areas (except for landscaped developed areas), a qualified biologist will visit the site to determine if any identifiable wildlife movement corridors are present at the site. If the biologist determines that such corridors are present, then wildlife movement corridors will be mapped, flagged, and avoided, or other measures will be taken to protect wildlife movement, as appropriate.

Residual Impacts

Impacts that would result from the proposed program may be significant, but the severity or location of the impacts cannot be determined at this time. Implementation of MM BIO-6 may reduce any potential significant impacts; however, residual impacts may still be significant and unavoidable. Further environmental analysis and documentation is necessary prior to construction to determine if a significant impact would occur and if mitigation would reduce the impact to a less-than-significant level.

Threshold BIO-E: Conflict with Any Local Policies or Ordinances Protecting Biological Resources, Such as a Tree Preservation Policy or Ordinance

Many of the cities and counties along the pipelines in the proposed program have tree preservation policies or ordinances requiring permits for removal of trees, replacement of trees, or other protection for vegetation within their jurisdictions. Rehabilitation activities would require removal of some trees and other vegetation throughout the pipelines, including street trees and other landscaping. Although the program would require contractors to restore construction areas to pre-construction conditions after rehabilitation activities are completed, in some cases this restoration may not be consistent with local tree preservation policies or ordinances, which would be a significant impact. Implementation of Mitigation Measure MM BIO-7 would reduce these impacts to less-than-significant levels.

Mitigation Measures

MM BIO-7 Conflicts with Local Policies Related to Biological Resources.

For any projects within the program that require vegetation removal, Metropolitan will determine if there are any applicable local policies related to biological resources and, if so, coordinate ~~consult~~ with the affected jurisdiction, as necessary, to determine appropriate requirements for vegetation removal and replacement. The contractor will be required to comply with any applicable requirements. Nothing in this mitigation will require the contractor to make improvements beyond the existing condition prior to construction.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM BIO-7 would reduce these impacts so that residual impacts would be less than significant.

Threshold BIO-F: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan

Portions of the existing Allen-McColloch Pipeline and Second Lower Feeder are within the covered area for the Shell E&P and Metropolitan HCP. Metropolitan is a participant in this HCP. Portions of the existing Allen-McColloch Pipeline are in the Central and Coastal NCCP/HCP. Metropolitan is a participant in this NCCP/HCP. Portions of the Rialto Pipeline are within the proposed North Fontana MSHCP, and within the lands addressed by the North Fontana Interim MSHCP Policy. Metropolitan is not a participant in this proposed MSHCP.

Certain construction and maintenance activities are allowed under the Shell E&P and Metropolitan HCP and Central and Coastal NCCP/HCP, and would be allowed under the proposed North Fontana MSHCP (covered activities). However, the types of construction for the proposed program that would occur within the covered lands are not known at this time. Therefore, construction could potentially be inconsistent with the requirements of these plans, which would be a significant impact. Without knowing the location or type of rehabilitation activities in the covered lands, the level of impact and mitigation measures to address these impacts cannot be determined at this time. Also, it cannot be determined if impacts could be reduced to less-than-significant levels with mitigation. Therefore, impacts related to conflicts with the adopted Shell E&P and Metropolitan HCP and Central and Coastal NCCP/HCP and the proposed North Fontana MSHCP may be potentially significant and unavoidable. Additional project-specific analysis will be required for rehabilitation activities within the covered lands for these plans.

Mitigation Measures

No feasible mitigation can be identified at the program level.

Residual Impacts

Impacts that would result from the proposed program may be significant, but the severity or location of the impacts cannot be determined at this time. Therefore, these impacts are assumed to be significant and unavoidable. Further environmental analysis and documentation is necessary prior to construction to determine if a significant impact would occur and if mitigation would reduce the impact to a less-than-significant level.

4.4.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

Impacts of projects in the proposed program related to special-status species, riparian habitats and other sensitive natural communities, wetlands, wildlife movement, and conflicts with local policies protecting biological resources would be avoided through implementation of Mitigation Measures MM BIO-1 through MM BIO-7. Therefore, the impacts of the proposed program on these resources would not represent a considerable contribution to cumulative impacts. Impacts related to conflicts with adopted HCPs and NCCPs cannot be determined at this time because the location and types of

construction are not known. Therefore, projects in the program would potentially result in impacts that would contribute significantly to cumulative impacts related to conflicts with HCPs and NCCPs. Further environmental analysis and documentation is necessary prior to construction to determine if a considerable contribution to a cumulative impact would occur.

Section 4.5
Cultural Resources

4.5.1 Introduction

This section describes the existing conditions for cultural resources, the regulatory framework associated with cultural resources, the impacts on cultural resources that would result from the proposed program, and the mitigation measures that would reduce these impacts. Under CEQA, cultural resources include archaeological sites, built environment resources, and paleontological resources. Paleontological resources are provided protection as historical resources, as discussed in State CEQA Guidelines Section 15064.5(a)(3). As noted in the Initial Study, the proposed program would have potentially significant cultural resources impacts.

4.5.2 Existing Conditions

The study area for archaeological and paleontological resources is the pipeline alignment corridors, plus 0.25 mile on either side (i.e., a half-mile-wide corridor). Figures 4.5-1 through 4.5-5 show this study area. For built environment resources (historic architecture), the study area is the pipeline alignment corridors and immediately adjacent properties.

The National Register of Historic Places (NRHP) is the official list of the historic places worthy of preservation under the National Historic Preservation Act of 1966. To be placed on the NRHP, the district, site, building, structure, or object must possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

- Be associated with events that have made a significant contribution to the broad patterns of our history (criterion A); or
- Be associated with the lives of significant persons in our past (criterion B); or
- Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction (criterion C); or
- Yield or be likely to yield information important in history or prehistory (criterion D).

The California Register of Historical Resources (CRHR) is the State's program to identify, evaluate, register, and protect California's historical resources. The criteria for designation are similar to the NRHP criteria, as follows:

- Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States (criterion 1); or
- Associated with the lives of significant persons to local, California, or national history (criterion 2); or
- Embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master or possesses high artistic values (criterion 3); or

- Has yielded, or has the potential to yield, information important to the history or prehistory of the local area, California, or the nation (criterion 4).

The National Park Service is responsible for maintaining the NRHP. The California Office of Historic Preservation, an office of the California Department of Parks and Recreation, maintains the CRHR. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State's jurisdiction.

Between October 2014 and February 2015, reviews of cultural resource records housed at the California Historical Resources Information System for the PCCP Program were conducted by Metropolitan staff. The record searches took place at the South Central Coastal Information Center at California State University, Fullerton, for program pipelines in Los Angeles and Orange counties, and the San Bernardino Archaeological Information Center at the San Bernardino County Museum for program pipelines in San Bernardino County. The record searches were conducted to identify all previously conducted cultural resource survey work and any previously recorded cultural resources within 0.25 mile of each PCCP Program line and included a review of the following.

- NRHP
- CRHR
- California Points of Historical Interest
- The California Landmarks list
- Archaeological Determinations of Eligibility list
- California State Historic Resources Inventory list
- All available historic United States Geological Survey 7.5-minute and 15-minute topographic quadrangle maps

Tables in the pipeline-specific discussions below document all recorded historic-period and prehistoric archaeological sites and built environment resources that occur on or immediately adjacent to the existing pipeline.

- Paleontological resources consist of fossils of plants and animals, and paleontology is the study of life in past geologic time based on fossil evidence.
- Archaeological resources consist of the physical remains of past human activity that have been preserved below or above ground, but no longer take the form of a standing structure (e.g., a house or building). Archaeological remains may occur in the same place as standing structures but are considered a distinct element (called a component) of the larger resource.
- Built environment resources consist of buildings, structures, objects, or districts. Typically, built environment resources must be 50 years of age or older to qualify as cultural resources. Where these resources form a landscape unified by a coherent historical or design theme, they may qualify as a rural historic landscape (U.S. Department of the Interior 1999:1).

Between March 26, 2015 and April 22, 2015, a fossil locality search was requested from the Los Angeles County Museum of Natural History, Vertebrate Paleontology section, for the PCCP Program. Results of a locality search and an assessment of paleontological sensitivity was provided for each PCCP Program line. These results were provided in five letter reports prepared by Dr. Sam A. McLeod of the Vertebrate Paleontology section.

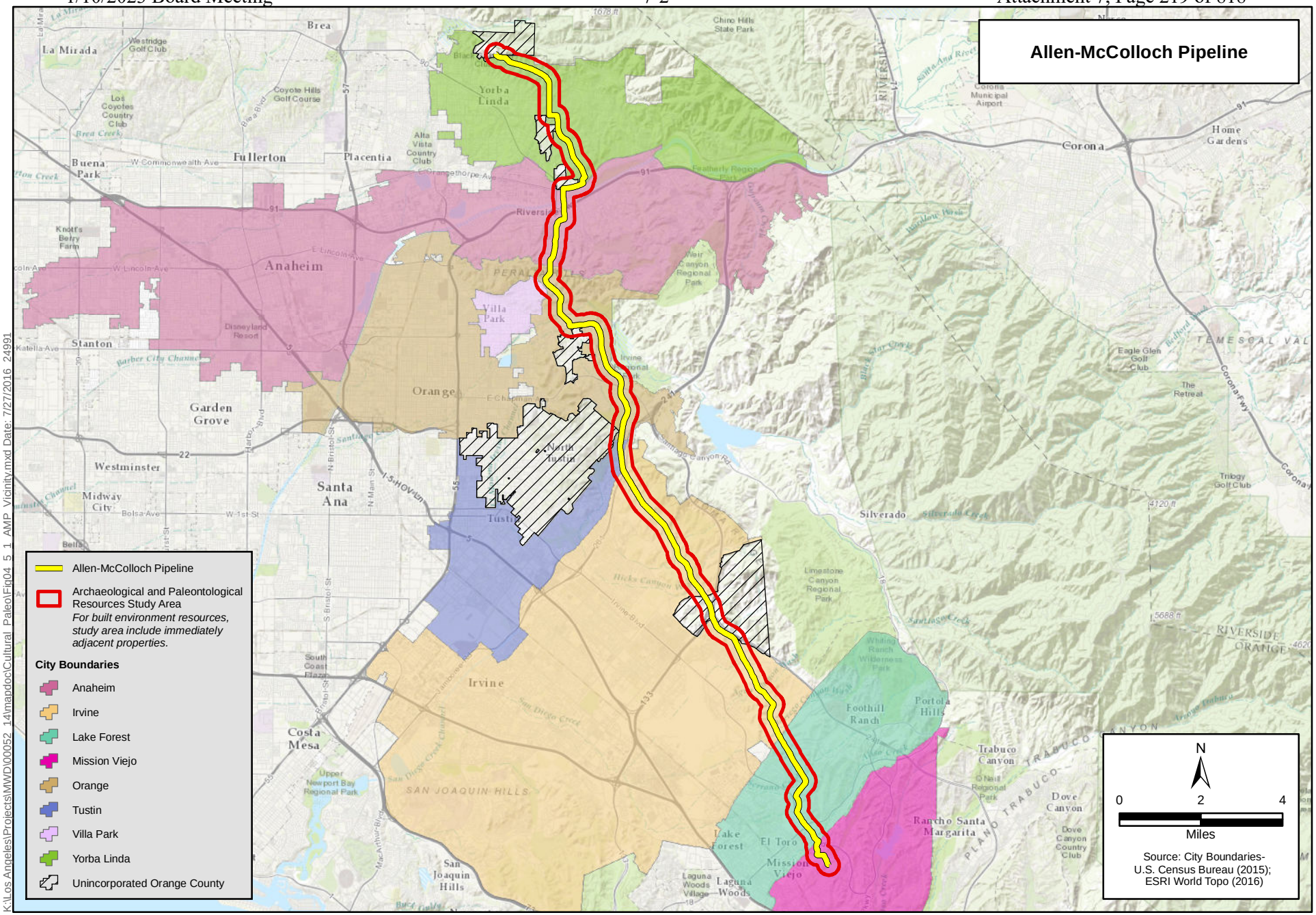
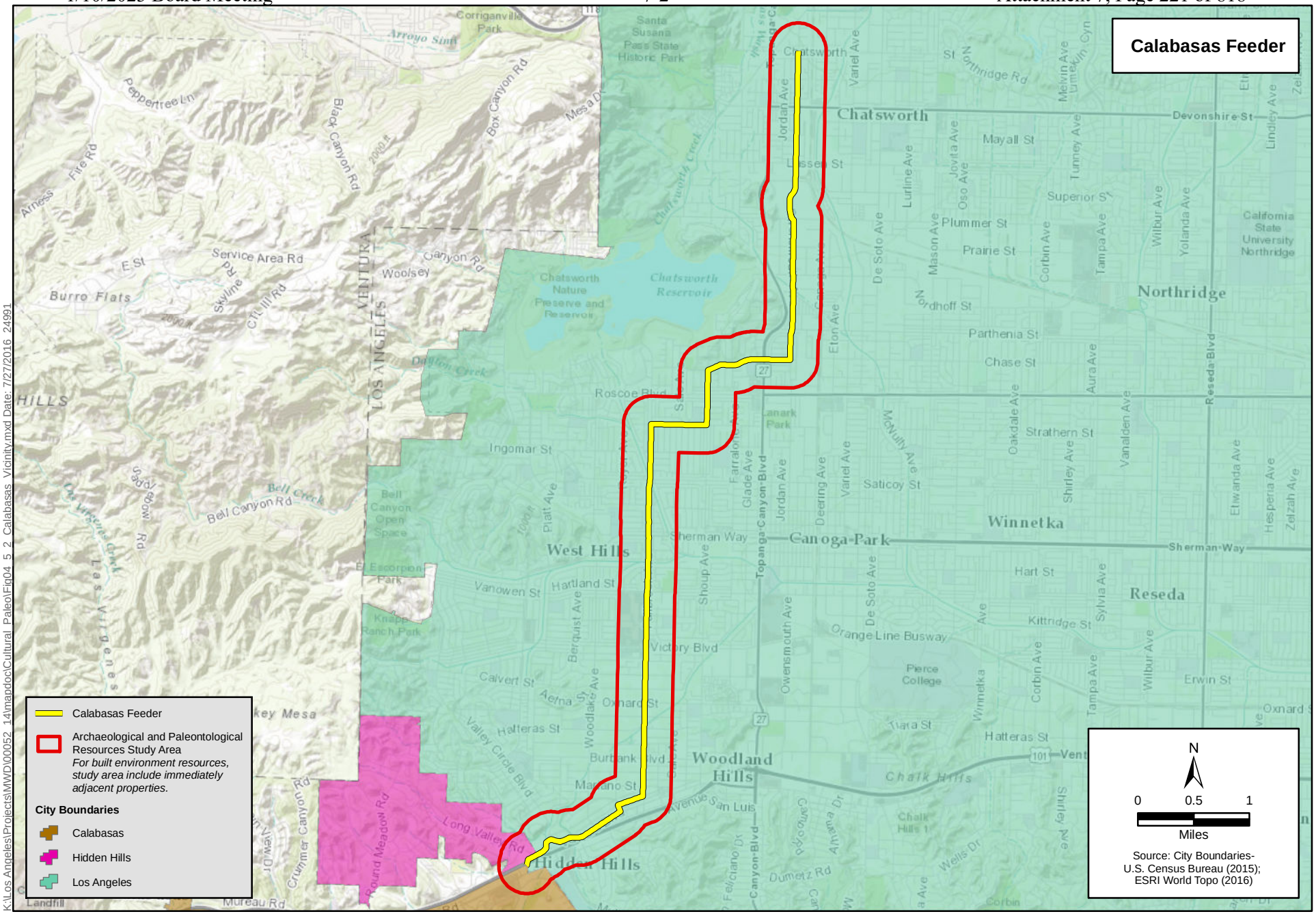


Figure 4.5-1
Allen-McColloch Pipeline Cultural Resources Study Area
Metropolitan Water District PCCP Rehabilitation Program



K:\Los Angeles\Projects\MWD\00052_14\mapdoc\Cultural_Paleo\Fig04_5_2_Calabasas_Vicinity.mxd Date: 7/27/2016 24991

Figure 4.5-2
Calabasas Feeder Cultural Resources Study Area
Metropolitan Water District PCCP Rehabilitation Program

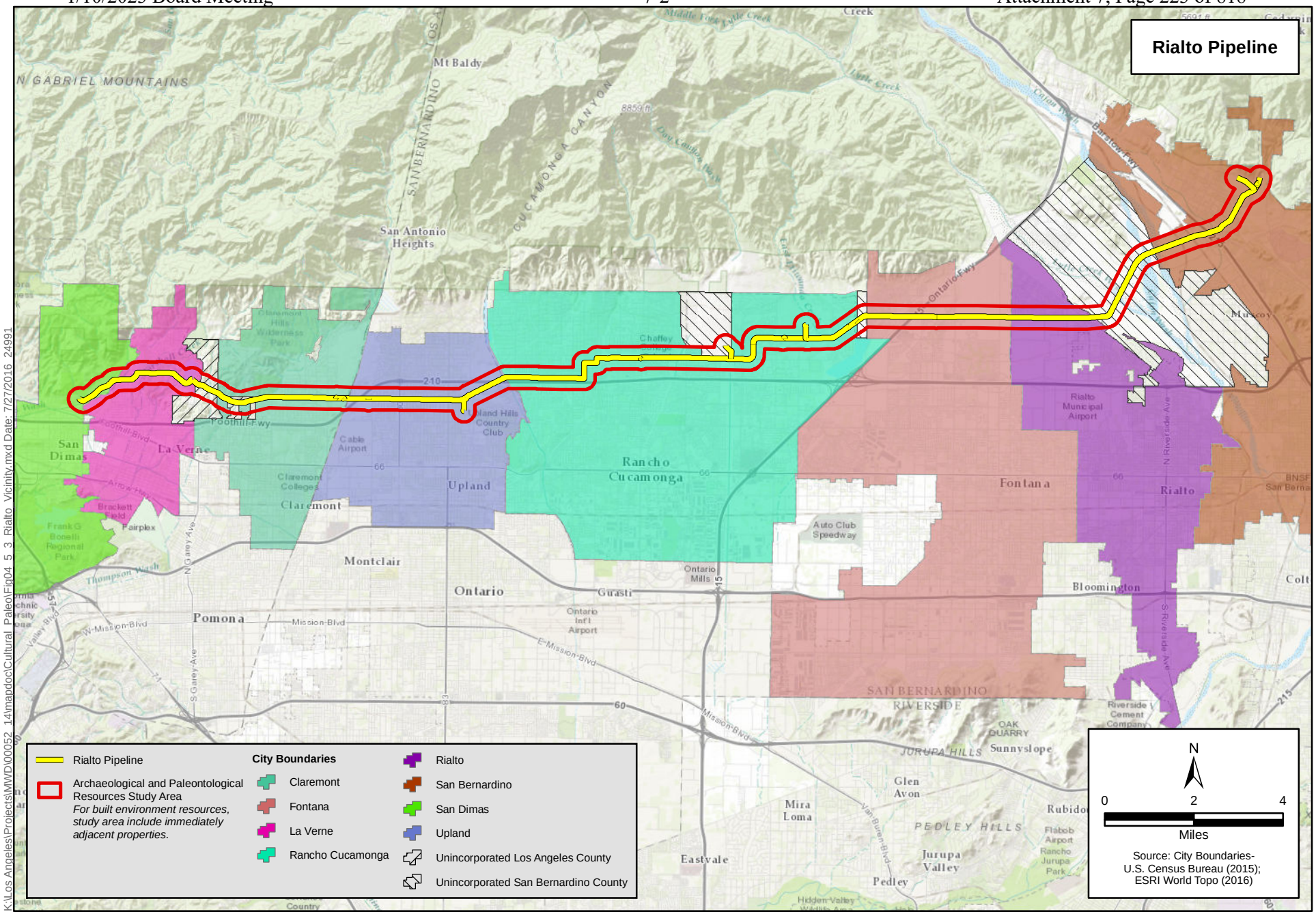


Figure 4.5-3
Rialto Pipeline Cultural Resources Study Area
Metropolitan Water District PCCP Rehabilitation Program

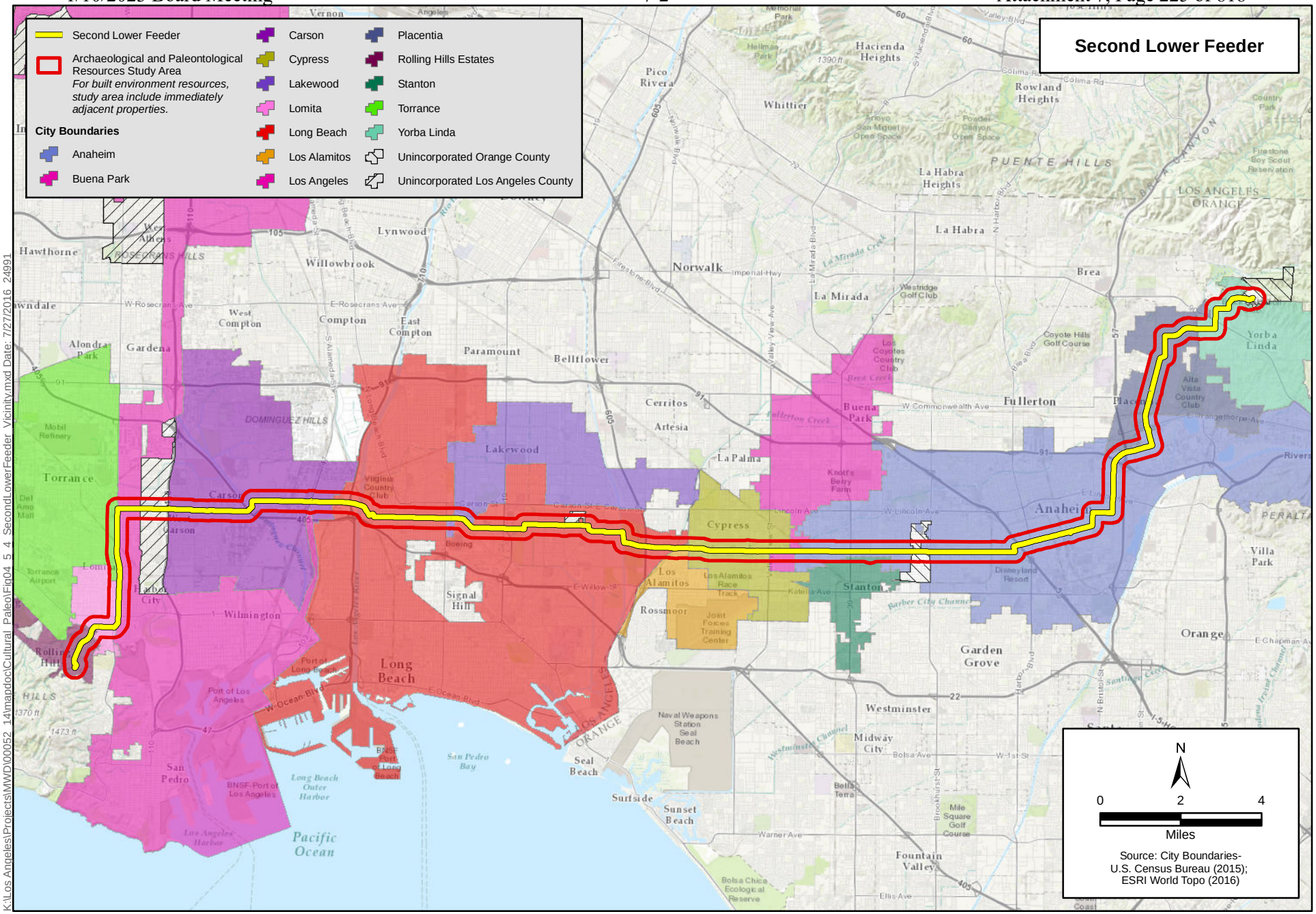


Figure 4.5-4
Second Lower Feeder Cultural Resources Study Area
Metropolitan Water District PCCP Rehabilitation Program

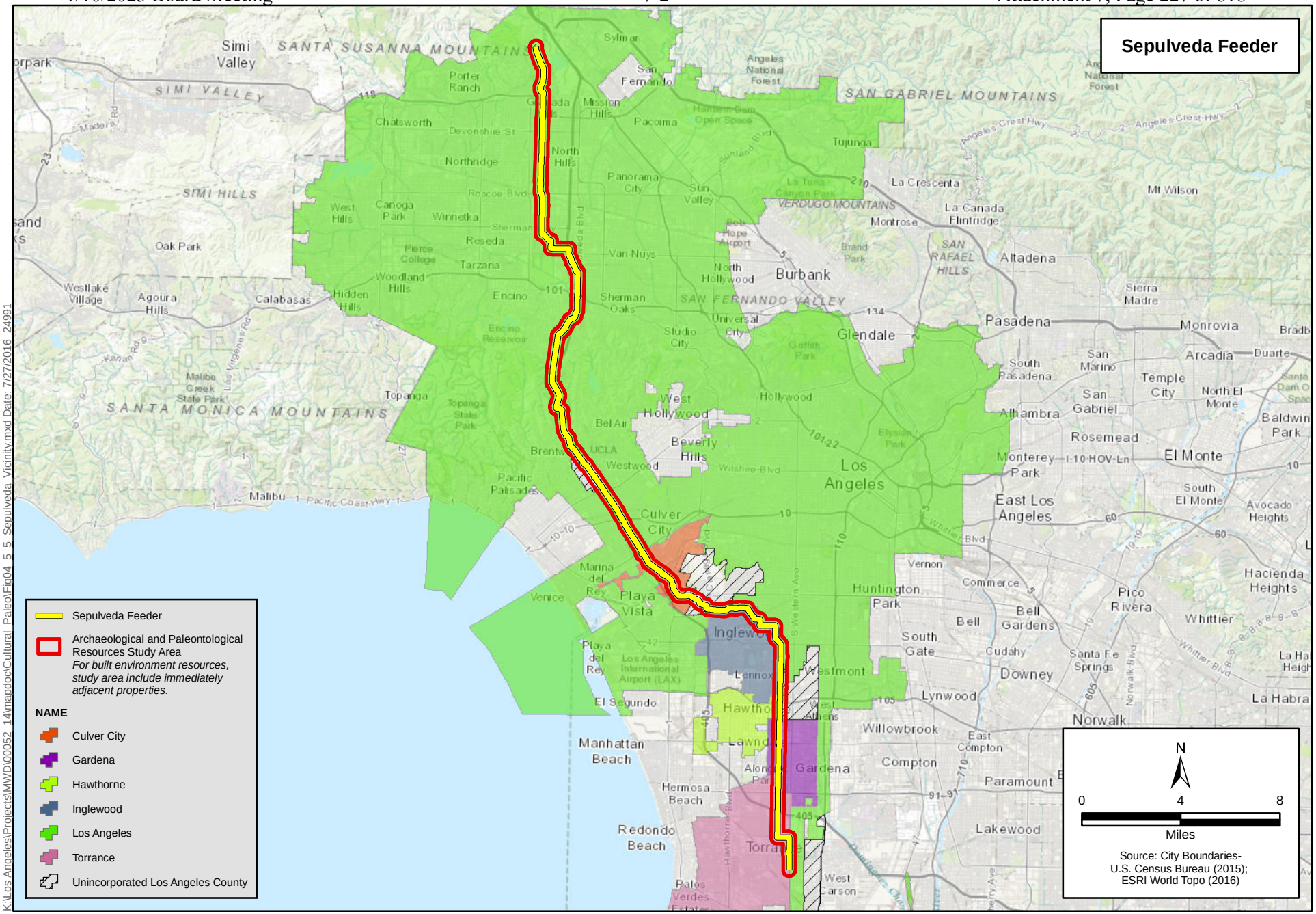


Figure 4.5-5
Sepulveda Feeder Cultural Resources Study Area
Metropolitan Water District PCCP Rehabilitation Program

Tables in the pipeline-specific discussions below document the geologic formations crossed by the pipelines. General types of fossils that have been recovered from these sediments are also listed.

4.5.2.1 Paleontological, Cultural, and Historical Background

Paleontological Setting

The project site is in Southern California in a physical setting known as the Los Angeles Basin. The Los Angeles Basin is a roughly north-south trending depositional trough in the northwestern portion of the Peninsular Ranges geomorphic province (CGS 2002). The Los Angeles Basin has been the site of discontinuous marine deposition since the Late Cretaceous (99.6 million years ago); it began to fill with alluvium about 5 million years ago and eventually was exposed above sea level, and terrestrial deposition began. Geologic structures in this region reflect the resolution of tectonic forces as the northwest-trending structures of the northern Peninsular Range Province, exemplified by the Whittier-Elsinore fault, meeting the Santa Monica-Hollywood-Raymond fault of the Transverse Range Province (CGS 2002; Jahns 1954).

Geographic features in the Los Angeles Basin include the San Fernando Valley, the Los Angeles Plain, the Pomona Valley, the Santa Ana Valley, the San Gabriel Valley, and the San Bernardino Valley. All of these interconnected lowlands are drained by three large river systems: the Los Angeles, San Gabriel and Santa Ana rivers. These rivers, their tributaries, and many small intermittent water flows from the mountains surrounding these valleys have resulted in a deep accumulation of Pleistocene-age (2.6 million years ago to 10,000 years ago) to Holocene-age (10,000 years ago to present) alluvium consisting of water-borne deposits of silt, sand, and gravel. The relatively level to gently sloping alluvium forms a series of intercut layers that gets older at greater depths below the ground surface. However, in some settings, Pleistocene-age sediments are exposed at the ground surface. Underlying these alluvial deposits is bedrock of various types (Dibblee 1989). For example, in downtown Los Angeles, geotechnical work on one city block (City of Los Angeles 2004) found alluvial sediments extended to depths ranging between 27 feet to 52.5 feet below the ground surface. Underlying the alluvium was Fernando Formation bedrock of early Pliocene age (3.4 to 5.5 million years ago).

Mountains and hills divide the Los Angeles Basin, such as the Santa Monica Mountains, Hollywood Hills, Santa Ana Mountains, San Gabriel Mountains, and San Bernardino Mountains, as well as ranges of small hills such as the Chino Hills or Puente Hills. These ranges are made up of various structures of sedimentary formations and volcanic and granitic rocks (Hinds 1952).

The paleontological sensitivity of these rock units ranges from not sensitive to very sensitive. Quaternary younger alluvial deposits of Holocene-age deposits contain the remains of modern organisms and are too young to contain fossils. Younger alluvial deposits have been determined to have a low potential for paleontological resources. Typically, Quaternary older alluvial deposits throughout Southern California are considered to be highly sensitive for vertebrate fossils (McLeod 2015a, 2015b, 2015c, 2015d, 2015e). Sixty Pleistocene localities from this type of sediment, exclusive of Rancho La Brea, were reviewed by Miller (1971), and many localities have since been discovered.

The layers of consolidated bedrock forming mountains and hills, as well as underlying the alluvial deposits, have been repeatedly demonstrated to be abundantly fossiliferous in the program area. These sedimentary formations include the La Habra, Fernando, Puente, Monterey, Saugus, Upper Modelo, Chico, Silverado, Williams, Vaqueros, Topanga, Capistrano, and Niguel formations. All of

these sedimentary bedrock formations have been assigned a "high" designation for paleontological resource sensitivity. In some areas, volcanic and granitic rocks are exposed. These rock units have no potential to contain paleontological resources (McLeod 2015a, 2015b, 2015c, 2015d, 2015e).

Cultural Background

Prehistoric Setting

The prehistoric occupation of Southern California is divided chronologically into several temporal phases, or horizons, as presented on Table 4.5-1, based on the work of William J. Wallace (Moratto 1984). Horizon I, or the Early Man Horizon, began at the first appearance of people in the region (approximately 11,000 years ago) and continued until about 7,000 years ago. Although little is known about these people, it is assumed that they were semi-nomadic and subsisted primarily on game.

Horizon II, also known as the Millingstone Horizon or Encinitas Tradition, began around 7,000 years ago and continued until about 3,500 years ago. The Millingstone Horizon is characterized by widespread use of milling stones (manos and metates), core tools, and few projectile points or bone and shell artifacts. This horizon appears to represent a diversification of subsistence activities and a more sedentary settlement pattern. Archaeological evidence suggests that hunting became less important and that reliance on collecting shellfish and vegetal resources increased (Moratto 1984).

Horizon III, the Intermediate Horizon or Campbell Tradition, began around 3,500 years ago and continued until about 1,300 years ago. Horizon III is defined by a shift from the use of milling stones to increased use of mortar and pestle, possibly indicating a greater reliance on acorns as a food source. Projectile points become more abundant and, together with faunal remains, indicate increased use of both land and sea mammals (Moratto 1984).

Horizon IV, the Late Horizon, which began around 1,300 years ago and terminated with the arrival of Europeans, is characterized by dense populations; diversified hunting and gathering subsistence strategies, including intensive fishing and sea mammal hunting; extensive trade networks; use of the bow and arrow; and a general cultural elaboration (Moratto 1984).

Table 4.5-1. William J. Wallace's Chronological Horizons for Prehistoric Cultures

Horizon	Time Period	Description
Horizon I/Early Man	11,000–7,000 years ago	First appearance of humans in the region
Horizon II/Millingstone Horizon	7,000–3,500 years ago	Widespread use of millingstone (manos, metates), representing a more sedentary settlement pattern
Horizon III/Intermediate Horizon	3,500–1,300 years ago	Shift from use of millingstone to increased use of mortar and pestle and more projectile points
Horizon IV/Late Horizon	1,300 years ago to arrival of Europeans	Dense populations, diversified hunting, intensive fishing, and extensive trade networks
Source: Moratto 1984		

Ethnographic Setting

When Spanish explorers and missionaries first visited the southern coastal areas of California, the indigenous inhabitants of the Los Angeles area (the Tongva) were given the Spanish name "Gabrieliño." Gabrieliño/Tongva territory included the watersheds of the San Gabriel, Santa Ana, and Los Angeles rivers; portions of the Santa Monica and Santa Ana mountains; the Los Angeles Basin; the coast from Aliso Creek to Topanga Creek; and San Clemente, San Nicolas, and Santa Catalina islands. The Gabrieliño language is classified as belonging to the Takic family (or "Cupan"), Uto-Aztecan stock, and is subdivided into four or more separate dialects (Shipley 1978). The proposed program area is in the region where the Fernandeño dialect of the Gabrieliño language was spoken. The names Gabrieliño and Fernandeño refer to the two major missions established in Gabrieliño territory: San Gabriel and San Fernando (Bean and Smith 1978).

The Gabrieliño/Tongva inhabited some 50 to 100 permanent villages in fertile lowlands along streams and rivers and in sheltered areas along the coast at the time of European contact. The larger permanent villages most likely had populations averaging 50 to 200 persons. Sedentary villages also had smaller satellite villages located at varying distances; these remained connected to the larger villages through economic, religious, and social ties (Bean and Smith 1978). Gabrieliño villages contained four basic types of structures. Houses were circular and domed, made of tule mats, fern, or carrizo (Kroeber 1925; Bean and Smith 1978). The Gabrieliño sweathouses were small, circular earth-covered buildings. Villages may have included menstrual huts and open-air ceremonial structures made with willows inserted wicker fashion among willow stakes (Bean and Smith 1978).

Ethnographic information indicates that the Gabrieliño occupied the area between the Palos Verdes Peninsula and the Los Angeles River as evidenced by the number of recorded village sites in each of these areas. Gabrieliño place names on the peninsula include *Chaawvenga*, *Xuuxonga*, *Toveemonga*, *Aataveanga*, *Kiinkenga*, *Toveemonga*, and *Haraasnga* (McCawley 1996). McCawley also provides information for the village sites of *Swaanga* and *Ahwa Anga* as located along the Los Angeles River closest to its junction with the Pacific Ocean. These villages were occupied as late as the 1700s and early 1800s as evidenced by notations in the baptismal registers of Mission San Gabriel (McCawley 1996). *Swaanga* was documented as one of the larger, more substantial village sites (Reid 1852; McCawley 1996 citing Reid). However, there is some discrepancy as to the actual location of the village. McCawley (1996) cites Reid's (1852) notation that *Swaanga* was located at "Suang-na," suggesting that this was still a recognizable place by 1852.

The Gabrieliño/Tongva had a rich and varied material culture. Technological and artistic items included shell set in asphaltum, carvings, paintings, an extensive steatite industry, baskets, and a wide range of stone, shell, and bone objects that were both utilitarian and decorative. Gabrieliño/Tongva subsistence was based on a composite hunting and gathering strategy that included large and small land animals, sea mammals, river and ocean fish, and a variety of vegetal resources. Generally, Gabrieliño settlements were created at the intersection of several ecozones. The majority of the population drifted as families to temporary hillside or coastal camps throughout the year, returning to the central location on ritual occasions or when resources were low and it was necessary to live on stored foods.

Offshore fishing was accomplished from boats made of pine planks sewn together and sealed with asphaltum or bitumen. Much of the fishing, shellfish harvesting, and fowling took place along the ocean shoreline or along freshwater courses. Sea mammals were taken with harpoons, spears, and

clubs. River and ocean fishing was undertaken with the use of line and hook, nets, basket traps, spears, and poisons (Hudson and Blackburn 1982).

Land animals were hunted with bow and arrow and throwing sticks, and were trapped or clubbed. Smaller animals such as rabbits and ground squirrels were driven with grass fires and taken with deadfall traps. Seasonal grass fires may have had the additive effect of yielding new shoots attractive to deer. Burrowing animals could be smoked from their lairs.

Transportation of plants and other resources was accomplished through the use of burden devices such as coiled and woven baskets and hammock carrying nets commonly made from grass and other plant fibers.

The Gabrieliño/Tongva were apparently first contacted by Europeans in 1542 when Juan Rodríguez Cabrillo entered the area. Following subsequent Spanish visits to the region, colonization began in 1769, precipitating the establishment of Missions San Gabriel (1771) and San Fernando (1797). Due in part to the introduction of Euro-American diseases and the harsh effects of mission life, the Gabrieliño population and culture suffered a gradual deterioration. Following the secularization of the missions, most surviving Gabrieliño became wage laborers on the ranchos of Mexican California. In the early 1860s, a smallpox epidemic nearly wiped out the remaining Gabrieliño. The combination of disease, forceful reduction, and poor diet contributed to the disappearance of the Gabrieliño as a culturally identifiable group in the 1900 federal census (Bean and Smith 1978). However, persons of Gabrieliño descent have continued to live in the Los Angeles area to the present time.

Historical Setting of Water Supply

Los Angeles Area Water Development and Metropolitan Water District

The city of Los Angeles had a population of around 50,000 in 1892. Developed by the Los Angeles Water Company, supplies from groundwater wells and the Los Angeles River provided adequate water for the city for a time, but a population that exceeded the 100,000 mark around the turn of the century required new sources. Los Angeles Water Company's superintendent at the time, William Mulholland, who would become the region's most famous water developer, predicted that the city's population would reach 400,000 by 1925, but as a result of Mulholland's and others' efforts, regional water infrastructure development would in fact supply water for over a million Angelinos by that year (Schwartz 1991:17).

The majority of that supply came from the Los Angeles Aqueduct, engineered by Mulholland and developed by the City of Los Angeles, which acquired Los Angeles Water Company in 1902 and created the Los Angeles Department of Water and Power (LADWP). Mulholland designed a system to transmit water to Los Angeles from the Owens Valley, approximately 50 miles north. Mulholland worked with former Mayor Fred Eaton, who had originally suggested the Owens Valley as a potential water source for the city. In 1905 Los Angeles voters approved a $1.5 million bond issue and Eaton began to acquire the necessary land and water rights for the project, which won congressional approval in 1906. Los Angeles voters approved a second bond issue for $23 million to finance the system in 1907, and the City initiated construction the following year, building over 1,000 miles of roads, pipeline, and electricity and telephone lines in preparation for the water conveyance system (Erie 2006:37; Schwartz 1991:18–19).

Completed in 1913, the Los Angeles Aqueduct was the largest aqueduct in the world for a time. It consisted of nearly 250 miles of canals, tunnels, siphons, and other water conveyance features. Because steel pipe still had to be shipped from the east, its use was limited mainly to 12 miles of canyon-spanning siphons. The City purchased 4,000 acres of clay- and limestone-rich land near the Mojave Desert town of Monolith and established a facility that produced 1,000 barrels of Portland cement per day for the project. The system also included the Haiwee, Fairmont, Bouquet Canyon, and Dry Canyon reservoirs, as well as two reservoirs in the San Fernando Valley, where water from Owens Valley entered the City's local distribution system. Despite opposition to the project by private power companies, hydroelectricity generated from plants along the aqueduct, combined with the City's acquisition of local private electricity distribution systems, would eventually make LADWP the nation's largest municipally owned electricity provider (Karhl 1979:32; Schwartz 1991:20, 22–23; Starr 1990:55–59, 156–57).

During the following decade, other California cities would also begin developing geographically extensive systems for transporting water from eastern California to the growing urban centers along the coast. Between 1926 and 1929, the East Bay Municipal Utility District completed twin 80-mile aqueducts to convey Mokelumne River water from the Sierra Nevada foothills to nine municipalities on the eastern side of the San Francisco Bay. Between 1915 and 1934, the City of San Francisco constructed a system to convey water from a dam and reservoir developed at the Hetch Hetchy Valley in the Sierra Nevada approximately 170 miles west to City storage reservoirs in San Mateo County (Elkind 1994:65–66; SFPUC 1935:51–53).

After 1913, the aqueduct fueled Los Angeles's growth and geographical expansion, but within a decade of its completion, the water supply it afforded the emerging metropolis threatened to become inadequate. Owens Valley water initially supplied Los Angeles with over four times the amount of water that could be used within the city limits. "This surplus," writes historian Kevin Starr, "provided an irresistible force for expansion" (Starr 1990:59). In 1915, the City of Los Angeles annexed the San Fernando Valley. Surplus Owens Valley water provided water for agricultural irrigation in the San Fernando Valley while also replenishing groundwater within the expanding city limits. By 1923, Los Angeles had expanded its geographical boundaries to include an area nearly four times the area encompassed in 1913 (Starr 1990:59–60; Karhl 1979:32).

Urban growth and drought during the early 1920s led Los Angeles to seek additional water supply, including increasing the supply from the Owens Valley. There, opposition to Los Angeles's efforts among business and farming interests evolved into a populist resistance movement that included bombings and occupations of Los Angeles aqueduct facilities. (Los Angeles would eventually prevail and become the largest land owner in the Owens Valley.) At the same time, Mulholland and LADWP began to investigate other options. Mulholland, LADWP, and other Southern California interests seized upon a Bureau of Reclamation study recommending construction of a dam across the Colorado River border between Arizona and Nevada, and the Colorado River Compact of 1922, to win voter approval for a bond issue for Mulholland to conduct the first of 16 surveys to establish a route for an aqueduct to convey Colorado River water to the Los Angeles area. In 1926, LADWP constructed a Mulholland-designed dam and reservoir at San Francisquito Canyon north of the city on geological foundations that proved catastrophically faulty. In 1928, the dam failed and released a torrent of water that ripped through the Santa Clara Valley and killed over 400 on its path to the Ventura shoreline. The disaster ended Mulholland's career and increased the importance of Colorado River water development for the long-term growth potential of Los Angeles as well other neighboring and nearby southland municipalities (Kahrl 1979: 33, 36; Schwartz 1991:39–40; Starr 1990:159–161).

The Metropolitan Water District (Metropolitan) took shape in this context. No municipality in the Los Angeles area had the resources to build an aqueduct between it and the Colorado River independently; a special district incorporating multiple municipalities was necessary. By the end of 1928, the U.S. Senate had approved the Boulder Canyon Project Act, and residents in 11 southland municipalities—Los Angeles, Pasadena, Burbank, Glendale, Beverly Hills, San Marino, Santa Monica, Anaheim, Colton, Santa Ana, and San Bernardino—had voted in favor of creating Metropolitan, which was incorporated in December of that year. By the end of 1931, Fullerton, Long Beach, Torrance, and Compton had also joined, though Colton and San Bernardino had withdrawn (Kahrl 1979: 41–42; Schwartz 1991:43; Starr 1990:161).

Construction of Metropolitan's 242-mile Colorado River Aqueduct began in the Great Depression year of 1933, under the agency's first superintendent, Frank Weymouth, and was completed in October 1939, 4 years after completion of Boulder Dam. The Colorado River Aqueduct project entailed construction of multiple dams and water storage facilities, including Parker Dam and Reservoir on the Colorado River, Gene Dam and Reservoir, Hayfield Reservoir (later abandoned), Cajalco Dam and Reservoir (later renamed Lake Mathews), and Palos Verdes Reservoir. The completed linear aqueduct included 29 concrete horseshoe-shaped tunnels measuring 16 feet high and 16 feet wide, with a combined length of 92 miles; 62 miles of concrete-lined canal; 92 miles of concrete horseshoe-shaped cut-and-cover conduit in areas subject to extensive flooding and wind-blown sand; 144 inverted siphons across drainages and depressions with a combined length of 29 miles, all constructed of cast-in-place concrete except for the experimental Little Morongo precast pipe siphon; and five pumping plants (Metropolitan 1939: 146–147, 178, 189, 197, 208–229, Tables 14–16; Schwartz 1991:66, 75–76)

Metropolitan began constructing the aqueduct's distribution system in the greater Los Angeles area in 1936 and completed it in 1941. The distribution system consisted of a water treatment and softening plant, tunnels, and 156 miles of feeder pipelines. From the intake tower at the Lake Mathews receiving reservoir, the system's Upper Feeder extended north and west to Glendale and consisted mainly of precast concrete pipelines, as well as the Monrovia, Sierra Madre, Pasadena, and San Rafael tunnels between Glendora and Glendale, and some cast-in-place and steel pipeline segments. The Palos Verdes Feeder, a welded steel pipeline, stretched from Eagle Rock south to Palos Verdes underneath city streets to service Los Angeles, Long Beach, Torrance, and Compton. Comprising precast concrete pipe, welded steel pipe, and the Hollywood Tunnel, the Glendale to Santa Monica segment extended approximately 23 miles through Glendale, Burbank, North Hollywood, Hollywood, Beverly Hills, and West Los Angeles to a reservoir in Santa Monica. The approximately 28-mile Orange County Feeder was constructed from the system's water filtration plant near La Verne through Brea Canyon to service Fullerton, Anaheim, and Santa Ana. Lateral lines were also constructed to serve Burbank, Compton, Torrance, and Long Beach. As of June 30, 1943, the Metropolitan distribution system included 36 miles of 116- to 140-inch and 28 miles of 30- to 58-inch precast concrete pipeline, 0.3 mile of cast-in-place concrete pipeline, 2.5 miles of asbestos cement pipeline, 61 miles of welded steel pipeline, 10 miles of cast-iron pipeline, and 16.5 miles of tunnels (Metropolitan 1939:253–272; 1940:61–92; 1943:31–33; Schwartz 1991:76–77).

Although deliveries initially represented a fraction of both the aqueduct's capacity and Southern California's allotment of Colorado River water, the outbreak of World War II increased water demand and led additional municipalities to join Metropolitan. Metropolitan's system provided water, power, and telephone service to the U.S. Army's Desert Training Center. Small cities in Orange County formed the Coastal Municipal Water District, which joined Metropolitan in 1942. Rapid wartime population growth in San Diego, coupled with the Navy's need for increased water supply

for expanded military operations in the area, led San Diego County to join Metropolitan. San Diego exchanged its annual 112,000 acre-foot apportionment of Colorado River water and agreed to pay the standard Metropolitan annexation fee in a deal that provided for Metropolitan and San Diego to split the costs building a connecting pipeline, which was completed in 1947(Kahrl 1979:42; Schwartz 1991:78–79, 84–86).

Evolution of Concrete Water Pipe and Prestressed Concrete Cylinder Pipe

The first widespread use of concrete water pipelines in the American West occurred during the late nineteenth and early twentieth centuries. High-pressure conduits required steel pipe, and because concrete pipe—including early reinforced concrete pipe—was subject to leakage under heads exceeding 60 feet, it was not widely used for penstocks at early hydroelectric facilities. However, irrigators increasingly made use of concrete pipe during the late nineteenth and early twentieth centuries. In irrigation networks, concrete pipe dramatically reduced evaporation compared to open canals and ditches. Compared to steel pipe, concrete proved much cheaper to produce in California and other parts of the West, where cement factories proliferated and abundant other concrete ingredients—sand, gravel, and rock—remained readily available (JRP 2000:8; Stanley and Fortier 1921:2–5).

Water providers in Southern California increasingly made use of concrete pipe during the early twentieth century for lower-pressure water conduit. In 1921 a U.S. Department of Agriculture bulletin reported that Orange County's Whittier Water Company had "laid considerable quantities of continuous reinforced concrete pipe" (Stanley and Fortier 1921:6–7). LADWP also installed segments of concrete pipe for multiple siphons along the aqueduct between the Owens Valley and Los Angeles. The Los Angeles Aqueduct's 11 miles of siphon incorporated nearly 3 miles of 10-foot-diameter reinforced concrete pipe that operated under heads ranging from 40 to 75 feet, while the remaining siphon segments consisted of steel pipe (City of Los Angeles 1916:192, 209). For pipeline conduit, pre-World War II extensive water conveyance systems and urban distribution systems continued to rely mainly on riveted and Lock-Bar steel pipe, or—beginning in the 1920s—welded steel pipe (Cates 1971:3–5). As of June 1940, for example, Metropolitan's greater Los Angeles-area water distribution system consisted of approximately 37 miles of precast and cast-in-place concrete pipe, and 48 miles of welded steel pipe (Metropolitan 1940: Tables 18–19).

Between 1920 and 1940, most water-conveying concrete-pressure distribution pipe installed in the U.S. consisted of steel cylinder concrete pipe that was not prestressed. The first such pipeline installed in the U.S. was a 36-inch-diameter line constructed in Cumberland, Maryland, in 1919. As described by the American Water Works Association, nonprestressed concrete pipe fabricated during this period consisted of "a welded steel sheet or steel plate cylinder with steel joint rings welded to its ends; a reinforcing cage or cages of steel rods or bars surrounding the cylinder; a wall of dense concrete covering the steel cylinder inside and out, and...a preformed lead gasket," the latter of which provided joint seal and was replaced after 1935 by rubber joint gasket (AWWA 1961:877, 878 quoted).

During World War II, military construction needs resulted in widespread steel shortages, which increased the use of concrete pipe and simulated innovations in concrete pipe technology, including the introduction of PCCP (AWWA 2008:53; Cates 1971:4). In the United States, water providers first installed PCCP within the U.S. in the cities of Penman, Virginia, and Hyattsville, Maryland, in 1942. Such pipe included conduits comprising steel cylinders lined with a concrete core, and conduits consisting of a steel cylinder embedded within a concrete core (AWWA 1961:878). Describing the

manufacture of PCCP compared to nonprestressed concrete cylinder pipe in 1961, the American Water Works Association (AWWA) explained (AWWA 1961:879):

> The welded steel cylinder with joint rings attached is made and tested in the same manner as the nonprestressed cylinder pipe. It is then lined centrifugally with dense concrete by a method that rapidly revolves the pipe in a horizontal position. The lined cylinder is cured, and high-tensile wire is wrapped around the core directly on the steel cylinder. The tension of the wire is measured accurately and constantly to produce a predetermined residual compression in the core. Spacing and size of the wire are determined by design requirements. The wrapped core is then covered by a dense, premixed mortar about 7/8-inch thick, applied by an impact method.

According to AWWA, annual installation of PCCP in the U.S. for water conveyance increased from 12,000 linear feet in 1942 to 1,305,314 linear feet in 1946 (AWWA 2008: 56).

While PCCP production declined in the late 1940s, it increased again during the early 1950s and surpassed the previous 1946 high mark in 1954, when 1,752,670 linear feet of PCCP were produced in the United States. The PCCP installed in the U.S. during the 1940s later became known as lined-cylinder prestressed concrete pipe (LC-PCCP). Embedded-cylinder prestressed concrete pipe (EC-PCCP) was introduced the early 1950s. As explained by AWWA in 1961, although cylinders and joint rings for both types of PCCP were constructed in the same way, early EC-PCCP differed from LC-PCCP in that the cylinder and joint rings were "embedded in vertical casting...after the concrete is cured, the wire reinforcement is wound around the outside of the concrete core that contains the cylinder, instead of being wound directly on the cylinder. An exterior coating of premixed mortar is applied by an impact or by the vertical-casting method" (AWWA 1961:880).

EC-PCCP was used less widely than LC-PCCP throughout the 1950s. For example, in 1955, 1,437,237 linear feet of LC-PCCP was produced in the U.S. compared to 554,589 linear feet of EC-PCCP. Production of LC-PCCP and EC-PCCP in the U.S. during the year 1961 totaled 1,710,406 and 1,151,640 linear feet, respectively. That year, AWWA estimated that 16,000,000 linear feet (3,030 miles) of PCCP had been installed for water conveyance in the U.S. (AWWA 1961:879; 2008: xxi, 53, 56). As such, between 1942 and 1961, PCCP became a widely used, commonplace water conveyance technology.

The State Water Project and Post-War Expansion of the Metropolitan Distribution System

With LADWP's Los Angeles Aqueduct and Metropolitan's Colorado River Aqueduct, Southern California enjoyed water abundance during the immediate post-World War II years of the latter 1940s and the first half of the 1950s. After initiating deliveries to San Diego beginning in 1947, Metropolitan began annexing additional municipal water districts in the 1950s. Still, as late as 1954, Metropolitan's aqueduct pumps transmitted supplies that met the region's water needs while operating at half capacity (Kahrl 1979:42).

Accurately anticipating long-term growth in Los Angeles, Orange, Riverside, and San Bernardino counties, where new suburban tract-housing developments proliferated amid the post-war baby boom and rapid economic growth, Metropolitan began a $200 million program of facilities expansion in 1952. The program provided for 165 miles of new Southern California distribution pipelines and tunnels, including construction of the Lower Feeder between 1954 and 1957. Between 1950 and 1954, Metropolitan's water district annexations included Pomona Valley (1950, later renamed Three Valleys), Eastern, Chino Basin, and Orange County (1951), Foothill (1953), and Central Basin and Western Riverside County (1954). Three more municipal water districts joined

during the early 1960s: Las Virgenes (1960), Calleguas (1961), and Upper San Gabriel Valley (1963). During the 1940s and 1950s, California's population grew from 6.9 million to 15.7 million, but not until the 1960s did demand increases from Southern California's spectacular post-war growth begin to raise concern about Metropolitan's capacity to provide adequate supply (Kahrl 1979:42; Metropolitan 1971:16; Schwartz 1991:87–88, 103).

Well before the 1960s, long-term plans to deliver additional water supply to Southern California from sources beyond the region were already in the works. Beginning in the early 1950s, State Engineer A. D. Edmunston began advocating for the Feather River project, which proposed to build a dam on the river at Oroville for storage, hydroelectric power, and flood control, and to transport Feather River water to the Sacramento-San Joaquin Delta, where water would be drawn for transport to the San Joaquin Valley and Southern California. Opposition in Northern California thwarted the project for a time. However, it received new powerful backing when Pat Brown won the governor's office in 1958 and orchestrated legislative passage of the 1959 Burns-Potter Act authorizing the project. Meanwhile, Metropolitan leadership had explored other potential supply sources and remained skeptical of the project up through the 1960 public vote on Proposition 1 to decide its fate. Aggressively negotiating Metropolitan commitments to the project, Metropolitan leadership reached an agreement with the State just before the voting public approved Proposition 1 by a slim margin. After a failed attempt to amend the contract between the State and Metropolitan in 1961, implementation of the project—which came to be known as the State Water Project (SWP)—moved forward. The pending new supply would prove essential. By 1962, Southern California's population had increased to 17.3 million, and in 1964 a U.S. Supreme Court ruling reduced Metropolitan's allotment of Colorado River water by more than half (Schwartz 1991:103–105, 109–120).

As implemented, the SWP would pump water from the Sacramento-San Joaquin Delta into the California Aqueduct, which would extend 444 miles south to Southern California. Other elements of the SWP system would include the 2 million acre-feet capacity San Luis Reservoir and a coastal branch delivery system to serve San Luis Obispo and Santa Barbara counties. Pumping facilities would transmit aqueduct flows over the Tehachapi Mountains, and the aqueduct would split into east and west branches, with the west branch flowing into Castaic Lake north of Los Angeles and the east branch running east of the Los Angeles basin at a 140-mile distance to Lake Perris in Riverside County (Schwartz 1991:120–122).

During the early 1960s, Metropolitan made plans to expand its Southern California distribution in anticipation of the new SWP supplies from Northern California. In 1966, voters serviced by Metropolitan approved an $850 million general obligation bond for the design and initial phase of construction. At the time, the total cost of the new distribution system was estimated at $1.2 billion, and included three new major feeder lines. The most important line of the system, the Foothill Feeder, would transmit SWP supply from the new Lake Castaic Reservoir through a 60-mile system of tunnels, siphons, and pipelines across the eastern Santa Susana Mountains, the Verdugo Mountains, and the south slope of the San Gabriel Mountains to the eastern San Gabriel Valley area. The Sepulveda Feeder would transmit water from a treatment plant connected to the Foothill Feeder in Granada Hills approximately 60 miles south through underground San Fernando Valley pipeline, a tunnel underneath the Santa Monica Mountains, and underground pipeline extending across the western Los Angeles Basin to Torrance. The Second Lower Feeder would extend east from the Palos Verdes Reservoir through Torrance and Long Beach and into Orange County, where it would turn north to connect with the Robert B. Diemer Filtration Plant in Yorba Linda. Two of these feeder lines would incorporate extensive PCCP segments now proposed for rehabilitation as part of

the current PCCP Rehabilitation Program: the Second Lower Feeder and the Sepulveda Feeder (Herbert 1965:3; Metropolitan 1966:79–85; Schwartz 1991:129).

PCCP standards issued by AWWA (PCCPC301) underwent several modifications during the mid-twentieth century, including a 1964 modification, issued 2 years prior to construction of the Second Lower Feeder. While the upper diameter size limit for LC-PCCP remained 48 inches, 1964 revision to the standard increased the upper limit for EC-PCCP from 72 to 96 inches and provided for larger-diameter pipe with engineer approval. The 1964 revision reduced the minimum pound per square inch (psi) allowance for surge pressures from 50 psi to 40 psi. While the 1964 revision retained a 16-gauge (0.060-inch thick) design basis for steel cylinder thickness, the minimum diameter of reinforcing wire was reduced from 6 gauge (0.192 inch) to 8 gauge (0.162 or 3/8 inch). Minimum cast concrete coating thickness over the core remained 1 inch in 1964, down from 1.5 inches in 1955. With wire size reduced to 3/8 inch, the standard allowed a 5/8-inch minimum concrete coating thickness over the wire. At the same time, the 1964 revision reduced the minimum thickness of shotcrete outer coating from 3/4 inch to 5/8 inch (AWWA 2008:60, 64–65, 68).

The first of the new feeder lines built to handle new supply from the SWP was the Second Lower Feeder, most of which consisted of PCCP. Construction of the approximately 40-mile distribution line began in April 1966 with work on an 8.2-mile segment from Anaheim to Long Beach. By mid-1969, Metropolitan contractors had completed the feeder from the Diemer Filtration Plant in Yorba Linda through Placentia, Anaheim, Buena Park, Cypress, and Los Alamitos and into Long Beach as far east as its connection with a cross feeder at Victoria and 223rd Streets. By mid-1969, only the westernmost segment between Alameda Street in east Carson and the Palos Verdes Reservoir had yet to be completed. Metropolitan contractors finished that westernmost segment in September 1970. The Second Lower Feeder's final price tag was $35,341,744. It included approximately 30 miles of 78-inch diameter PCCP. In addition to the cities already mentioned, segments of the Second Lower Feeder are located in Rolling Hills Estates, Lomita, Torrance, Los Angles, Lakewood, and unincorporated areas of Los Angeles and Orange counties (*Los Angeles Times* 1966:OC1; Metropolitan 1967:119; 1969:133; 1970:33; 1975:20).

Connecting to the Foothill Feeder, the Sepulveda Feeder system would consist of a 60-mile-long main distribution line extending south to a connection with the Second Lower Feeder in Torrance, as well as the Joseph Jensen Treatment Plant (initially the Balboa Water Treatment Plant), the East Valley Feeder and the West Valley Feeder No. 1 (the existing Calleguas Conduit), the West Valley Feeder No. 2, and the Calabasas Feeder. Construction of the Sepulveda Feeder began in May 1968 with work on the outlet tunnel from the Jensen Treatment Plant south to Chatsworth Street in Granada Hills. Construction on the Sepulveda Tunnel through the Santa Monica Mountains began in September 1968. Metropolitan contractors finished laying the main Sepulveda Feeder line in October 1972. The completed main Sepulveda Feeder line from the Jensen Filtration Plant to its connection with the Second Lower Feeder consisted of approximately 37 miles of 150-inch-diameter PCCP, 120-inch-diameter PCCP, and 96-inch-diameter PCCP. The overwhelming majority of the feeder's pipeline was 96-inch-diameter PCCP. The portions of the Sepulveda Feeder included in the proposed PCCP Rehabilitation Program are in Torrance, Carson, Gardena, Hawthorne, Inglewood, and Los Angeles (Metropolitan 1966:81–83; 1969:148; 1970:85, 128; 1975: 18–19).

AWWA standards for PCCP (PCCPC301) underwent limited additional revisions in 1972 and 1979. The 1972 revision increased the diameter size limit for EC-PCCP from 96 inches to 144 inches, and lowered the minimum PCCP steel cylinder thickness from 16 gauge (0.060 inch) to 18 gauge (0.048 inch) for pipe 48 inches or less in diameter, and retained the 16 gauge minimum cylinder thickness

for pipe 54 inches or more in diameter. The 1979 revision increased the 48-inch-diameter size limit for LC-PCCP, which was part of the 1955 revision, to 60 inches. The 1979 revision included a notation that the largest EC-PCCP manufactured by that year was 252-inch-diameter pipe for siphons on the Central Arizona Project (AWWA 2008:60, 64–65)

Two Metropolitan feeder lines to be rehabilitated as part of the current PCCP Rehabilitation Program were constructed during the first half of the 1970s: the Rialto Pipeline and the Calabasas Feeder. The Rialto Pipeline was planned as the fifth easterly reach of the Foothill Feeder, to be constructed between the San Dimas terminus of the fourth reach and the Devil Canyon power plant approximately 29 miles to the east. Metropolitan contractors began work on the first 7.6-mile segment of the pipeline through unincorporated areas of San Bernardino County in 1969. By June 1974, the pipeline had been completed through or north of the cities of San Bernardino, Rialto, Fontana, Rancho Cucamonga, Upland, and a portion of Claremont. In June 1975, a Metropolitan contractor finished the final segment from San Dimas east through La Verne to Thompson Creek in Claremont. The completed Rialto Pipeline included approximately 16 miles of 96-inch-, 121.5-inch-, and 136.5-inch-diameter PCCP (Metropolitan 1968:92, 97; 1969:121; 1970:85; 1974:64; 1975:18, 97).

Metropolitan planned the Calabasas Feeder as a subsidiary line of the Sepulveda Feeder system to extend from a connection with the West Valley Feeder No. 2 south to the boundary of the Las Virgenes Municipal Water District service area at Calabasas. Construction of the Calabasas Feeder from Chatsworth Street in Chatsworth south to U.S. Highway 101 began in 1973. Metropolitan contractors finished the feeder line in January 1975. As completed, the Calabasas Feeder consisted entirely of approximately 9.3 miles of 54-inch-diameter PCCP. The Calabasas Feeder is in the cities of Calabasas, Hidden Hills, and Los Angeles (Metropolitan 1967:84; 1970:87; 1973:108, 110; 1975:19, 96, 99).

Of the five PCCP lines included in the PCCP Rehabilitation Program, the last to be constructed was the Allen-McColloch Pipeline. Metropolitan of Orange County built the 26-mile pipeline on behalf of 11 participating agencies, including the Municipal Water District of Orange County (MWDOC), to supply eastern Orange County with Colorado River and SWP water. Construction was completed in early 1981. When dedicated in March 1981, the pipeline was named for Glenn Allen, former MWDOC board president, and Clem M. McColloch, who died soon after the pipeline was completed and also served as MWDOC board president. The southern 9-mile reach of the pipeline was constructed of PCCP. Metropolitan annual reports from this era did not specify the PCCP diameter and did not include the Allen-McColloch Pipeline in maps of its Southern California distribution system. The pipeline is in the cities of Yorba Linda, Anaheim, Orange, Tustin, Irvine, Lake Forest, and Mission Viejo (*Los Angeles Times* 1981: Part II-6; Metropolitan 1981:82–83; Metropolitan 1981:120–21; MWDOC 2014:4, 20).

California Register Eligibility of PCCP Segments of Program Pipelines

None of the PCCP portions of the Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, or Sepulveda Feeder appear to be eligible for listing on the CRHR. Consequently, none of these water conveyance resources appear to qualify as historical resources for the purposes of CEQA.

Water conveyance systems and features that clearly demonstrable historic significance are apt to be found eligible for CRHR listing under Criterion 1, for association with important events that have made a significant contribution to the broad patterns of our history, and/or Criterion 3, as resources

that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master. When water conveyance systems or features represent the work of a master, it typically means that a historically significant engineer or builder designed them and managed their construction. It is extremely rare for a historic-period water conveyance system or feature to be found eligible for listing under Criterion 2, for association with the lives of persons important to our past other than individuals who designed and/or built those systems or features. Individual features of a water conveyance system determined not to possess sufficient historical significance to qualify for individual CRHR listing can be found eligible for CRHR listing if they contribute to a larger historically significant system that qualifies for CRHR listing as a historic district. For more information on this topic, see Appendix E.

4.5.2.2 Allen-McColloch Pipeline

The Allen-McColloch Pipeline, which is approximately 26 miles in length, is in Orange County and within the city limits of Yorba Linda, Anaheim, Orange, Tustin, Lake Forest, and Mission Viejo. The pipeline originates from the Diemer Water Treatment Plant in unincorporated Orange County. The Allen-McColloch Pipeline exits the Diemer Water Treatment Plant to the southeast below the Black Gold Golf Club prior to continuing south between residential and commercial land uses in Yorba Linda. After crossing the Santa Ana River and State Route 91, the pipeline generally runs parallel to Imperial Highway before crossing undeveloped and residential land. It continues southeast along the outskirts of Orange, Tustin, and Irvine, traversing primarily undeveloped and agricultural land until entering residential and commercial land of Lake Forest. The Allen-McColloch Pipeline terminates at the El Toro Reservoir in Mission Viejo.

Table 4.5-2 documents the record search for the Allen-McColloch Pipeline.

Table 4.5-2. Allen-McColloch Pipeline – Known Cultural Resources

Trinomial	Primary Number	Eligibility Status	Type/Description	Location in relation to Allen-McColloch Pipeline
n/a	P-30-177541	Does not qualify	Calvary Chapel Church, a Modern-style religious building.	Approximately 54 feet west.
CA-Ora-369	P-30-000369	Unevaluated	Minute shell material and polyhedral core. No interpretive value for the prehistory of area.	Allen-McColloch Pipeline crosses center of site.
CA-Ora-1172	P-30-001172	Unevaluated	Lithic scatter on surface of small knoll—some indication of buried materials.	Allen-McColloch Pipeline crosses western portion of site.
CA-Ora-556	P-30-000556	Unevaluated	Widespread, moderately dense concentration of groundstone and chipped stone artifacts along a ridge top.	Approximately 185 feet northeast.

Trinomial	Primary Number	Eligibility Status	Type/Description	Location in relation to Allen-McColloch Pipeline
n/a	P-30-001548	Unevaluated	Apparent water control impoundment and associated scatter of refuse materials. Remnants of an earthen dam, concrete headwall, and pre-cast delivery pipe are visible on the southern end.	Site of earthen dam is approximately 340 feet east; pipeline crosses associated ditch, part of site, at three points along Jamboree Road.
n/a	P-30-176748	Unevaluated	A portion of the Highline Canal constructed in 1933. Associated features of the canal are several diversion gates, debris traps, flume remains, and conduits.	One portion of canal is approximately 130 feet southwest.
n/a	P-30-176777	Unevaluated	Lambert Ranch, 55-acre property built in 1915.	Northern portion of site is approximately 73 feet southwest.
CA-Ora-649	P-30-000649	Unevaluated	Lithic scatter of flaked materials (cherts and quartzites).	Pipeline crosses the southwestern portion of the site.
CA-Ora-650	P-30-000650	Unevaluated	Milling and flaking station along ridgeline. Ground and chipped stone scattered throughout sagebrush. Extensively disturbed by terracing.	Pipeline crosses the western portion of the site.
CA-Ora-244 CA-Ora-651 CA-Ora-652	P-30-000244	Unevaluated	A large complex village site. Lithic scatter on a small finger of ridge overlooking the mouth of Bee Canyon.	Pipeline crosses the western portion of the site.
CA-Ora-1356	P-30-001356	Unevaluated	Surface artifacts include groundstone, cores, scraper plane, and debitage.	Pipeline crosses the northeastern portion of the site.
CA-Ora-647	P-30-000647	Unevaluated	Rather dense scatter of chipped lithic material on the surface of a ridge.	Pipeline crosses the northeastern portion of the site.
CA-Ora-536	P-30-100188	Unevaluated	Several isolated artifacts identified on the site.	Approximately 130 feet northeast (completely paved).
CA-Ora-536	P-30-100187	Unevaluated	Several isolated artifacts identified on the site.	Approximately 65 feet northeast (completely developed).

Table 4.5-3 lists the geologic formations (McLeod 2015a) crossed by the Allen-McColloch Pipeline, divided geographically, as the route crosses different formations in different hill and mountain exposures. All of these geologic units have high paleontological sensitivity. General types of fossils that have been recovered from these sediments are also listed. (Younger Holocene-age alluvium is

not listed in this table.) Notably, a locality in Santiago Canyon south of Modjeska produced a specimen of a duck billed dinosaur, Hadrosauridae, extremely rare in California.

Table 4.5-3. Allen-McColloch Pipeline – Geologic Formations

Formation/Age	Known Fossils Recovered
Puente Hills Area	
Older Quaternary Alluvium	Land mammals and birds
La Habra—late Pleistocene	Land mammals and birds
Fernando—Pliocene	Marine fish, invertebrates, and mammals
Puente—late Miocene (sometimes called Monterey-Sycamore Canyon)	Marine fish and mammals
Peralta Hills/N. Santa Ana Mountains	
Topanga—middle Miocene	Land mammals, marine mammal, marine birds, fish
Vasqueros/Sespe—Late Eocene-early Miocene	Land mammals, marine mammals, marine birds, and fish
Ladd/Williams—late Cretaceous	Hadrosauridae
Southern Santa Ana Mountains	
Niguel—Pliocene	marine mammals, land mammals
Capistrano—late Miocene	marine mammals, land mammals
Monterey—middle to late Miocene	marine mammals and fish
Topanga—middle Miocene	Land mammals and marine mammal, marine birds, fish

4.5.2.3 Calabasas Feeder

The Calabasas Feeder, which is approximately 9.3 miles long, is in Los Angeles County and travels primarily within the city limits of Los Angeles, with a short portion of the pipeline within the city limits of Hidden Hills and Calabasas. The Calabasas Feeder originates from West Valley Feeder No. 2 in the city of Los Angeles and follows Owensmouth Avenue south through densely populated residential and commercial areas. At Chase Street, the Calabasas Feeder heads west and south, continuing through residential neighborhoods. The Calabasas Feeder then turns southwest and parallels U.S. Highway 101 (US-101) through primarily commercial areas prior to terminating at the Las Virgenes Municipal Water District Service Connection in Calabasas.

Table 4.5-4 documents the record search for the Calabasas Feeder. Listed in the table are all recorded historic-period and prehistoric archaeological sites and built environment resources that occur on or immediately adjacent to the existing pipeline.

Table 4.5-4. Calabasas Feeder – Known Cultural Resources

Trinomial	Primary Number	Eligibility Status	Type/Description	Location in relation to Calabasas Feeder
CA-LAn-964H	P-19-000964	Unevaluated	Standing two-story adobe occupied by Miguel Leonis in the 1870s.	Approximately 260 feet southeast.
CA-LAn-964H	P-19-187332	Listed on NRHP	Also the Leonis Adobe.	Approximately 260 feet southeast.
n/a	P-19-187331	Appears Ineligible	Sagebrush Cantina, formerly retail stores, built in 1924.	Approximately 430 feet southeast.

Table 4.5-5 lists the geologic formations crossed by the Calabasas Feeder and general types of fossils recovered in these sediments (McLeod 2015b). All of these geologic units have high paleontological sensitivity, except for the younger Quaternary/Holocene-age alluvium.

Table 4.5-5. Calabasas Feeder – Geologic Formations

Formation/Age	Known Fossils Recovered
Younger Quaternary/Holocene Alluvium	Very Low sensitivity
Older Quaternary Alluvium	Land mammals and birds, marine mammals
Upper Modelo—late Miocene	marine mammals and birds
Monterey—middle to late Miocene	marine mammals and fish

4.5.2.4 Rialto Pipeline

The Rialto Pipeline, which is approximately 30 miles long, is in San Bernardino and Los Angeles counties and travels within the city limits of San Bernardino, Rialto, Fontana, Rancho Cucamonga, Upland, Claremont, La Verne, and San Dimas, as well as small portions of unincorporated areas in the two counties. The Rialto Pipeline originates at the California Department of Water Resources' Devil Canyon Facility in the city of San Bernardino and exits the facility to the southwest along Pine Avenue through residential areas. After crossing Interstate 215 (I-215), the Rialto Pipeline continues southwest through vacant and industrial land until entering the northern portions of Rialto and Fontana, where the pipeline traverses a mixture of residential, commercial, and open space. In Rancho Cucamonga, Upland, and Claremont, the Rialto Pipeline travels generally along Interstate 210 (I-210) through primarily residential areas and open space. After traveling to the south of Live Oak Reservoir, the Rialto Pipeline continues through La Verne, traveling between residential neighborhoods, open space, and golf courses. The Rialto Pipeline continues into San Dimas, where it parallels North San Dimas Canyon Road through open space and residential neighborhoods prior to terminating at the San Dimas Power Plant Control Structure.

Table 4.5-6 documents the record search for the Rialto Pipeline. Listed in the table are all recorded historic-period and prehistoric archaeological sites and built environment resources that occur on or immediately adjacent to the existing pipeline.

Table 4.5-6. Rialto Pipeline – Known Cultural Resources

Trinomial	Primary Number	Eligibility Status	Type/Description	Location in relation to Rialto Pipeline
n/a	P-36-060258	Unevaluated	The isolate consists of a mortar ground into a sandstone/limestone boulder 40 centimeters in diameter. Probably redeposited through flooding episodes of Cucamonga Creek.	Approximately 100 feet northwest.
n/a	P-36-016474	Listed on the NRHP	Sam and Alfreda Maloof Residence and Studio.	Approximately 175 feet southeast.
CA-SBR-16156H	P-36-004946	Unevaluated	12 Historic Era rock piles.	Approximately 200 feet east (completely destroyed by subdivision).
CA-SBR-16156H	P-36-013748	Unevaluated	Etiwanda Colony water distribution system. Remnants of ceramic pipes and concrete structures.	Approximately 90 feet north.
CA-SBR-16155H	P-36-025410	Unevaluated	Manmade flood control berm.	Approximately 43 feet north.
n/a	P-36-013747	Unevaluated	Sparse scattering of glass and ceramics and metal.	Approximately 43 feet north.
n/a	P-36-013749	Unevaluated	Two structural foundations in the mouth of the canyon.	Rialto Pipeline crosses the southern end of the site.
CA-SBR-6589H	P-36-006589	Unevaluated	Grapeland Irrigation Canal.	Rialto Pipeline crosses the site at Cypress Avenue.
CA-SBR-11508H	P-36-011508	Unevaluated	Dirt road and two asphalt-lined ditches.	Rialto Pipeline crosses the site at Cypress Avenue.
CA-SBR-12608	P-36-013614	Unevaluated	A dirt road, concrete pad, asphalt, rusted metal, a palm stump, and tree trunk.	Rialto Pipeline crosses the southeastern portion of the site.
CA-SBR-13700H	P-36-021326	Unevaluated	A segment of the Union Pacific Railroad Company's Colton-Palmdale Cutoff and bridge over Institution Road.	Rialto Pipeline crosses the site at Cajon Blvd.

Table 4.5-7 lists the geologic formations crossed by the Rialto Pipeline and general types of fossils recovered in these sediments (McLeod 2015c). The older Quaternary Alluvium and the Puente Formation have high paleontological sensitivity.

Table 4.5-7. Rialto Pipeline – Geologic Formations

Formation/Age	Known Fossils Recovered
Younger Quaternary/Holocene Alluvium	Very Low sensitivity
Older Quaternary Alluvium	Land mammals and birds
Puente—late Miocene (sometimes called Monterey-Sycamore Canyon)	Marine fish and mammals
Pelona Schist	No sensitivity
Plutonic igneous rock	No sensitivity

4.5.2.5 Second Lower Feeder

The Second Lower Feeder, which is approximately 39 miles long, is in Orange County and Los Angeles County and travels within the city limits of Yorba Linda, Placentia, Anaheim, Buena Park, Cypress, Los Alamitos, Long Beach, Carson, Los Angeles, Torrance, Lomita, and Rolling Hills Estates, plus unincorporated areas of the two counties. The pipeline originates at the Diemer Water Treatment Plant in Yorba Linda and exits the facility to the west across vacant land, before turning south and crossing the Black Gold Golf Course. The Second Lower Feeder continues southwest through Yorba Linda, traversing residential and commercial areas along several roadways. Upon entering Placentia, the pipeline parallels Angelina Drive through residential, open space, and commercial areas. It continues southwest through Anaheim, traversing more residential, open space, and commercial areas, prior to heading west along Ball Road through Buena Park and Cypress. In Los Alamitos, the Second Lower Feeder crosses west through El Dorado East Regional Park and continues west into Long Beach and slightly into Lakewood through residential neighborhoods prior to paralleling the northern edge of the Skylinks at Long Beach Golf Course and the Long Beach Airport. The pipeline continues west along roadways in developed neighborhoods prior to crossing the Los Angeles River and Interstate 710 (I-710) just north of Interstate 405 (I-405). The Second Lower Feeder enters Carson along Carson Street and continues west, traveling through business, residential, and commercial areas, then turns south along Western Avenue, and continues through a small portion of unincorporated Los Angeles County and the city of Los Angeles. Prior to terminating at the Palos Verdes Reservoir, the Second Lower Feeder travels southwest, barely touching into Torrance and Lomita, and passing through Rolling Hills Country Club along Palos Verdes Drive.

Table 4.5-8 documents the record search for the Second Lower Feeder. Listed in the table are all recorded historic-period and prehistoric archaeological sites and built environment resources that occur on or immediately adjacent to the existing pipeline.

Table 4.5-8. Second Lower Feeder – Known Cultural Resources

Trinomial	Primary Number	Eligibility Status	Type/Description	Location in relation to Second Lower Feeder
n/a	P-19-287085	California Historical Landmark #963	The Mojave Road. Former Indian trade route and U.S. Army road.	Pipeline crosses the site at Alameda Street (State Route 47).
CA-LAn-281	P-19-000281	Unevaluated	Deep dark midden deposit. Probable village. Site removed in construction of reservoir.	Western portion of site adjacent.

Table 4.5-9 lists the geologic formations crossed by the Second Lower Feeder and general types of fossils recovered in these sediments (McLeod 2015d), divided geographically, as the route begins in the Puente Hills, crosses the broad alluvial expanses of the Los Angeles Basin, and terminates in the Palos Verdes Peninsula. (Younger Holocene-age alluvium is not listed in this table.) All of these geologic units have high paleontological sensitivity, except for the Malaga Mudstone, which is a deep sea deposit. However, this unit may encompass evidence of deep water fossils and is considered possibly sensitive for fossil resources.

Table 4.5-9. Second Lower Feeder – Geologic Formations

Formation/Age	Known Fossils Recovered
Puente Hills	
Older Quaternary Alluvium	Land mammals and birds
La Habra—late Pleistocene	Land mammals and birds
Fernando—Pliocene	Marine fish, invertebrates, and mammals
Palos Verdes Peninsula	
Older Quaternary Alluvium (Palos Verdes Sand)	Land mammals, marine mammals, and birds
San Pedro Sand—early Pleistocene	Land mammals, marine mammals, and birds
Timms Point Sand—early Pleistocene	marine mammals and fish
Lomita Marl—early Pleistocene	marine mammals, birds, and fish
Fernando-Pliocene	Marine fish
Malaga Mudstone—late Miocene	No known recovery to date
Monterey—middle to late Miocene	
Valmonte Diatomite member	marine mammals and fish
Altamira Shale member	marine mammals and fish

4.5.2.6 Sepulveda Feeder

The Sepulveda Feeder, which is approximately 42 miles long, is in Los Angeles County and travels within the city limits of Los Angeles, Culver City, Inglewood, Hawthorne, Gardena, and Torrance, plus a small unincorporated area of Los Angeles County. The Sepulveda Feeder originates at the Jensen Water Treatment Plant in the city of Los Angeles and exits the facility to the south through residential neighborhoods and the eastern portion of the Knollwood Golf Course. The Sepulveda

Feeder continues south along Hayvenhurst Avenue, traversing mixed residential, commercial, vacant lots, agricultural fields, and the Van Nuys Airport. Just north of the Van Nuys Golf Course, the Sepulveda Feeder turns east through residential areas and crosses I-405, prior to paralleling the freeway south into developed portions of the Sherman Oaks and Encino neighborhoods of Los Angeles. The Sepulveda Feeder continues to generally parallel I-405 toward the southeast into Culver City and Inglewood, where it traverses commercial and residential areas. Near the Ladera Heights neighborhood, the Sepulveda Feeder travels east through primarily residential neighborhoods before turning south and paralleling Van Ness Avenue through developed portions of Hawthorne, Gardena, and Torrance. The Sepulveda Feeder terminates at the Second Lower Feeder Interconnection in Torrance.

Table 4.5-10 documents the record search for the Sepulveda Feeder. Listed in the table are all recorded historic-period and prehistoric archaeological sites and built environment resources that occur on or immediately adjacent to the existing pipeline.

Table 4.5-10. Sepulveda Feeder – Known Cultural Resources

Trinomial	Primary Number	Eligibility Status	Type/Description	Location in relation to Sepulveda Feeder
n/a	P-19-190584	Not eligible	RMG Hathaway Office Building.	Approximately 30 feet east.
n/a	P-19-188103	Not eligible	One-story, single-family residence constructed in 1946.	Approximately 183 feet east.
n/a	P-19-187739	Eligible	Concrete tunnel and roadway built in 1929.	Sepulveda Feeder crosses site.
n/a	P-19-173043	Listed on NRHP	Veterans Administration Medical Center: 14 Spanish colonial/mission revival buildings.	Adjacent on east.
n/a	P-19-188905	Not evaluated	Bridge 53-1099S, constructed in 1957, is a concrete box-girder bridge.	Adjacent on northeast.
n/a	P-19-190026	Not eligible for CRHR	Spanish Eclectic-style house built in 1937 that was modified into an office in 1974.	Approximately 85 feet northeast.
n/a	P-19-189764	Recommended eligible	Westdale Savings and Loan building, built in 1961.	Approximately 63 feet east.
n/a	P-19-189769	Not eligible	Two-story apartment building built in 1952.	Approximately 66 feet southwest.
n/a	P-19-190592	Not eligible	One-story, rectangular-shaped, symmetrical, Modern-style commercial building.	Approximately 53 feet southwest.
n/a	P-19-186740	Not eligible	St. Eugene Church. Built in 1954.	Approximately 46 feet east.

Table 4.5-11 lists the geologic formations crossed by the Sepulveda Feeder and general types of fossils recovered in these sediments (McLeod 2015e). All of these geologic units have high paleontological sensitivity, except for the Santa Monica Slate. (Younger Quaternary/Holocene-age alluvium is not listed in the table.)

Table 4.5-11. Sepulveda Feeder – Geologic Formations

Formation/Age	Known Fossils Recovered
Granada Hills	
Older Quaternary Alluvium	Land mammals and birds
Saugus—Plio-Pleistocene	Land mammals
Santa Monica Mountains	
Upper Modelo—late Miocene	marine mammals and birds
Monterey—middle to late Miocene	marine mammals and fish
Chico—late Cretaceous	Shark's teeth
Santa Monica Slate—Jurassic	None—very Low Sensitivity

4.5.3 Regulatory Framework

This section describes the plans, policies, and regulations related to cultural resources that are applicable to the proposed program.

4.5.3.1 Federal

There are no applicable federal regulations to cultural resources given that there is no federal nexus to the proposed program.

4.5.3.2 State

California Environmental Quality Act

CEQA, as codified in Public Resources Code (PRC) Sections 21000 et seq. and implemented through the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15000 et seq.), is the principal statute governing the environmental review of projects in the state. To be considered an historical resource, a resource must be at least 50 years old. In addition, the State CEQA Guidelines define an *historical resource* as follows.

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the California Register of Historical Resources (Pub. Res. Code § 5024.1, Title 14 CCR, Section 4850 et seq.).

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code § 5024.1, Title 14 CCR, Section 4852) including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

For a resource to be eligible for the CRHR, it must also retain enough integrity to be recognizable as an historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the NRHP criteria may still be eligible for listing in the CRHR. .

CEQA requires lead agencies to determine if a proposed project would have a significant effect on important historical resources or unique archaeological resources. If a lead agency determines that an archaeological site is an historical resource, CEQA would apply (PRC Section 21084.1 and State CEQA Guidelines Section 15064.5). If an archaeological site does not meet the State CEQA Guidelines criteria for an historical resource, then the site may meet the threshold of PRC Section 21083.2 regarding unique archaeological resources. A *unique archaeological resource* is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria (PRC Section 21083.2 (g)).

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

The State CEQA Guidelines note that if a resource is neither a unique archaeological resource nor an historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 CCR Section 15064(c)(4)).

Paleontological resources are afforded protection by CEQA per Appendix G of the State CEQA Guidelines, which provides guidance relative to significant impacts on paleontological resources. This guidance indicates that a project would have a significant impact on paleontological resources if it would disturb or destroy a unique paleontological resource or site or unique geological feature.

California Health and Safety Code Section 7050.5

California State Law, Section 7050.5 of the California Health and Safety Code states:

(a) Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the Public Resources Code. The provisions of this subdivision shall not apply to any person carrying out an agreement developed pursuant to subdivision (l) of Section 5097.94 of the Public Resources Code or to any person authorized to implement Section 5097.98 of the Public Resources Code.

(b) In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the [California] Government Code, that the remains are not subject to the provisions of Section 27491 of the [California] Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code. The coroner shall make his or her determination within two working days from the time the person responsible for the excavation, or his or her authorized representative, notifies the coroner of the discovery or recognition of the human remains.

(c) If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission.

Of particular note to cultural resources is subsection (c), requiring the coroner to contact the Native American Heritage Commission (NAHC) within 24 hours if discovered human remains are determined to be Native American in origin. After notification, NAHC will follow the procedures outlined in PRC Section 5097.98, which include notification of most likely descendants, if possible, and recommendations for treatment of the remains. The most likely descendants will have 24 hours after notification by NAHC to make their recommendation (PRC Section 5097.98). In addition, knowing or willful possession of Native American human remains or artifacts taken from a grave or cairn is a felony under state law (PRC Section 5097.99).

Public Resources Code Sections 5097.5 and 30244

PRC Section 5097.5 prohibits excavation or removal of any "vertebrate paleontological site or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands." Section 30244 requires reasonable mitigation of adverse impacts on paleontological resources from development on public land.

4.5.3.3 Local

Table 4.5-12 lists the applicable cultural resources regulations for each jurisdiction for the proposed program.

Table 4.5-12. Applicable Cultural Resources Regulations for Proposed Program

Title of Governing Document (date)	Applicable Plan, Policy, and/or Regulation

Allen-McColloch Pipeline	
Orange County General Plan (2014)	**Resource Element, Cultural-Historic Resource Preservation, Goal 2.0**: To encourage through a resource management effort the preservation of the county's cultural and historic heritage. **Cultural-Historic Resource Preservation, Objective 2.2**: Take all reasonable and proper steps to achieve the preservation of archaeological and paleontological remains, or their recovery and analysis to preserve cultural, scientific, and educational values. **Cultural-Historic Resource Preservation, Objective 2.3**: Take all reasonable and proper steps to achieve the preservation and use of significant historic resources including properties of historic, historic architectural, historic archaeological, and/or historic preservation value. **Cultural-Historic Resource Preservation, Goal 3**: To preserve and enhance buildings structures, objects, sites, and district of cultural and historic significance. **Cultural-Historic Resource Preservation, Objective 3.1**: Undertake actions to identify, preserve, and develop unique and significant cultural and historic resources.
Yorba Linda General Plan (1993)	**Recreation and Resources Element, Goal 12, Policy 12.1:** Protect significant areas of historical, archaeological, educational or paleontological resources. **Recreation and Resources Element, Goal 12, Policy 12.2:** Require effective mitigation measures where development may affect historical, archaeological or paleontological resources. **Recreation and Resources Element, Goal 12, Policy 12.3:** Require the preparation of archaeological or paleontological reports in areas where there is potential to impact cultural resources. **Recreation and Resources Element, Goal 12, Policy 12.4:** Require that an archaeologist be retained to observe grading activities in areas where the probable presence of archaeological or paleontological resources is indicated. **Recreation and Resources Element, Goal 12, Policy 12.5:** Preserve uncovered resources in their natural state, as much as feasible to assure their preservation and availability for later study. **Historic Resources Element, Goal 1, Policy 1.1:** Encourage the preservation, maintenance, enhancement and reuse of existing historic buildings in redevelopment and commercial areas. **Historic Resources Element, Goal 2:** Preserve, protect and restore significant architectural and historical sites, structures and districts in the City. **Historic Resources Element, Goal 2, Policy 2.3:** Implement Preservation Mechanisms designating any site, structure, district area deemed to be of local, historical, architectural, or cultural significance. In conjunction, seek Certified Local Ordinance and Certified Local Government status from the California Office of Historic Preservation.

City of Orange General Plan (2010)	**Cultural Resources and Historic Preservation, Goal 1.0**: Identify and preserve potential and listed historic resources, including buildings, structures, objects, sites, districts, and archaeological resources citywide **Cultural Resources and Historic Preservation, Goal 2.0:** Identify and preserve neighborhoods that are culturally and historically significant but do not retain sufficient integrity for eligibility as a local, state, or national district. **Cultural Resources and Historic Preservation, Goal 4.0, Policy 4.1:** Identify, designate, and protect historically and culturally significant archaeological resources or sites. **Cultural Resources and Historic Preservation, Goal 4.0, Policy 4.2**: Recognize the importance of Santiago Creek as an archaeological resource.
Tustin General Plan (2013)	**Land Use Element, Goal 5.0, Policy 5.5**: Encourage the restoration and rehabilitation of properties in Tustin eligible for inclusion on the National Register of Historic Places according to the rehabilitation guidelines and tax incentives of the National Trust for Historic Preservation. **Land Use Element, Goal 6.0, Policy 6.5**: Preserve historically significant structures and sites, and encourage the conservation and rehabilitation of older buildings, sites and neighborhoods that contribute to the City's historic character. **Conservation/Open Space/Recreation Element, Goal 12.0, Policy 12.1**: Identify, designate, and protect facilities of historical significance, where feasible. **Conservation/Open Space/Recreation Element, Goal 12.0, Policy 12.2**: Retain and protect significant areas of archaeological, paleontological, or historical value for education and scientific purposes.
City of Irvine General Plan (2012)	**Cultural Resources Element, Objective E-2:** Evaluate surveyed sites for their present and potential cultural, educational, recreational, and scientific value to the community and the region, and determine their proper disposition prior to the approval of any project which could adversely affect them. **Conservation and Open Space Element, Objective L-7**: Use and maintain societal resources, including, but not limited to, archeological historical and paleontological resources, as part of the City's land use pattern.
Lake Forest General Plan (1994)	**Recreation Element, Goal 4.0, Policy 4.1:** Protect areas of important historic, archaeological, and paleontologic resources. **Recreation Element, Goal 4.0, Policy 4.2:** Identify, designate, and protect buildings or sites of historical significance.
Mission Viejo General Plan (2013)	**Conservation and Open Space Element, Policy 1.2**: Utilize a development review process to mitigate the impacts of development on sensitive lands such as steep slopes, wetlands, cultural resources, oak woodlands and sensitive habitats.
Calabasas Feeder	
City of Los Angeles General Plan (2001)	**Conservation Element, Archaeological and Paleontological, Objective:** Protect the city's archaeological and paleontological resources for historical, cultural, research and/or educational purposes. **Conservation Element, Archaeological and Paleontological, Policy:** Continue to identify and protect significant archaeological and paleontological sites and/or resources known to exist or that are identified during land development, demolition or property modification activities. **Conservation Element, Cultural and Historical, Objective:** Protect

	important cultural and historical sites and resources for historical, cultural, research, and community educational purposes. **Conservation Element, Cultural and Historical, Policy:** Continue to protect historic and cultural sites and/or resources potentially affected by proposed land development, demolition or property modification activities.
Calabasas General Plan (2015)	**Community Design Element, Policy IX-2:** Preserve, protect, and enhance landmarks, sites, historic landscapes and districts, and areas of historical, cultural, and urban design significance. **Historic Resources Element, Policy XI-2:** Preserve significant archeological and paleontological resources in-situ, when feasible. When avoidance of impacts is not possible, require data recovery mitigation for all significant resources. All forms of excavation in deposits of Native American origin shall be coordinated and monitored by representatives of the Chumash nation.
Rialto Pipeline	
City of San Bernardino General Plan (2005)	**Historical and Archaeological Resources, Goal 11.1:** Develop a program to protect, preserve, and restore the sites, buildings and district that have architectural, historical, archaeological, and/or cultural significance. **Historical and Archaeological Resources, Goal 11.4:** Protect and enhance our historic and cultural resources. **Historical and Archaeological Resources, Goal 11.5:** Protect and enhance our archaeological resources.
San Bernardino County General Plan (2014)	**Conservation Element, Goal CO 3:** The County will preserve and promote its historic and prehistoric cultural heritage. **Conservation Element, Policy CO 3.1:** Identify and protect important archaeological and historic cultural resources in areas of the County that have been determined to have known cultural resource sensitivity. **Conservation Element, Policy CO 3.5:** Ensure that important cultural resources are avoided or minimized to protect Native American beliefs and traditions. **Open Space Element, Goal OS 4:** The County will preserve and protect cultural resources throughout the County, including parks, areas of regional significance, and scenic, cultural and historic sites that contribute to a distinctive visual experience for visitors and quality of life for County residents.
Rialto General Plan (2010)	**Cultural and Historic Resources, Goal 7-1:** Preserve Rialto's significant historical resources as a source of community identity, stability, aesthetic character, and social value. **Cultural and Historic Resources, Goal 7-3:** Identify, document, and protect significant archaeological resources in Rialto. **Cultural and Historic Resources, Policy 7-3.1:** Require archaeological surveys during the development review process for all projects in archaeologically sensitive areas where no previous surveys are recorded.
City of Fontana General Plan (2003)	**Open Space and Conservation, Goal #4.2**: The City will encourage and support the preservation, rehabilitation, and/or restoration of historical and archaeological resources within the City boundaries and its sphere of influence.
Rancho Cucamonga General Plan (2010)	**Land Use, Community Design, and Historic Resources, Policy LU-16:** Protect historic resources. **Land Use, Community Design, and Historic Resources, Policy LU-19:** Identify and protect historic districts and neighborhood character areas.

Upland General Plan (2015)	**Community Character Element, Policy CC-9.3**: Ensure that City, State, and federal historic preservation laws, regulations, and codes related to historical resources are implemented, including the California Historical Building Code and State laws related to archaeological and paleontological resources, to ensure the adequate protection of these resources.
City of Claremont General Plan (2009)	**Land Use Element, Goal 2-14, Policy 2-14.1:** Continue to protect architectural, historical, open space, environmental, and archeological resources throughout the City. **Land Use Element, Goal 2-14, Policy 2-14.6:** Strive to prevent the demolition of structures listed on Register of Historical and Architectural Merit of the City.
Los Angeles County General Plan (2015)	**Conservation and Natural Resources Element, Policies for Historic, Cultural, and Paleontological Resources, Policy C/NR 14.2:** Support an inter-jurisdictional collaborative system that protects and enhances historic, cultural, and paleontological resources. **Conservation and Natural Resources Element, Policies for Historic, Cultural, and Paleontological Resources, Policy C/NR 14.6**: Ensure proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.
La Verne General Plan (1999)	**Cultural Resources Element, Policy 2.5:** Pursue preservation of archeological resources.
San Dimas General Plan (1991)	**Conservation Element, Goal Statement CN-2:** Conserve the historical and cultural resources of San Dimas. **Conservation Element, Policy 2.1.1:** Preserve significant paleontological and archaeological sites. Evaluate the significance of each site on a case by case basis. **Conservation Element, Policy 2.1.2:** Preserve significant historical resources within the City of San Dimas. Evaluate each historical structure, place and site on a case by case basis.
Second Lower Feeder	
Orange County General Plan (2014)	**Resource Element, Cultural-Historic Resource Preservation, Goal 2.0**: To encourage through a resource management effort the preservation of the county's cultural and historic heritage. **Cultural-Historic Resource Preservation, Objective 2.2**: Take all reasonable and proper steps to achieve the preservation of archaeological and paleontological remains, or their recovery and analysis to preserve cultural, scientific, and educational values. **Cultural-Historic Resource Preservation, Objective 2.3**: Take all reasonable and proper steps to achieve the preservation and use of significant historic resources including properties of historic, historic architectural, historic archaeological, and/or historic preservation value. **Cultural-Historic Resource Preservation, Goal 3**: To preserve and enhance buildings structures, objects, sites, and district of cultural and historic significance. **Cultural-Historic Resource Preservation, Objective 3.1**: Undertake actions to identify, preserve, and develop unique and significant cultural and historic resources.

Yorba Linda General Plan (1993)	**Recreation and Resources Element, Goal 12, Policy 12.1:** Protect significant areas of historical, archaeological, educational or paleontological resources. **Recreation and Resources Element, Goal 12, Policy 12.2:** Require effective mitigation measures where development may affect historical, archaeological or paleontological resources. **Recreation and Resources Element, Goal 12, Policy 12.3:** Require the preparation of archaeological or paleontological reports in areas where there is potential to impact cultural resources. **Recreation and Resources Element, Goal 12, Policy 12.4:** Require that an archaeologist be retained to observe grading activities in areas where the probable presence of archaeological or paleontological resources is indicated. **Recreation and Resources Element, Goal 12, Policy 12.5:** Preserve uncovered resources in their natural state, as much as feasible to assure their preservation and availability for later study. **Historic Resources Element, Goal 1, Policy 1.1:** Encourage the preservation, maintenance, enhancement and reuse of existing historic buildings in redevelopment and commercial areas. **Historic Resources Element, Goal 2:** Preserve, protect and restore significant architectural and historical sites, structures and districts in the City. **Historic Resources Element, Goal 2, Policy 2.3:** Implement Preservation Mechanisms designating any site, structure, district area deemed to be of local, historical, architectural, or cultural significance. In conjunction, seek Certified Local Ordinance and Certified Local Government status from the California Office of Historic Preservation.
Buena Park General Plan (2010)	**Conservation and Sustainability Element, Goal CS-3**: Protection of important archaeological and paleontological resources.
Cypress General Plan (2001)	**Conservation/Open Space/Recreation Element, Goal COSR-5**: Preserve Cypress's archaeologic and paleontological resources.
Los Alamitos General Plan (2015)	**Open Space, Recreation, and Conservation Element, Policy 3.4**: Preserve historical sites and buildings of state or national significance in accordance with the Secretary of Interior Standards for Historic Rehabilitation.
Long Beach General Plan (2010)	**Historic Preservation Element, Goal 2**: Protect historic resources from demolition and inappropriate alternations through the use of the City's regulatory framework, technical assistance, and incentives.
Los Angeles County General Plan (2015)	**Conservation and Natural Resources Element, Policies for Historic, Cultural, and Paleontological Resources, Policy C/NR 14.2**: Support an inter-jurisdictional collaborative system that protects and enhances historic, cultural, and paleontological resources. **Section 3 of the City of Los Angeles General Plan Conservation Element**: City guidelines for the protection of paleontological resources requires that the paleontological resources of the city be protected for research and/or educational purposes. It mandates the identification and protection of significant paleontological sites and/or resources known to exist or that are identified during land development, demolition, or property modification activities.
Carson General Plan (2006)	**Parks and Recreation Element, Policy P-9.2**: Encourage all development or redevelopment occurring in areas identified as a potential historic archaeological site to be surveyed for historic archaeological resources prior to initiation of site preparation for development.

Torrance General Plan (2010)	**Community Resources Element, Policy CR 12.1**: Encourage the preservation of public and private buildings which are of local, historical, or cultural importance.
Sepulveda Feeder	
City of Los Angeles General Plan (2001)	**Conservation Element, Archaeological and Paleontological, Objective:** Protect the city's archaeological and paleontological resources for historical, cultural, research and/or educational purposes. **Conservation Element, Archaeological and Paleontological, Policy:** Continue to identify and protect significant archaeological and paleontological sites and/or resources known to exist or that are identified during land development, demolition or property modification activities. **Conservation Element, Cultural and Historical, Objective:** Protect important cultural and historical sites and resources for historical, cultural, research, and community educational purposes. **Conservation Element, Cultural and Historical, Policy:** Continue to protect historic and cultural sites and/or resources potentially affected by proposed land development, demolition or property modification activities.
Culver City General Plan (1996)	**Land Use Element, Objective 14:** Promote the City's architectural and cultural heritage by preserving buildings and sites that reflect Culver City's varied history and development. **Land Use Element, Policy 14.A:** Encourage restoration of historic resources in a manner that complies with the U.S. Secretary of Interior's Standards for Rehabilitation of Historic Structures.
Gardena General Plan (2006)	**Conservation Element, CN Policy 5.3**: Protect and preserve cultural resources of the Gabrielino Native American Tribe found uncovered during construction.
Torrance General Plan (2010)	**Community Resources Element, Policy CR 12.1**: Encourage the preservation of public and private buildings which are of local, historical, or cultural importance.

4.5.4 Thresholds and Methodology

4.5.4.1 Thresholds of Significance

Table 4.5-14 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to cultural resources. These thresholds are addressed in the PEIR.

Table 4.5-13. CEQA Thresholds for Cultural Resources

Threshold *Would the proposed program:*
a. Cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5?
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
d. Disturb any human remains, including those interred outside of formal cemeteries?

4.5.4.2 Methodology

Historical Resources

CEQA requires an assessment of a project's potential effects on significant historical resources (i.e., those that are listed or eligible for listing in the CRHR or in a local register or survey that meets the requirements of PRC 5020.1(k) and 5024.1(g)). As documented in Section 4.5.2, this PEIR identifies known historical resources that have been reported in the study area for the pipelines in the proposed program. For this program-level analysis, the potential for construction associated with the proposed program to affect these resources is considered. The potential for construction to affect previously unknown resources that may occur within the study area is also considered.

Archaeological Resources

As documented in Section 4.5.2, this PEIR identifies known archaeological resources that have been reported in the study area for the pipelines in the proposed program. For this program-level analysis, the potential for construction associated with the proposed program to affect these resources is considered. The potential for construction to affect previously unknown resources that may occur within the study area is also considered.

Paleontological Resources

As documented in Section 4.5.2, this PEIR identifies known paleontological resources that have been reported in the study area for the pipelines in the proposed program. For this program-level analysis, the potential for construction associated with the proposed program to affect these resources is considered. The potential for construction to affect previously unknown resources that may occur within the study area is also considered.

In California, unique paleontologic resources, sites, and geologic features, particularly with regard to fossil localities, are afforded protection under a number of state environmental statutes, including CEQA. Under CEQA, a lead agency must determine if the project would result in the direct or indirect destruction of a unique paleontological resource or site or unique geologic feature, and if such impacts would be significant. The CEQA lead agency is responsible for ensuring that feasible mitigation measures are implemented in order to reduce impacts to a less-than-significant level. CEQA does not include a specific definition of "unique paleontological resource or site," nor does it establish thresholds for significance.

Further guidance can be found in "CEQA and Fossil Preservation in California" in the fall 2003 edition of *The Environmental Monitor*. The article states that significant paleontological resources include "fossil remains of large to very small aquatic and terrestrial vertebrates, remains of plants and animals previously not represented in certain portions of the stratigraphy, and fossils that might aid stratigraphic correlations, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, paleoclimatology, and the relationships of aquatic and terrestrial species." Furthermore, it also advises that impacts might be considered less than significant if dense concentrations of plant and/or invertebrate fossil remains were "so locally abundant that the impacts to the resources do not appreciably diminish their overall abundance or diversity." (Scott and Springer 2003)

More recent guidance has been developed by the Society for Vertebrate Paleontology, which defines significant paleontological resources as "fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years)." (Society of Vertebrate Paleontology 2010)

Therefore, any identifiable vertebrate fossil remains would be considered unique under CEQA, and direct or indirect impacts on such remains would be considered significant. Identifiable invertebrate and plant fossils would be considered unique if they meet the criteria presented above. Determinations take into account the abundance and densities of fossil specimens or newly and previously recorded fossil localities in exposures of the rock units present at a project site.

Human Remains

This program-level analysis considers the potential for construction associated with the proposed program to affect previously undiscovered human remains that may occur within the study area.

Native American Coordination

Native American coordination has been undertaken by Metropolitan, regarding the program. NAHC was contacted regarding the program in early 2015. NAHC responded regarding the Second Lower Feeder on February 10, 2015, and regarding the other four program elements on April 9, 2015. NAHC stated in its response letters that a search of its Sacred Lands Database did indicate the potential for Native American resources for the Rialto Feeder and the Sepulveda Feeder but did not yield any sacred lands within the areas of the Allen-McColloch Pipeline, the Calabasas Feeder, or the Second Lower Feeder.

Specifically, NAHC indicated that there may be Native American resources on the San Bernardino U.S. Geological Survey quadrangle map associated with the Rialto Feeder, and Native American resources on the Beverly Hill and Venice U.S. Geological Survey quadrangle maps associated with the Sepulveda Feeder. It should be noted that NAHC keeps records of resources by Township and Range; therefore, the resources called out could be anywhere with a 36-square-mile area crossed by the mentioned program elements.

In addition, NAHC provided, for each program element, a list of Native American contacts who may have additional information on resources in the area. Table 4.5-14 lists the NAHC-provided contacts.

Table 4.5-14. Native American Contacts provided by NAHC

Contact	Representing
Allen-McColloch Pipeline Contacts	
Tessa Romero, Chairwoman	Juaneño Band of Mission Indians Acjacheman
Office of Chairperson	Juaneño Band of Mission Indians
Sonia Johnston, Tribal Chairperson	Juaneño Band of Mission Indians
Adolph "Bud" Sepulveda	Juaneño Band of Mission Indians
Joyce Perry, Representative	Juaneño Band of Mission Indians
Anita Espinoza	Juaneño Band of Mission Indians
Rebecca Robles	United Coalition to Protect Panhe
Calabasas Feeder Contacts	
Beverly Salazar Folkes	Chumash, Tataviam, Fernandeño
Julie Lynn Tumamait-Stennslie, Chair	Barbareño/Ventureño Band of Mission Indians
Patrick Tumamait	Chumash
Randy Guzman Folkes	Chumash, Fernandeño, Tataviam
Richard Angulo	Chumash
Carol A. Pulido	Chumash
Melissa M. Parra-Hernandez	Chumash
Frank Arredondo	Chumash
Kathleen Pappo	Barbareño/Ventureño Band of Mission Indians
Raudel Joe Banuelos, Jr.	Barbareño/Ventureño Band of Mission Indians
PeuYoKo Perez	Chumash
Rialto Feeder Contacts	
Denisa Torres, Cultural Resources Manager	Morongo Band of Mission Indians
Daniel McCarthy, Director, CRM Department	Morongo Band of Mission Indians
Robert Martin, Chairperson	Morongo Band of Mission Indians
Goldie Walker, Chairwoman	Serrano Nation of Mission Indians
Ernest Siva, Elder	Morongo Band of Mission Indians
Cultural Resources Department	Las Vegas Piute Tribe
Andrew Salas, Chairperson	Gabrieliño Band of Mission Indians—Kizh Nation
Anthony Madrigal, Jr. Tribal Historic Preservation Officer	Twenty-Nine Palms Band of Mission Indians
Lynn Valbuena, Chairwoman	San Manuel Band of Mission Indians
Darrell Mike, Chairperson	Twenty-Nine Palms Band of Mission Indians
Joseph R. Benitez (Mike)	Chemehuevi
Edward Smith, Chairperson	Chemehuevi Reservation
Dennis Patch, Chairman	Colorado River Indian Tribe
John Valenzuela, Chairperson	San Fernando Band of Mission Indians
Anthony Morales, Chairperson	Gabrieliño/Tongva San Gabriel Band of Mission Indians
Sandonne Goad, Chairperson	Gabrieliño/Tongva Nation

Contact	Representing
Sam Dunlap, Cultural Resources Director	Gabrieliño/Tongva Nation
Second Lower Feeder Contacts	
John Tommy Rosas, Tribal Administrator	Tongva Ancestral Territorial Tribal Nation
Anthony Morales, Chairperson	Gabrieliño/Tongva San Gabriel Band of Mission Indians
Sandonne Goad, Chairperson	Gabrieliño/Tongva Nation
Robert F. Dorame, Tribal Chair, Cultural	Gabrieliño Tongva
Bernie Acuna Co-Chairperson	Gabrieliño-Tongva Tribe
Linda Candelaria Co-Chairperson	Gabrieliño-Tongva Tribe
Andrew Salas, Chairperson	Gabrieliño Band of Mission Indians—Kizh Nation
Conrad Acuna	Gabrieliño-Tongva Tribe
Sam Dunlap, Cultural Resources Director	Gabrieliño/Tongva Nation
Sepulveda Feeder Contacts	
Beverly Salazar Folkes	Chumash, Tataviam, Fernandeño
Rudy Ortega Jr., President	Fernandeño Tataviam Band of Mission Indians
Julie Lynn Tumamait-Stennslie, Chair	Barbareño/Ventureño Band of Mission Indians
Patrick Tumamait	Chumash
Ron Andrade, Director	LA City/County Native American Indian Commission
John Tommy Rosas, Tribal Administrator	Tongva Ancestral Territorial Tribal Nation
John Valenzuela, Chairperson	San Fernando Band of Mission Indians
Anthony Morales, Chairperson	Gabrieliño/Tongva San Gabriel Band of Mission Indians
Randy Guzman Folkes	Chumash, Fernandeño, Tataviam,
Richard Angulo	Chumash
Sandonne Goad, Chairperson	Gabrieliño/Tongva Nation
Robert F. Dorame, Tribal Chair, Cultural	Gabrieliño Tongva
Carol A. Pulido	Chumash
Melissa M. Parra-Hernandez	Chumash
Bernie Acuna Co-Chairperson	Gabrieliño-Tongva Tribe
Linda Candelaria Co-Chairperson	Gabrieliño-Tongva Tribe
Andrew Salas, Chairperson	Gabrieliño Band of Mission Indians—Kizh Nation
Kathleen Pappo	Barbareño/Ventureño Band of Mission Indians
Raudel Joe Banuelos, Jr.	Barbareño/Ventureño Band of Mission Indians
Conrad Acuna	Gabrieliño-Tongva Tribe
Sam Dunlap, Cultural Resources Director	Gabrieliño/Tongva Nation
PeuYoKo Perez	Chumash

4.5.5 Impacts Analysis

4.5.5.1 Program Analysis

Threshold CUL-A: Cause a Substantial Adverse Change in the Significance of a Historical Resource

The proposed program has the potential to adversely affect built environment resources (i.e., historic resources), including those identified in Section 4.5.2, and others that have not yet been identified or designated as historic resources. Rehabilitation activities would be temporary, with the only permanent aboveground components being manhole covers, valve boxes, and electrical panels. The impacts of these permanent components would not result in substantial adverse changes to built environment resources; therefore, impacts would be less than significant.

During rehabilitation, there is the potential for construction to result in adverse impacts on built environment resources. Specifically, ground-borne vibration from excavation and concrete cutting could potentially adversely affect nearby resources, which would be a significant impact. Implementation of Mitigation Measure MM CUL-1 would reduce this impact to a less-than-significant level.

The five pipelines themselves are not considered to be eligible for listing on the CRHR. Therefore, rehabilitation of the pipelines would not be a substantial adverse change in the significance of a built environment resource.

Mitigation Measures

MM CUL-1 Historic Resources Protection Program.

To avoid impacts on built environment (historic) resources, prior to any rehabilitation involving excavation or concrete cutting, a qualified cultural resource specialist ~~an architectural historian~~ will ~~be retained to~~ determine whether there are any identified or eligible historical resources present and whether ~~to determine if~~ proposed construction activities could adversely affect these resources. If any resources could be adversely affected by construction, ~~the excavation site will be moved or other~~ measures will be taken ~~used~~ to prevent adverse impacts on the resource, as determined by the qualified cultural resource specialist ~~architectural historian~~.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM CUL-1 would reduce these impacts so that residual impacts would be less than significant.

Threshold CUL-B: Cause a Substantial Adverse Change in the Significance of an Archaeological Resource

The proposed program has the potential to affect unknown buried archaeological resources within the pipeline alignments or in staging areas associated with construction. Buried archaeological resources, either prehistoric or historic, could be inadvertently unearthed during ground-disturbing activities. This would potentially result in the demolition of or substantial damage to significant cultural resources, which would be a significant impact under CEQA.

It is unlikely that archaeological resources will be discovered during trenching and rehabilitation, as this work would take place within sediments previously disturbed by the original pipeline construction. Staging areas, which could be located anywhere along the alignments, have an unknown potential to affect previously undiscovered archaeological resources.

Archaeological resources are known to occur on three of the five pipeline alignments, as listed in Tables 4.5-3, 4.5-7, and 4.5-9. Specifically, there are 11 recorded prehistoric and historical archaeological sites on the Allen-McColloch Pipeline alignment, four sites on the Rialto alignment, and one site on the Second Lower Feeder. This final site has probably been destroyed by subsequent reservoir construction.

If construction were to occur in proximity to any of the previously recorded archaeological resources, there is a potential to damage the sites and undiscovered buried components of the sites. The sediments in proximity to the pipelines have been previously disturbed by installation of the pipelines, and therefore the potential for intact archaeological resources is low, but not precluded; consequently potential significant impacts on archaeological resources could occur. Mitigation Measure MM CUL-2 would mitigate impacts on these known resources to less-than-significant levels.

Pipelines routes that do not cross known archaeological sites and have been disturbed by previous construction have a low potential to encounter unknown buried archaeological resources, although resources could still be found intact in trench walls and other excavation areas; therefore, potential significant impacts on archaeological resources could occur. Due to this low potential, archaeological monitoring is not required. Mitigation Measures MM CUL-3 and MM CUL-4 would mitigate impacts on unknown resources to less-than-significant levels.

Areas selected for staging areas or for other activities beyond the alignments of the existing pipeline routes have not been identified and may contain archaeological resources. Staging or other rehabilitation activities could result in significant impacts on these resources. Implementation of MM CUL-5 would mitigate impacts on archaeological resources to less-than-significant levels.

Mitigation Measures

MM CUL-2 Avoidance or Monitoring of Archaeological Sites.

To avoid impacts on archaeological sites, prior to construction of any program element, such as pipeline alignments, construction staging areas, laydown areas, or relocation of pipelines in new alignments, a new record search will be conducted to determine if additional sites or resources have been recorded on or adjacent to the proposed construction section. Reports will be examined to determine the condition of each site when recorded, if the site has been evaluated, and if destruction of the site is documented. Following this review, recorded archaeological sites that are within the pipeline route will be surveyed and their present conditions assessed (see MM CUL-4). Archaeological monitoring will be required during construction-related ground-disturbing activities if within the recorded area of a significant or potentially significant site and for a 50-foot buffer beyond the site boundary. A Native American monitor may be present if the site is prehistoric. If archaeological materials are discovered during monitoring, procedures outlined in MM CUL-4~~3~~ will be implemented.

If it can be demonstrated that the site has been destroyed by previous construction or other actions and there is no potential for other buried parts of the site within the construction area,

or if the site has been evaluated and determined not eligible for the CRHR, then monitoring will not be required.

MM CUL-3 Preconstruction Meeting for Identifying Cultural Resources.

To avoid impacts on previously unidentified cultural resources, all construction personnel will attend a preconstruction meeting that includes a discussion of cultural resources. The meeting will inform construction personnel on how to identify potential cultural resources during ground-disturbing activities and what to do if such potential resources are encountered.

MM CUL-4 Previously Unidentified Resources Encountered during Ground-disturbing Activities.

In the event that any potentially significant cultural resources are unexpectedly encountered during construction, work will be immediately halted and the discovery shall be protected in place. The contractor will halt construction within 50 feet of the exposed resource until a qualified cultural resources specialist evaluates the discovery.

If the qualified cultural resources specialist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from project implementation. This additional work may include avoidance, testing, and evaluation or data recovery excavation. Work shall be prohibited in the restricted area until Metropolitan provides written authorization.

MM CUL-5 Archaeological Survey of Non-Pipeline Areas.

Prior to rehabilitation activities of any program element, each area will be subject to pedestrian survey for archaeological resources by a professional archaeologist retained by Metropolitan if ground-disturbing activities are slated to occur. If archaeological sites are recorded or found in these affected areas, the sites will be avoided to the greatest extent feasible. If a site cannot be avoided, site testing and evaluation by a professional archaeologist will be required. This may require test excavations, artifact analysis, evaluation for the CRHR and review by SHPO, and possibly data recovery excavation and reporting.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM CUL-2, MM CUL-3, MM CUL-4, and MM CUL-5 would reduce these impacts so that residual impacts would be less than significant.

Threshold CUL-C: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature

The proposed program has the potential to affect paleontological resources within the pipeline alignments or in staging areas during rehabilitation activities. Paleontological resources could be inadvertently unearthed during ground-disturbing activities.

Projects in the proposed program would have varying potential for impacts due to differences in rock units to be crossed and depth and type of excavation. In areas of alluvial deposits, such as the Los Angeles Plain or the San Fernando Valley, paleontological resources typically do not occur within 5 feet of the ground surface. In areas of exposed bedrock, such as the Santa Ana Mountains,

paleontological resources may be exposed at the ground surface. There is only one previously recorded paleontological locality known along the existing pipelines routes, in sedimentary terrain, at a depth of 16 feet. In this alluvial setting, areas of shallow grading or vehicular traffic, such as to staging areas, are unlikely to affect paleontological resources. It is also unlikely that paleontological resources will be discovered during trenching and rehabilitation in areas with sediments previously disturbed by the original pipeline construction, but this is not precluded. Therefore, projects in the proposed program have the potential result in destruction of or significant damage to unique paleontological resources or unique geological resources, which would be a significant impact under CEQA.

Implementation of MM CUL-6 would reduce impacts on paleontological resources to less-than-significant levels.

Mitigation Measures

MM CUL-6 Develop a Program to Mitigate Impacts on Paleontological Resources for Each Contract Package

In order to avoid impacts on paleontological resources, the following mitigation program will be implemented for each contract package. This mitigation program will be conducted by a qualified professional paleontologist and will be consistent with the provisions of CEQA. This program will include the following.

1. Assessment of site-specific excavation areas to determine those areas that may be designated as highly sensitive for unique paleontological resources to be monitored during ground disturbance.
2. ~~Development of a monitoring plan for these designated areas. Paleontological~~ In these designated areas, if any, paleontological resources monitors qualified to Society of Vertebrate Paleontology standards will be equipped to salvage fossils as they are unearthed and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitoring may be reduced or eliminated if some of the potentially fossiliferous units are determined upon exposure and examination by qualified paleontological resources personnel to have low potential to contain fossil resources. Also in these designated areas, all unique paleontological resources, if any, will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates.
3. ~~Preparation of all unique paleontological resources to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates. Identification and curation of unique~~ Unique paleontological resources, if any, will be identified and curated into an established, accredited museum repository ~~will be required~~.
4. Preparation of a report of findings including a summary of field work and laboratory methods, an overview of the program work area geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. If the monitoring efforts produced fossils, a copy of the report will also be submitted to the designated museum repository.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM CUL-6 would reduce these impacts so that residual impacts would be less than significant.

Threshold CUL-D: Disturb Any Human Remains, Including Those Interred Outside of Formal Cemeteries

Projects in the proposed program have the potential to disturb human remains within the pipeline alignments or in staging areas during excavations or grading. Human remains could be inadvertently unearthed during ground-disturbing activities. This could result in damage to or destruction of these human remains, including those interred outside of formal cemeteries, which would be a significant impact under CEQA. However, California State Law in Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the PRC requires specific procedures for identification and treatment of human remains, both Native American and non-Native American. Therefore, impacts on human remains from the proposed program would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

4.5.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

The potential for individual future projects to affect significant cultural resources is unknown, but given the number of projects that will take place in the region, it is probable that cumulative growth and development in the Metropolitan service area could have impacts on significant cultural resources. Given the large scale of the region, the proposed program's impacts are reasonably localized. The program's impact would not contribute to cumulative impacts because implementation of Mitigation Measures MM CUL-1 through MM CUL-6 would reduce potential program-related impacts. The incremental effects of the proposed program, after mitigation, would not contribute to a significant adverse cumulative impact on cultural resources.

Section 4.6
Geology and Soils

4.6.1 Introduction

This section describes the existing conditions for geology and soils, the regulatory framework associated with geology and soils, the impacts on geology and soils that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant geology and soils impacts.

4.6.2 Existing Conditions

The study area for geology and soils is the pipeline alignment corridors, plus 0.5 mile on either side (i.e., a 1-mile-wide corridor). The exception is when discussing earthquake faults; any known faults that could affect the pipelines are discussed.

4.6.2.1 Allen-McColloch Pipeline

As shown on Figures 4.6-1 and 4.6-2, the Allen-McColloch Pipeline is in a seismically active area and susceptible to strong groundshaking, seismically induced landslides, and liquefaction as a result of earthquakes. Table 4.6-1 summarizes the Alquist-Priolo Earthquake Fault Zones nearest the jurisdictions traversed by the Allen-McColloch Pipeline study area. Table 4.6-2 summarizes approximately how many acres of the Allen-McColloch Pipeline study area overlap with seismic hazards identified in each jurisdiction within the study area.

Table 4.6-1. Estimated Distance to Nearest Alquist-Priolo Earthquake Fault Zone for Jurisdictions in the Allen-McColloch Pipeline Study Area

Jurisdiction	Distance to Nearest Alquist-Priolo Earthquake Fault Zone (miles)	Nearest Alquist-Priolo Earthquake Fault Zone
City of Yorba Linda	0.0	Elsinore
City of Anaheim	1.7	Elsinore
City of Orange	4.4	Elsinore
City of Villa Park	5.0	Elsinore
City of Tustin	7.7	Elsinore
City of Irvine	7.6	Elsinore
City of Lake Forest	11.9	Elsinore
City of Mission Viejo	12.8	Elsinore
Orange County	0.0	Elsinore
Notes: 0.0 = the Allen-McColloch Pipeline study area crosses the Alquist-Priolo Earthquake Fault Zone within that jurisdiction.		

Table 4.6-2. Estimated Area of Overlap between the Allen-McColloch Pipeline Study Area and Identified Seismic Hazard Areas

Jurisdiction	Earthquake-Induced Landslide Overlap (acres)	Liquefaction Overlap (acres)
City of Yorba Linda	174.2	64.5
City of Anaheim	211.6	683.2
City of Orange	193.6	223.3
City of Villa Park	7.4	-
City of Tustin	9.3	126.6
City of Irvine	-	54.5
City of Lake Forest	33.5	301.5
City of Mission Viejo	63.1	20.9
Orange County	942.3	1,121.5

Seismic Environment

City of Yorba Linda

The city of Yorba Linda is in an area of potential fault rupture and strong groundshaking. The Whittier, Elsinore, San Andreas, and Newport-Inglewood faults have been identified as potentially hazardous in the Public Safety Element of the City of Yorba Linda General Plan. Other active and potentially active faults in the vicinity include the Peralta Hills, San Jacinto, Chino, Malibu-Coast-Raymond, Palos Verdes, San Gabriel, and the Sierra Madre-Santa Susana-Cucamonga faults (City of Yorba Linda 1993).

According to the City of Yorba Linda General Plan (City of Yorba Linda 1993), the Whittier fault is believed to be the main spur from the larger Elsinore fault, which follows a general line easterly of the Santa Ana Mountains into Mexico. The maximum creditable earthquake from the Whittier-Elsinore Fault Zone is a 7.0 magnitude. The Whittier fault zone is also an Alquist-Priolo Earthquake Fault Zone and, accordingly, surface fault rupture hazard in Yorba Linda is high within the boundaries of this zone.

Yorba Linda is also approximately 4 miles from the Peralta Hills fault, 21 miles from the Newport-Inglewood fault, 26 miles from the San Jacinto fault, and 32 miles from the nearest segment of the San Andreas fault. Due to the proximity of regional active and potentially active faults in and around Orange County, and local active faults in Yorba Linda, the risk of structural damage and loss of life due to groundshaking is considerable. The Whittier-Elsinore fault system is probably the most hazardous with respect to groundshaking in Yorba Linda (City of Yorba Linda 1993).

In addition, according to the City of Yorba Linda General Plan (City of Yorba Linda 1993), slope stability is a serious geologic problem in the northern and northeastern parts of the city of Yorba Linda. This area is underlain by siltstone and interbedded sandstone of the Puente Formation, which are often the most prone to landsliding and other forms of slope failure. The Allen-McColloch Pipeline crosses zones identified as earthquake-induced landslide zones, which are areas where previous occurrence of landslide movement or local topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements (California Geological Survey 2005).

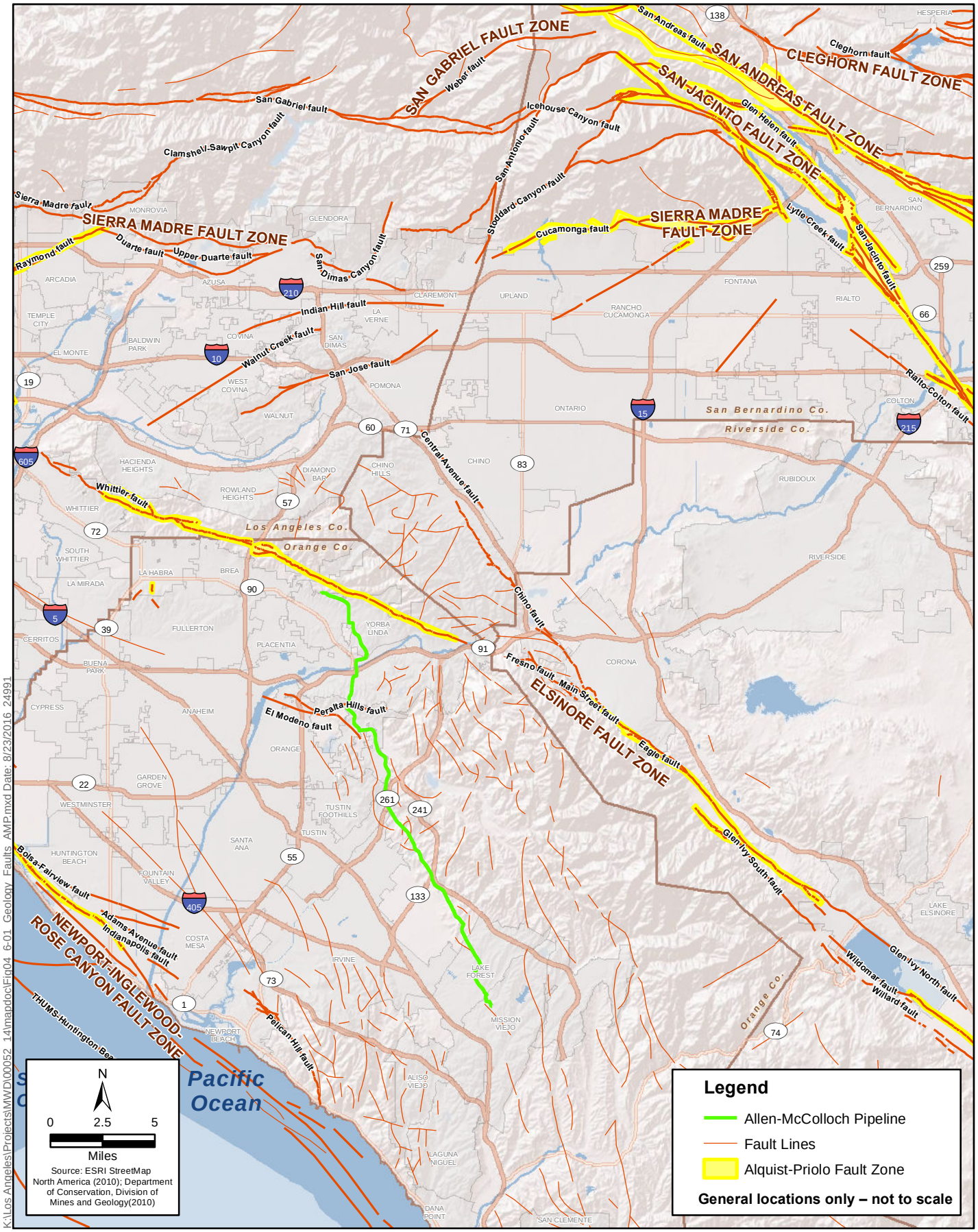


Figure 4.6-1
Regional Fault Map – Allen-McColloch Pipeline
Metropolitan PCCP Program

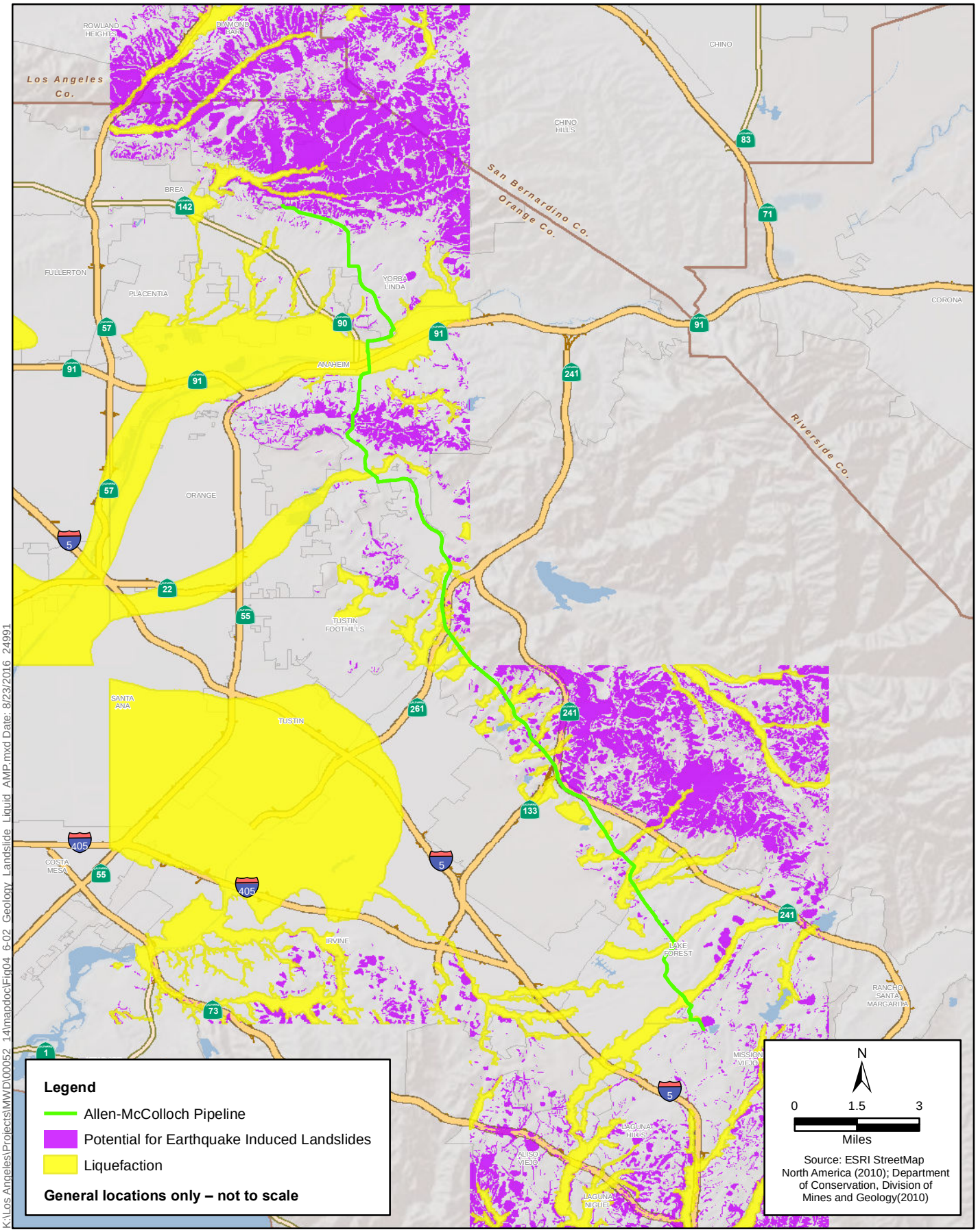


Figure 4.6-2
Regional Landslide/Liquefaction - Alllen-McColloch Pipeline
Metropolitan PCCP Program

Liquefaction refers to a phenomenon in which water-saturated granular soils are temporarily transformed from a solid to a liquid state because of a sudden shock or strain, typically occurring during earthquakes. Depending on the other factors such as soil density, ground slope, and stratification, the temporary loss of strength may result only in surface sand and soils or cracks and may also lead to foundation failures, landslides, and excessive subsidence. To have potential for liquefaction, three simultaneous conditions are necessary: generally cohesionless soils, high groundwater, and groundshaking. Most areas in Yorba Linda are assumed to be at low risk for liquefaction hazards because the water table in most places is deeper than 50 feet, except for some parts of the major drainage channels like near the Santa Ana River (City of Yorba Linda 1993).

City of Anaheim

The city of Anaheim is in a seismically active area and active and potentially active faults are adjacent to the city; however, there are no Alquist-Priolo Earthquake Fault Zones within the city limits. The two major Alquist-Priolo Earthquake Fault Zones nearest the city of Anaheim include the Newport-Inglewood fault zone approximately 7 miles to the southwest and the Whittier-Elsinore fault zone within less than 1 mile to the northeast.

Other potentially active faults close to Anaheim are the El Modeno, Peralta Hills, and Norwalk faults, which have a low possibility of ground rupture. The majority of the El Modeno and Peralta Hills faults are south of the Peralta Hills area and outside the boundaries of the city; however, the Allen-McColloch Pipeline crosses the Peralta Hills fault and comes close to the El Modeno fault. The El Modeno fault zone is a concealed fault; therefore, the exact location of the fault is uncertain. The California Department of Mines and Geology has determined that the El Modeno, Peralta Hills, and Norwalk faults are not sufficiently active or well defined enough to be subject to the provisions of the Alquist-Priolo Earthquake Fault Zoning Act. Compared with the more active and recognized fault zones, the potential for ground rupture due to seismic activity in the city is considered low (City of Anaheim 2004).

Earthquake-induced landslides have the potential to occur in the hill and canyon areas of the city of Anaheim and generally consist of rock falls, landslides, and debris flows. Areas with the potential for earthquake-induced landsliding generally are those areas of previous landslide movement, or where topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements (City of Anaheim 2004). Areas considered susceptible to seismic hazards are shown on Figure 4.6-2. Additionally, liquefaction has the potential to affect properties within the city of Anaheim that are located along the Santa Ana River, as well as western portions of the city. Mapped liquefaction zones are shown on Figure 4.6-2.

City of Orange

The city of Orange is susceptible to geologic and seismic hazards including earthquakes; however, no known Alquist-Priolo Earthquake Fault Zones are located in the city. Portions of two possibly active faults traverse the city: the Peralta Hills fault and the El Modeno fault. The Peralta Hills fault runs from the crossing of Lincoln Avenue over the Santa Ana River on the northwest, easterly along the base of the Peralta Hills and into the City of Villa Park, then southerly into the hills west of Peters Canyon Reservoir. The El Modeno fault runs from its intersection with the Peralta Hills fault at the base of the Peralta Hills, southeasterly to Chapman Avenue (City of Orange 2010).

Other faults in the vicinity include the Newport-Inglewood fault approximately 15 miles to the southwest, the Elsinore fault approximately 5 miles to the northeast, and the San Andreas fault approximately 40 miles to the northeast and parallel to the Elsinore fault.

The city of Orange is also susceptible to earthquake-induced landslides and liquefaction. According to the City of Orange General Plan (City of Orange 2010), earthquake-induced landslides are most probable in poorly consolidated or semi-consolidated sedimentary rock, characteristic of the low hills of the northern and eastern parts of the city. Portions of the city that are susceptible to seismically induced liquefaction include areas near the Santa Ana River and Santiago Creek. Areas considered susceptible to seismic-related landslides and liquefaction are shown on Figure 4.6-2.

City of Villa Park

Although the Allen-McColloch Pipeline itself does not run through the city of Villa Park, a portion of the study area overlaps with the northern portion of the city. According to the City of Villa Park General Plan Seismic and Safety Element (City of Villa Park 2010), the city is in the low foothills on the western flank of the Santa Ana Mountains and is southeast of the Santa Ana River. The El Modeno and Peralta Hills faults are nearest to the city; however, little impact from groundshaking is anticipated from these faults. Slope stability in the city is affected by three interrelated factors: surface and subsurface water, geologic structure and rock types, and the degree of slope. Stability is also dependent on the specific properties and combination of materials forming the slope. Moderate slopes occur in the northeastern portion of the city, and exposure to such hazards can be increased with the urbanization of hilly areas. The Allen-McColloch Pipeline does not cross any liquefaction hazard areas in the city.

City of Tustin

The city of Tustin lies within a seismically active region; however, no known active or potentially active faults exist within the city. The El Modeno fault passes through the city's northern section; however, according to the General Plan, studies have not been conclusive about the active/inactive status of this fault (City of Tustin 2012). Groundshaking represents one of the main seismic dangers within the city of Tustin. In addition, areas within the city have been identified as susceptible to bedrock landslides and liquefaction. As shown on Figure 4.6-2, the Allen-McColloch Pipeline study area occurs in areas identified as having the potential to experience earthquake-induced landslides and liquefaction in the city of Tustin.

City of Irvine

The city of Irvine is affected by both local and regional active faults. According to the City of Irvine General Plan Seismic Element (City of Irvine 2012), the Newport-Inglewood fault is the nearest regional active fault and less than 10 miles west of the city. Other faults in the vicinity include the Whittier-Elsinore fault, the San Andreas fault, and the San Jacinto fault.

The City of Irvine has also identified five Seismic Response Areas (SRAs) within the city based on types and magnitudes of potential seismic hazards. The Allen-McColloch Pipeline crosses SRA-2, SRA-4, and SRA-5. According to the General Plan (City of Irvine 2012), the predominant characteristics of these SRAs include denser soils and deeper groundwater (SRA-2), highlands generally over 20 percent slope (SRA-4), and less stable geologic formations (SRA-5). The predominant potential seismic hazard in these areas is ground motion; however, ground breakage and/or ground failure is not expected to occur in this area.

In addition, according to the City of Irvine General Plan Seismic Element (City of Irvine 2012), as slope increases in each of the SRAs, so does slope instability. However, the Allen-McColloch Pipeline study area does not overlap with any areas identified as a seismically induced landslide hazard area, and liquefaction potential is considered to be localized and remote. As shown on Figure 4.6-2, the Allen-McColloch Pipeline study area occurs in areas identified as having the potential to experience liquefaction.

City of Lake Forest

Similar to the other cities in the region, the city of Lake Forest is in a region with active seismic faults and therefore subject to risks and hazards associated with earthquakes. No Alquist-Priolo Earthquake Fault Zone has been established and no known active faults exist within the city; as a result, the potential for ground rupture is low.

In addition, according to the City of Lake Forest General Plan Safety and Noise Element (City of Lake Forest 1994), slope failure from groundshaking could occur in the hillside areas of the city; however, the potential for seismically induced liquefaction is low. In addition, ground settlement could occur on sites within a short distance of alluvial valleys or where a site is partially on bedrock formation, or partially on fill with inadequate internal compaction or consolidation of unsuitable soils. As shown on Figure 4.6-2, approximately the Allen-McColloch Pipeline study area occurs in areas identified as having the potential to experience landslides and liquefaction.

City of Mission Viejo

The city of Mission Viejo is in a seismically active region and could experience groundshaking in the event of a major seismic event along the Newport-Inglewood fault or the San Andreas fault. In addition, the city could experience seismically induced landslides and liquefaction in steeply sloped areas and areas near Aliso and Oso creeks. As shown on Figure 4.6-2, the Allen-McColloch Pipeline study area occurs in areas identified as having the potential to experience landslides and liquefaction in the city of Mission Viejo.

Orange County

Orange County is a region of high seismic activity with susceptibility to potentially destructive earthquakes. Two potentially hazardous active fault zones run along the coastal and inland edges of Orange County. The Newport-Inglewood fault and Whittier fault are capable of producing earthquakes with magnitudes of 7.5 and 7.0, respectively. According to the Orange County General Plan, earthquakes from faults outside the county are also capable of producing groundshaking in the region. Blind thrust faults including the Elysian Park Blind Thrust fault and the Compton Blind Thrust fault extend into and underneath northwestern and southwestern Orange County, respectively. In addition, perimeter faults around Orange County include the San Andreas, San Jacinto, Malibu-Coast-Raymond, Palos Verdes, San Gabriel, and Sierra Madre-Santa Susana-Cucamonga faults. Smaller thrust faults also lay beneath the county, but are not included as Earthquake Fault Zones by the State of California. Areas within Orange County that are affected by Alquist-Priolo Earthquake Fault Zones are within the Bolsa Chica area, Tonner Canyon area, and island areas adjacent to the cities of Yorba Linda and Brea.

In addition, according to the Orange County General Plan, the county is highly susceptible to slope failure and liquefaction. Due to an active seismic environment and the conditions of soils and surface waters in Orange County, there is a high potential for landslides in the region. Therefore, Orange

County's history includes many landslide events, and its future is likely to include many more. According to the Resources Element of the Orange County General Plan, the county's Grading Ordinance strictly regulates hillside grading with regard to soil stability. The Allen-McColloch Pipeline study area occurs in areas identified as having the potential to experience landslides and liquefaction in Orange County.

Soil Erosion

No substantial soil erosion issues were identified by the jurisdictions in the Allen-McColloch Pipeline study area.

Unstable Geology or Soils

Other than the earthquake-related landslides and liquefaction risks described above, no other unstable geology or soils conditions were identified in the Allen-McColloch Pipeline study area by the cities of Orange, Villa Park, Tustin, Irvine, Lake Forest, and Mission Viejo, and unincorporated Orange County. The Allen-McColloch Pipeline study area overlaps with unstable geology or soil conditions in the cities of Yorba Linda and Anaheim, which are discussed in more detail below.

City of Yorba Linda

As described above, slope stability is a serious geologic problem in the northern and northeastern parts of the city of Yorba Linda. This area is underlain by siltstone and interbedded sandstone of the Puente Formation, which are often the most prone to landsliding and other forms of slope failure. Other than the areas identified above as susceptible to earthquake-induced landslides, the Allen-McColloch Pipeline study area does not cross any other areas identified by the Yorba Linda General Plan as prone to landslides.

A slight subsidence and uplift occurs in the region, primarily in the Coyote Hills west of the city of Yorba Linda. There is also slow uplift of the Chino Hills, but this has been identified as too insignificant to cause noticeable damage to engineering structures (City of Yorba Linda 1993). The Allen-McColloch Pipeline study area does not cross either of these areas and therefore would not be subject to subsidence.

City of Anaheim

The city of Anaheim is susceptible to landslides in the steep slopes of the Hill and Canyon Area as identified in the City of Anaheim General Plan. The Hill and Canyon Area is in the eastern portion of the city and includes a portion of the Santa Ana River, Deer Canyon Park Preserve, and the Anaheim Hills Golf Course. The Allen-McColloch Pipeline crosses this area where it is near and parallel to Imperial Highway.

In addition, mining and petroleum exploration activities in the city have resulted in the creation of open pits and wells. According to the City of Anaheim General Plan Safety Element (City of Anaheim 2004), some of these pits and wells may have been abandoned and backfilled with undocumented fill materials. Existing pits and wells backfilled with undocumented materials may be subject to differential settlement, which causes structures to shift, and often become damaged, due to the uneven lowering of the earth. Differential settlement is closely related to subsidence, which is the sudden sinking or gradual downward settling of the Earth's surface with little or no horizontal movement. Subsidence can be caused by natural geologic processes or by human activity such as

subsurface mining or pumping of oil or groundwater. Active and abandoned oil and gas wells occur within and adjacent to the Allen-McColloch Pipeline study area near Imperial Highway and Esperanza Road, making this area susceptible to subsidence.

Expansive Soils

No expansive soils were identified by the jurisdictions in the Allen-McColloch Pipeline study area with the exception of where the study area crosses unincorporated Orange County land. According to the Orange County General Plan, much of the county is covered by soil that may be expansive. Therefore, expansive soils could occur within the Allen-McColloch Pipeline study area in unincorporated Orange County.

4.6.2.2 Calabasas Feeder

As shown on Figures 4.6-3 and 4.6-4, the Calabasas Feeder is in a seismically active area and susceptible to strong groundshaking, seismically induced landslides, and liquefaction as a result of earthquakes. Table 4.6-3 summarizes the Alquist-Priolo Earthquake Fault Zones nearest the jurisdictions traversed by the Calabasas Feeder study area. Table 4.6-4 summarizes approximately how many acres of the Calabasas Feeder study area overlap with seismic hazards identified in each jurisdiction within the study area.

Table 4.6-3. Estimated Distance to Nearest Alquist-Priolo Earthquake Fault Zone for Jurisdictions in the Calabasas Feeder Study Area

Jurisdiction	Distance to Nearest Alquist-Priolo Earthquake Fault Zone (miles)	Nearest Alquist-Priolo Earthquake Fault Zone
City of Los Angeles	3.7	Sierra Madre
City of Hidden Hills	8.9	Malibu Coast
City of Calabasas	8.6	Malibu Coast
Los Angeles County	8.7	Malibu Coast

Table 4.6-4. Estimated Area of Overlap between the Calabasas Feeder Study Area and Identified Seismic Hazard Areas

Jurisdiction	Earthquake-Induced Landslide Overlap (acres)	Liquefaction Overlap (acres)
City of Los Angeles	136.8	3,225.5
City of Hidden Hills	14.8	0.65
City of Calabasas	9.6	32.2
Los Angeles County	6.8	-

Seismic Environment

City of Los Angeles

The city of Los Angeles is a seismically active region. There are Alquist-Priolo Earthquake Fault Zones and fault rupture study areas in the northern, eastern, and central parts of the city. According

to the Safety Element of the General Plan (City of Los Angeles 1996), the fault system in the city interacts with the alluvial soils in the hills and basins and poses seismic risks for the entire city. Alluvial and artificially uncompacted soils tend to amplify groundshaking. Shallow groundwater combined with uncompacted soils can result in liquefaction, and there are risks of seismically induced landslides in the hillside areas of the city.

City of Hidden Hills

The City of Hidden Hills is adjacent to the northwestern portion of the city of Los Angeles, and is also within a seismically active region with numerous active, potentially active, and inactive fault traces. However, there are no Alquist-Priolo Fault Rupture Hazard Zones mapped within the city. According to the Safety Element of the Hidden Hills General Plan (City of Hidden Hills 1995), the city could experience groundshaking from the major active and potentially active faults in the region.

In addition, as shown on Figure 4.6-4, the city of Hidden Hills is subject to liquefaction in areas where sandy, fine-grained soils exist. Also, a few areas of the city may have potentially unstable slopes and could experience earthquake-induced landslides. However, subsidence resulting from groundshaking is unlikely to affect the city of Hidden Hills (City of Hidden Hills 1995).

City of Calabasas

The city of Calabasas is also adjacent to the northwestern portion of the city of Los Angeles and is south of the city of Hidden Hills. Like the other cities discussed above, the city of Calabasas is subject to seismic hazards and could experience groundshaking from the major active and potentially active faults in the region; however, it is not within an Alquist-Priolo Fault-Rupture Hazard Zone.

Other seismic hazards identified in the city include seismically induced landslides and liquefaction. According to the Safety Element of the City of Calabasas 2030 General Plan (City of Calabasas 2015), the topography within the city varies and features vertical slopes and steep canyons. The major environmental factors controlling stability of the steeper hillsides include precipitation, topography, geology, soils, vegetation, and man-made alterations of the natural topography.

Los Angeles County

Los Angeles County has experienced significant earthquakes throughout its history. According to the county's General Plan (County of Los Angeles 2015), over 50 active and potentially active fault segments, an undetermined number of buried faults, and at least four blind thrust faults are capable of producing damaging earthquakes in Los Angeles County.

In addition, according to the Los Angeles County General Plan (County of Los Angeles 2015), more than 50 percent of the unincorporated areas of the county are composed of hilly or mountainous terrain. The vast majority of hillside hazards include mud and debris flows, active deep-seated landslides, hillside erosion, and man-induced slope instability.

Soil Erosion

No soil erosion issues were identified in the Calabasas Feeder study area in the cities of Los Angeles and Calabasas. The Calabasas Feeder study area does overlap with soils susceptible to soil erosion in the city of Hidden Hills and Los Angeles County, which are discussed in more detail below.

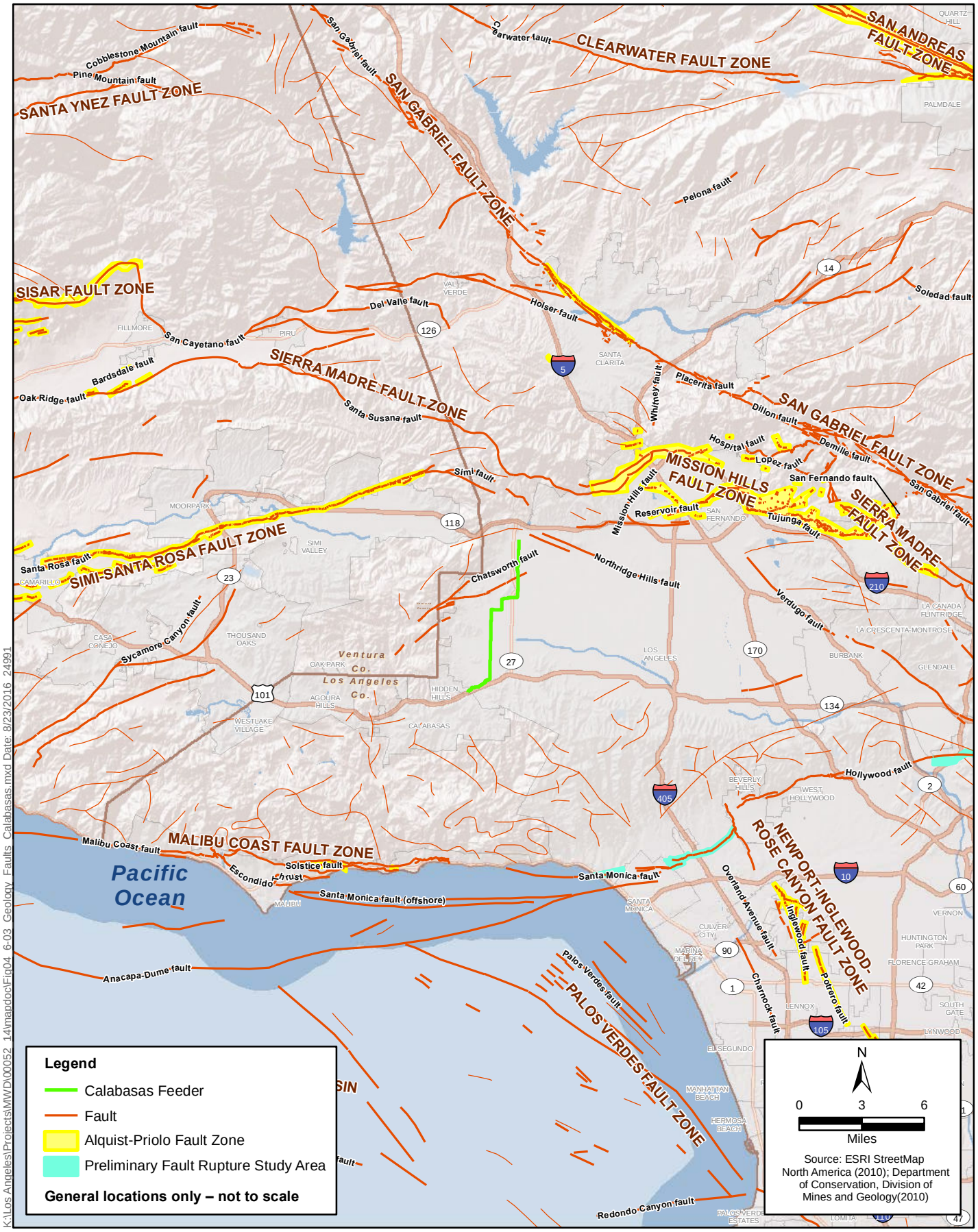


Figure 4.6-3
Regional Fault Map – Calabasas Feeder
Metropolitan PCCP Program

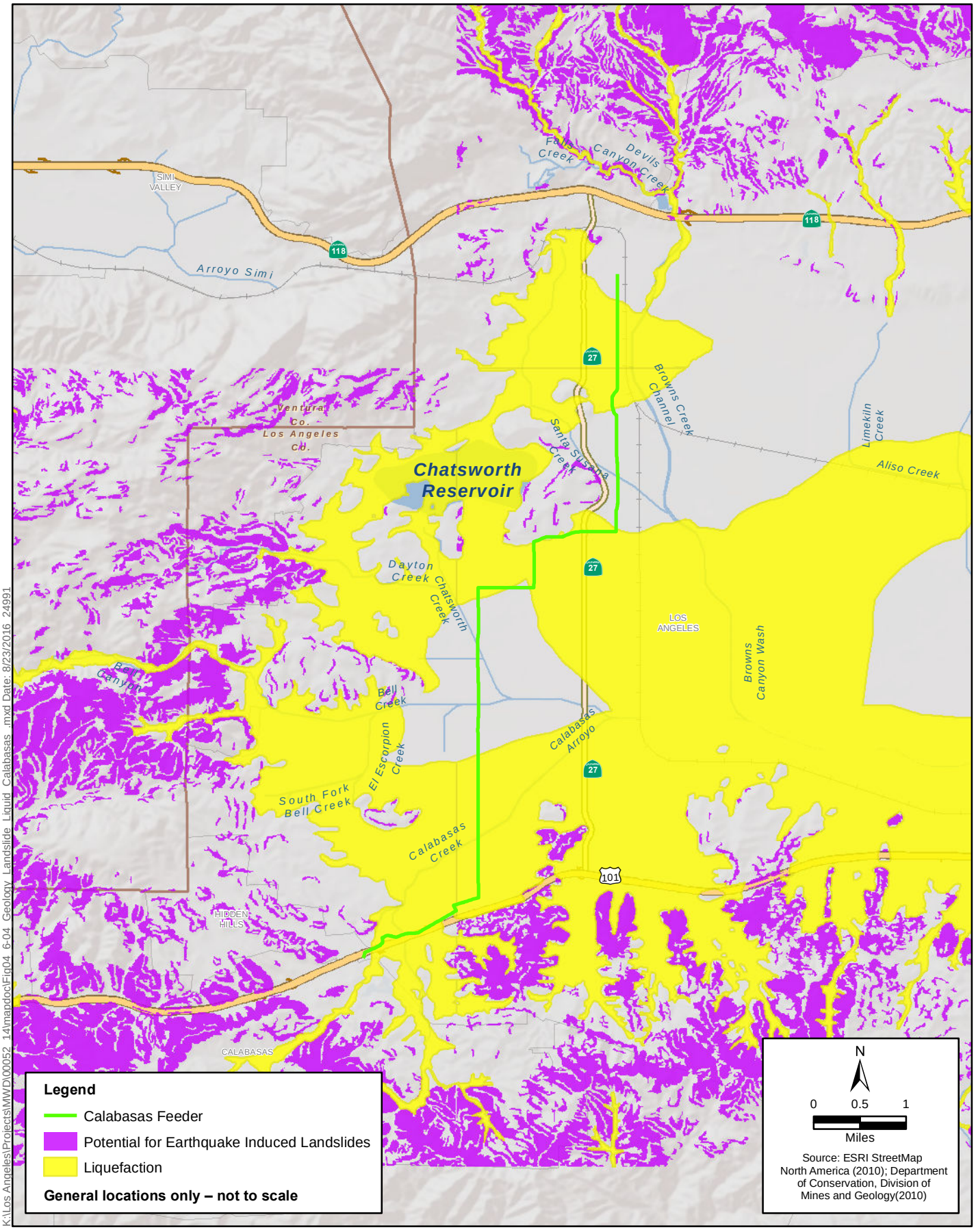


Figure 4.6-4
Regional Landslide/Liquefaction - Calabasas Feeder
Metropolitan PCCP Program

City of Hidden Hills

As described in the Natural Resources Element of the Hidden Hills General Plan (City of Hidden Hills 1995), deposits of sedimentary bedrock consisting of claystone, sandstone, siltstone, diatomaceous shale, and petroliferous shale underlie the entire city. The more gentle slopes within the city lie on a gradient parallel to the underlying bedding plane orientations. Surfaces of these slopes have weathered, producing various thicknesses of topsoil. Steeper slopes within the city indicate weathering over the harder, resistant bedrock. Most soils found in the city have moderate to very high erosion potential.

Los Angeles County

According to the Los Angeles County General Plan, more than 50 percent of unincorporated areas are composed of hilly or mountainous terrain. Such areas are susceptible to hillside hazards, including mud and debris flow, landslides, and hillside soil erosion. Also, the Santa Ana winds were noted to contribute to soil erosion.

Unstable Geology or Soils

Other than the earthquake-related landslides and liquefaction risks described above, no other unstable geology or soils conditions were identified in the Calabasas Feeder study area.

Expansive Soils

No expansive soils were identified in the Calabasas Feeder study area in the city of Los Angeles or Los Angeles County. However, expansive soils were found to potentially occur where the study area crosses the cities of Hidden Hills and Calabasas.

Soils in the city of Hidden Hills are primarily sandy clay derived from fine-grained sedimentary bedrock. According to the Natural Resources Element of the Hidden Hills General Plan (City of Hidden Hills 1995), this type of soil shrinks when it is dry and expands when it is wet; therefore, it is both expansive and creep-prone. When it is wet, the expanding soil affects the foundations of structures built upon it.

According to the 2014–2021 Housing Element Background Report (City of Calabasas 2013), soils with high clay content are found in portions of the city of Calabasas and may present limitations to urban development due to their shrink-swell potential. The exact location of these soils was not identified; however, per city regulations, geologic studies are required prior to commencement of development projects to evaluate the potential for geologic and soil hazards, and the city requires these conditions to be corrected during construction.

4.6.2.3 Rialto Pipeline

As shown on Figures 4.6-5 and 4.6-6, the Rialto Pipeline is in a seismically active area and is susceptible to strong groundshaking as a result of earthquakes. Table 4.6-5 summarizes the Alquist-Priolo Earthquake Fault Zones nearest the jurisdictions traversed by the Rialto Pipeline study area.

The Rialto Pipeline study area does not overlap with any areas identified as earthquake-induced landslide or liquefaction hazard areas.

Table 4.6-5. Estimated Distance to Nearest Alquist-Priolo Earthquake Fault Zone for Jurisdictions in the Rialto Pipeline Study Area

Jurisdiction	Distance to Nearest Alquist-Priolo Earthquake Fault Zone (miles)	Nearest Alquist-Priolo Earthquake Fault Zone
City of San Bernardino	0.0	San Jacinto
San Bernardino County	0.0	San Jacinto
City of Rialto	0.4	San Jacinto
City of Fontana	0.0	Sierra Madre
City of Rancho Cucamonga	0.0	Red Hill-Etiwanda Avenue
City of Upland	0.8	Sierra Madre
City of Claremont	1.4	Sierra Madre
Los Angeles County	3.6	Sierra Madre
City of La Verne	4.6	Sierra Madre
City of San Dimas	6.0	Sierra Madre
Notes: 0.0 = the Rialto Pipeline study area crosses the Alquist-Priolo Earthquake Fault Zone within that jurisdiction.		

The Rialto Pipeline crosses land within the jurisdiction of the County of Los Angeles, which is discussed above under Section 4.6.2.2, *Calabasas Feeder*, and thus not discussed in detail below.

Seismic Environment

City of San Bernardino

The city of San Bernardino is surrounded by earthquake faults, including the San Andreas, San Jacinto, Glen Helen, and Loma Linda faults, which run through the city and are all classified as Alquist-Priolo Special Studies Zones under the Alquist-Priolo Earthquake Fault Zoning Act (City of San Bernardino 2005). Therefore, the potential for fault rupture and seismic groundshaking is high.

San Bernardino County

San Bernardino County is subject to earthquake-related risks, including fault rupture and groundshaking. Numerous faults run through the county, including the San Andreas fault, which has a very high probability of a great earthquake occurring (County of San Bernardino 2014). Another seismic hazard identified in the General Plan includes tectonic subsidence, which is primarily of concern during large earthquake events, when instantaneous subsidence of many feet could occur. The Rialto Pipeline crosses the Alquist-Priolo Earthquake Fault Zone associated with the San Jacinto Fault Zone in San Bernardino County.

City of Rialto

According to the Rialto General Plan (City of Rialto 2010), the city is in a region with sharp contrasts in terrain. Tectonic movement of the San Andreas fault and its subsidiary faults have created an area in which the gently sloping lands in south Rialto abruptly meet the slopes of the San Gabriel Mountains in the north. Virtually all city lands are underlain by poorly consolidated alluvium, resulting in potentially devastating damage in the event of an earthquake. Groundshaking has historically occurred in Rialto due to earthquakes, with moderate to strong shaking associated with

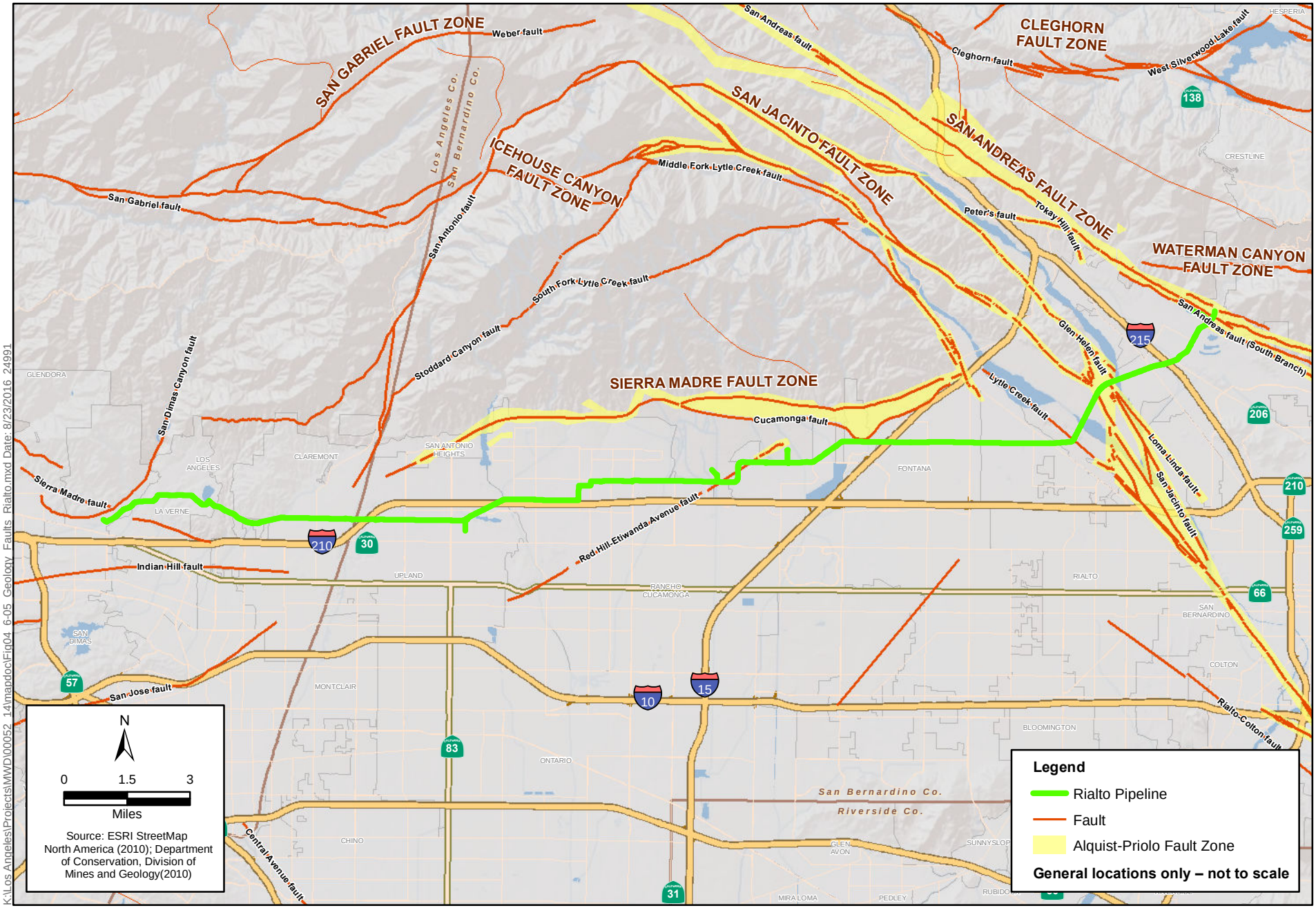


Figure 4.6-5
Regional Fault Map - Rialto Pipeline
Metropolitan PCCP Program

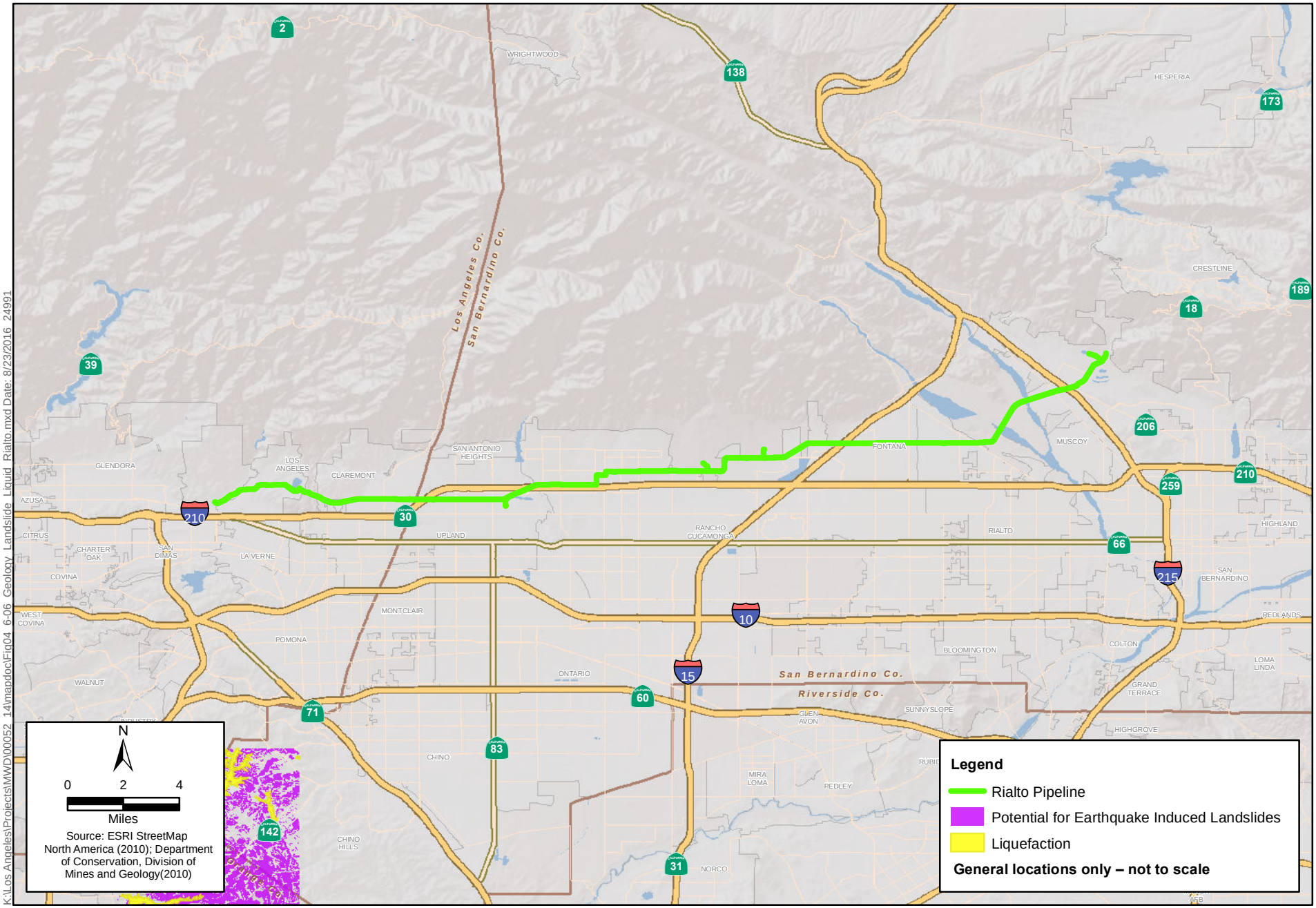


Figure 4.6-6
Regional Landslide/Liquefaction - Rialto Pipeline
Metropolitan PCCP Program

the San Jacinto, San Andreas, and Cucamonga faults. According to the Rialto General Plan, these faults have the potential to generate earthquakes of maximum magnitudes ranging from 6.7 to 8.0 (City of Rialto 2010). The Rialto Pipeline crosses the Alquist-Priolo Earthquake Fault Zone associated with the San Jacinto Fault Zone in the city of Rialto.

City of Fontana

The city of Fontana lies within the Upper Santa Ana River Valley, in an area defined by the steeply rising range front of the eastern San Gabriel Mountains on the north, Lytle Creek Wash on the east, and the Jurupa Mountains on the south. According to the City of Fontana General Plan, the majority of development in the city has occurred on the gently sloping valley floor (City of Fontana 2003). Faults within and near the city of Fontana include the San Jacinto, Cucamonga, San Andreas, Rialto-Colton, and Barrier J faults. An additional series of faults that create the Fontana Seismic Trend are located across the center of the city. The Cucamonga and San Jacinto faults both extend across the northern portion of the city, with the San Andreas fault lying slightly outside the city. This results in a high potential for very strong groundshaking, with some areas of the city susceptible to surface fault rupture. The Rialto Pipeline crosses the Alquist-Priolo Earthquake Fault Zone associated with the Cucamonga fault in the city of Fontana.

City of Rancho Cucamonga

Groundshaking and fault rupture due to earthquake activity pose a threat to the Rancho Cucamonga area. The city is near the San Andreas and San Jacinto faults, both of which are highly active and capable of generating a large earthquake in the near future. The most threatening scenario for the city of Rancho Cucamonga, however, is an earthquake on the Cucamonga fault. According to the Rancho Cucamonga General Plan (City of Rancho Cucamonga 2010), ground displacements from a major earthquake along the Cucamonga fault could be up to 9 feet, with intense groundshaking and extensive losses. The Red Hill fault, comprising three segments and traversing the city in a northeast direction, also presents a risk to the city. Alquist-Priolo Earthquake Fault Zones have been designated for the Cucamonga fault and a portion of the Red Hill fault (the Etiwanda Avenue Fault Scarp). The Rialto Pipeline crosses the Alquist-Priolo Earthquake Fault Zone associated with the Red Hill fault in the city of Rancho Cucamonga.

City of Upland

Similar to the other jurisdiction discussed above, the City of Upland is susceptible to seismic and geologic hazards. A very small region in the northern area of the city is within an Alquist-Priolo Earthquake Fault Zone and is associated with the Sierra Madre Fault Zone.

City of Claremont

Fault lines and hillside terrain are present in the city of Claremont and make the city prone to earthquakes and earthquake-induced landslides. Situated at the base of the San Gabriel Mountains, Claremont is susceptible to seismic groundshaking and surface fault rupture. The Sierra Madre and Cucamonga fault lines meet under northern Claremont, both of which are not expected to rupture for several thousand years. Thus, while the risk of fault rupture is minimal, the threat of groundshaking activity is of real concern to the Claremont region.

City of La Verne

According to the La Verne General Plan (City of La Verne 1999), most potentially active faults cross the community in the northern region of the city, north of Baseline Road. Earthquake activity in this area leaves north La Verne and the Rialto Pipeline susceptible to groundshaking.

City of San Dimas

According to the San Dimas General Plan (City of San Dimas 1991), ground rupture from earthquake activity could result along the surface traces of the Sierra Madre fault, which crosses the northern portion of the city. This fault is designated "potentially active," though the city is not within an Alquist-Priolo Earthquake Fault Zone. Groundshaking is likely to occur in the city as a result of earthquake activity along the Sierra Madre fault or other nearby faults of significance.

Soil Erosion

No soil erosion issues due to water were specifically identified in the Rialto Pipeline study area, with the exception of San Bernardino County, the city of Claremont, and Los Angeles County. Erosion control is of particular importance in San Bernardino County at the base of the mountain ranges. The Claremont General Plan identifies soil erosion as likely to occur in hillside areas due to the steep grade of the San Gabriel Mountains and the low permeability of the soils. Debris basins have been created in the area to trap sediment, rock, and debris carried by storm flows and protect property from damage. Soil erosion issues for Los Angeles County are described above under Section 4.6.2.2, *Calabasas Feeder*.

Unstable Geology or Soils

City of San Bernardino

According to the City of San Bernardino General Plan, historic and potential ground subsidence areas within the city are typically within thick, poorly consolidated alluvial and marsh deposits of the old artesian north of Loma Linda (City of San Bernardino 2005). Subsidence in this area has the potential to be as great as 5 to 8 feet if unreplenished groundwater is depleted from the Bunker Hill-San Timoteo Basin. However, problems with ground subsidence have not been identified since 1972, when the city began a groundwater recharge program. The Rialto Pipeline is over 9 miles north of Loma Linda and is outside the potential subsidence areas mapped in the city's General Plan.

The city's General Plan also identifies the generalized landslide susceptibility in the city to be low to moderate. Potentially hazardous zones in the city include those with low relief with low to moderate susceptibility that may contain small-scale surficial soil slips, debris flow, and mudflows on steep slopes; or areas of moderate and high relief with low to moderate susceptibility that may contain small to large rotational slides, debris slides, and combinations of surficial slides and flows. According to Figure S-6 of the City of San Bernardino General Plan (City of San Bernardino 2005), the Rialto Pipeline crosses areas in the city identified with low to moderate susceptibility to landslides.

San Bernardino County

According to the San Bernardino County General Plan, two types of subsidence are of major concern to the county: tectonic subsidence and subsidence caused by groundwater withdrawal (County of

San Bernardino 2014). As mentioned above, tectonic subsidence is primarily of concern during large earthquake events, when instantaneous subsidence of many feet could occur.

Within the county, the San Gabriel, San Bernardino, Little San Bernardino, and Pinto mountains compose a portion of the Transverse Ranges. The steep slopes, narrow ridges, steep-walled incised canyons, valleys, and major faults provide a setting that is capable of producing landslides and mudslides. According to the county General Plan, the Wrightwood landslide area is of critical concern, given that high precipitation induces mudflows and mudslides in the area. Steep fronts occurring in the eastern San Gabriel and southwestern San Bernardino mountains may also present a stability hazard. As mentioned above, Rialto Pipeline traverses these areas at the base of the San Gabriel and San Bernardino mountains.

Subsidence caused by groundwater withdrawal is of concern in the alluvial valleys of San Bernardino County, particularly the southwestern portion of the county, where subsidence from 0.8 to 5.8 feet is reportedly possible (County of San Bernardino 2014). Subsidence is anticipated to continue to occur in desert basins as groundwater drafts increase with development.

City of Rialto

According to the Rialto General Plan, an area in the northeast corner of the city, southeast of the Rialto Pipeline study area, is moderately susceptible to liquefaction. Young, unconsolidated soils combined with historic artesian well activity has made this area susceptible to liquefaction, along with its location adjacent to the San Jacinto fault, as mentioned above.

City of Fontana

The northern and southern edges of the city of Fontana contain hillsides that are vulnerable to slope instability due to the fractured, crushed, and weathered condition of the bedrock, as well as the steep terrain (City of Fontana 2003). According to the city's General Plan, the probability of large bedrock landslides occurring is relatively low, with very few historic landslides recorded in the area. Smaller-scale instability may arise as a result of slides, slumps, soil slips, debris flows, and rockfalls. Development at the base of the San Gabriel and Jurupa mountains may be susceptible to runoff, sedimentation, and small slope failures, and may be at risk for destructive debris flows under the right conditions. An area to the north of the Rialto Pipeline is mapped by the City of Fontana General Plan as steep to very steep slopes and susceptible to rockfalls, small slides, and slumps.

In addition, groundwater may occur within 40 feet of the surface in a portion of the Lytle Creek channel, creating the potential for liquefaction in the area. Other areas of the city may also be susceptible to liquefaction due to seasonal saturation of near-surface sediments (City of Fontana 2003). The Rialto Pipeline crosses an area identified as low liquefaction susceptibility in the city of Fontana.

City of Rancho Cucamonga

Due to its proximity to the San Gabriel Mountains, Rancho Cucamonga is susceptible to geologic hazards including debris flows and falling rocks due to erosion of the mountain slopes, concentration of precipitation from storms, and rapid stream flow from mountain streams, which increase the potential for land subsidence in certain soil conditions. The northern portion of the city is most susceptible to these hazards. Slope instability on the slopes of the San Gabriel Mountains is likely to cause debris flows through city drainages, including Cucamonga Creek, Demens Canyon,

Deer Canyon, Day Canyon, and East Etiwanda Creek. The Rialto Pipeline study area occurs just south of these areas in an area noted as "slopes less than 10%" where no special hillside recommendations are required for development (City of Rancho Cucamonga 2010).

City of Upland

No issues with instability of soils or geology were identified by the City of Upland within its jurisdiction.

City of Claremont

Non-seismically induced landslides have the potential to occur within the city of Claremont in hillside areas. According to the city's Safety and Noise Element, past landslides have involved only minor inconveniences without extensive damage (City of Claremont 2009). However, heavy rainfall or other changes in conditions can increase susceptibility for slope instability.

City of La Verne

No issues with instability of soils or geology applicable to the Rialto Pipeline study area were identified by the City of La Verne within its jurisdiction.

City of San Dimas

No issues with instability of soils or geology applicable to the Rialto Pipeline study area were identified by the City of San Dimas within its jurisdiction.

Expansive Soils

No expansive soils were identified in the Rialto Pipeline study area, with the exception of the city of Claremont. The Claremont General Plan notes that collapsible and expansive soils lie under most of the City. Expansive soils in the hillsides are prone to collapse during dry seasons, while expansive soils in the urban area are prone to expand during the wet season (City of Claremont 2009).

4.6.2.4 Second Lower Feeder

As shown on Figures 4.6-7 and 4.6-8, the Second Lower Feeder is in a seismically active area and susceptible to strong groundshaking, seismically induced landslides, and liquefaction as a result of earthquakes. Table 4.6-6 summarizes the Alquist-Priolo Earthquake Fault Zones nearest the jurisdictions in the Second Lower Feeder study area. Table 4.6-7 summarizes approximately how many acres of the Second Lower Feeder study area overlap with seismic hazards identified in each jurisdiction within the study area.

Table 4.6-6. Estimated Distance to Nearest Alquist-Priolo Earthquake Fault Zone for Jurisdictions in the Second Lower Feeder Study Area

Jurisdiction	Distance to Nearest Alquist-Priolo Earthquake Fault Zone (miles)	Nearest Alquist-Priolo Earthquake Fault Zone
City of Yorba Linda	0.2	Elsinore
City of Brea	0.5	Elsinore
City of Placentia	1.0	Elsinore

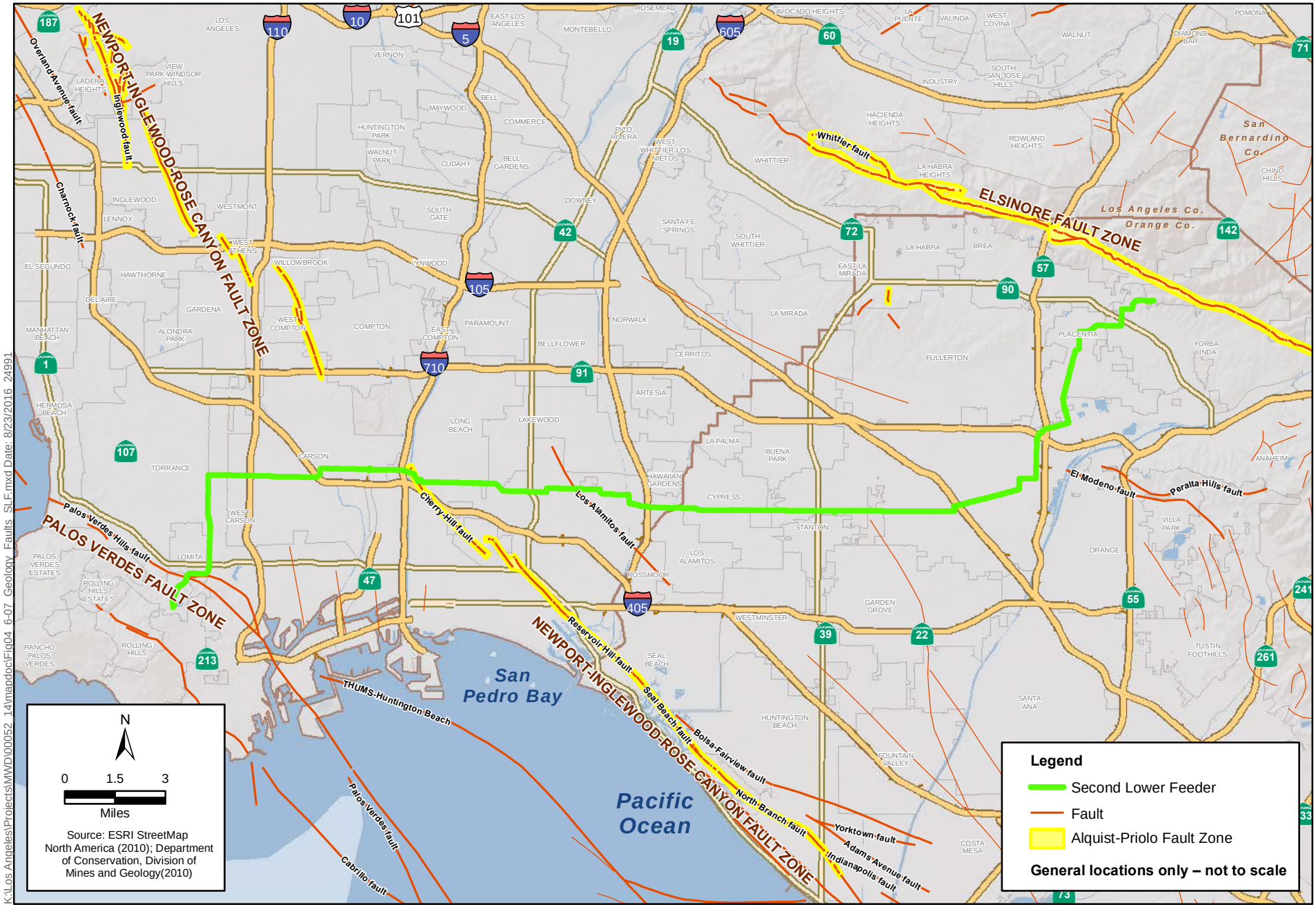


Figure 4.6-7
Regional Fault Map – Second Lower Feeder
Metropolitan PCCP Program

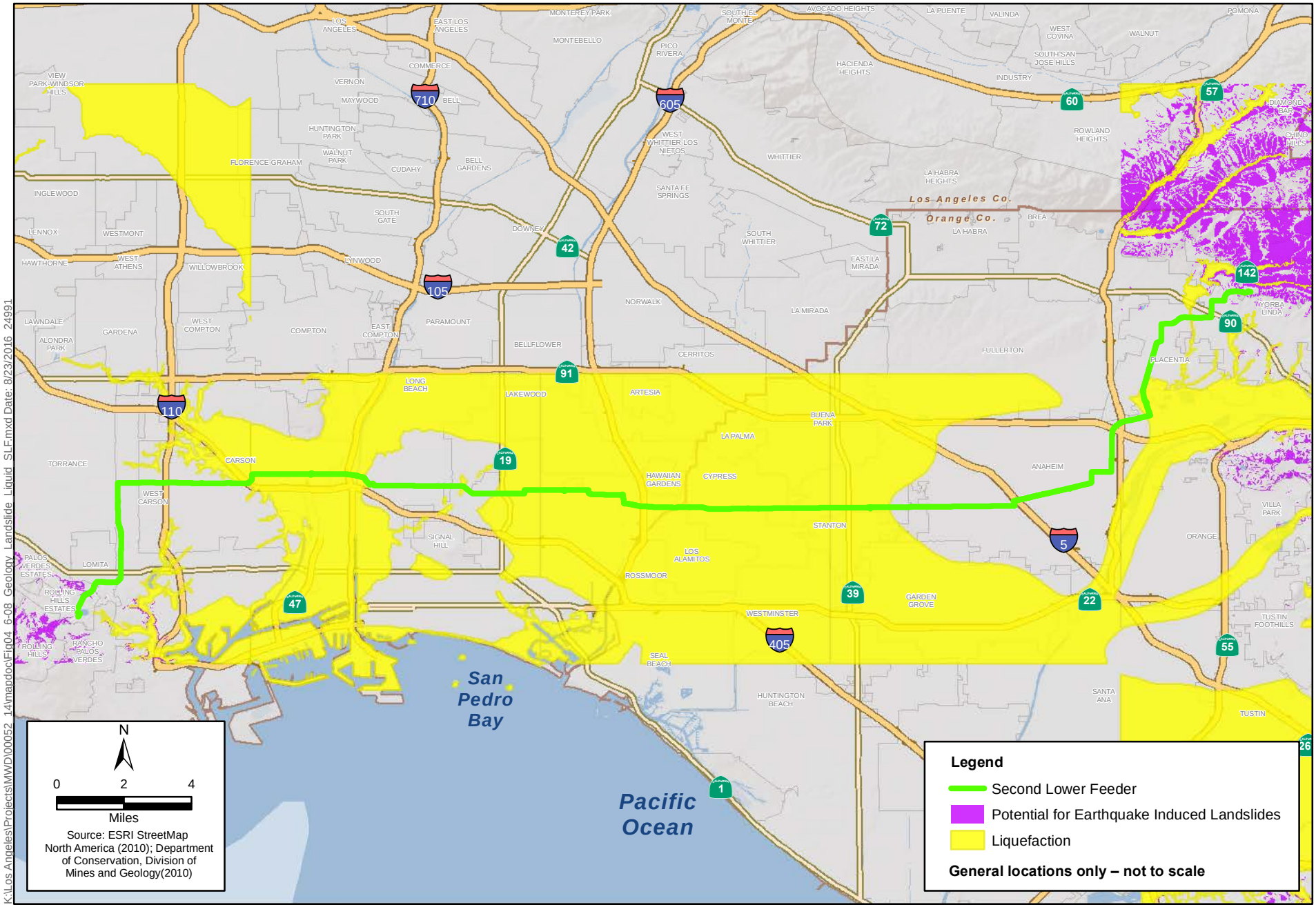


Figure 4.6-8
Regional Landslide/Liquefaction - Second Lower Feeder
Metropolitan PCCP Program

Jurisdiction	Distance to Nearest Alquist-Priolo Earthquake Fault Zone (miles)	Nearest Alquist-Priolo Earthquake Fault Zone
City of Anaheim	4.0	Elsinore
Orange County	0.0	Elsinore
City of Stanton	6.1	Newport-Inglewood
City of Buena Park	5.5	Newport-Inglewood
City of Cypress	4.2	Newport-Inglewood
City of Hawaiian Gardens	4.2	Newport-Inglewood
City of Los Alamitos	3.6	Newport-Inglewood
City of Lakewood	1.0	Newport-Inglewood
City of Long Beach	0.0	Newport-Inglewood
City of Carson	0.4	Newport-Inglewood
City of West Carson	3.1	Newport-Inglewood
Los Angeles County	2.8	Newport-Inglewood
City of Los Angeles	1.2	Newport-Inglewood
City of Torrance	4.1	Newport-Inglewood
City of Lomita	5.5	Newport-Inglewood
City of Rolling Hills Estates	7.0	Newport-Inglewood
City of Rolling Hills	8.2	Newport-Inglewood
City of Rancho Palos Verdes	7.4	Newport-Inglewood
Notes: 0.0 = the Second Lower Feeder crosses the Alquist-Priolo Earthquake Fault Zone within that jurisdiction.		

Table 4.6-7. Estimated Area of Overlap between the Second Lower Feeder Study Area and Identified Seismic Hazard Areas

Jurisdiction	Earthquake-Induced Landslide Overlap (acres)	Liquefaction Overlap (acres)
City of Yorba Linda	66.4	9.8
City of Brea	7.0	50.27
City of Placentia	-	201.3
City of Anaheim	-	1,589.1
Orange County	119.8	26.3
City of Stanton	-	379.41
City of Buena Park	-	294.6
City of Cypress	-	1,434.6
City of Hawaiian Gardens	-	57.3
City of Los Alamitos	-	221.8
City of Lakewood	-	20.0
City of Long Beach	-	3,488.9
City of Carson	-	1,597.6
City of West Carson	-	13.2
Los Angeles County	-	95.1

Jurisdiction	Earthquake-Induced Landslide Overlap (acres)	Liquefaction Overlap (acres)
City of Los Angeles	-	29.3
City of Torrance	3.9	-
City of Lomita	1.2	-
City of Rolling Hills Estates	59.2	0.8
City of Rolling Hills	0.6	-
City of Rancho Palos Verdes	6.7	1.8

The Second Lower Feeder crosses the following jurisdictions, which are discussed above and thus are not discussed in detail below: the city of Yorba Linda, the city of Anaheim, Orange County, Los Angeles County, and the city of Los Angeles.

Seismic Environment

City of Brea

The city of Brea lies within one of the most potentially seismically active areas of Southern California, adjacent to the Whittier fault and atop the Elysian Park Thrust fault. Both of these fault zones have the potential to generate moderate to large earthquakes that could cause substantial property damage and possibly loss of life. The Whittier fault is active and cuts across Brea diagonally (northwest/southeast orientation). The Whittier fault is an Alquist-Priolo Earthquake Fault Zone within the city limits and, accordingly, surface fault rupture hazard in Brea is high within the boundaries of this zone. Brea is also directly on the Elysian Park Thrust fault and 33 miles from the San Andreas fault. The most severe groundshaking would result from earthquake activity on the Whittier fault zone. The Elysian Park Thrust fault, a buried fault approximately 6 to 10 miles below the ground surface, is considered to be more threatening, with a greater potential to cause a large magnitude earthquake (City of Brea 2003).

In addition, according to the City of Brea General Plan (City of Brea 2003), slope stability is a significant concern in the natural slopes of the Carbon Canyon area. There is some potential for erosion and slope instability related to stream activity along major canyons and drainage courses. Steep topography, fractured and unconsolidated bedrock conditions, expansive soils, and high erosion potential make many hillside areas highly unstable. Landslides are typical on moderate to steep slopes in Brea and the potential for future landslides is high (City of Brea 2003).

Liquefaction hazards are significant along stream channels in the city of Brea due to the porous nature and high water content of the soil. These areas include Tonner Canyon Creek, Brea Canyon, and areas around the Carbon Canyon Dam (City of Brea 2003).

City of Placentia

According to the Seismic Safety Element of the Placentia General Plan (City of Placentia 1975), the majority of the city is relatively free of serious or significant seismic problems. Seismic groundshaking is expected to be moderate throughout the city, and primarily influenced by the San Andreas, San Jacinto, San Fernando-Sierra Madre, and Newport-Inglewood fault zones. The Whittier fault occurs approximately 1,000 feet north of the city and is not expected to have any direct impact

on Placentia. The potential for fault rupture in the city is low in most areas, and potentially moderate along the Norwalk fault and in anticlinal areas.

In addition, the potential for liquefaction is low. Any potential for slope instability is limited to the hillside areas northeast of Valencia Avenue and Bastanchury Road, and to the southeast of Linda Vista Avenue (Placentia General Plan 1975).

City of Stanton

There are no Alquist-Priolo Earthquake Fault Zones within the city of Stanton; however, there are several potentially active faults in proximity to the city. Potentially active faults close to the city are the Newport-Inglewood–Rose Canyon fault, the Whittier section of the Elsinore fault, and the Norwalk, Elysian Park, and San Andreas faults. Ground rupture as a result of earthquakes is unlikely to occur within Stanton because no faults have been identified within the city's boundaries (City of Stanton 2008). The impacts of earthquakes on the city depend upon the fault from which the earthquake occurred, fault location, distance from the city, and magnitude of the earthquake. The combination of these factors would determine the degree of shaking experienced by the city.

According to the California Department of Conservation, Division of Mines and Geology (Los Alamitos 7.5-Minute Quadrangle [March 25, 1999] and Anaheim and Newport Beach 7.5-Minute Quadrangle [April 15, 1998]), the entire city of Stanton is in a liquefaction hazard zone (City of Stanton 2008). The same maps show that the city does not have the potential for landslides.

City of Buena Park

According to the Safety Element of the Buena Park General Plan (City of Buena Park 2010), the city is in a seismically active region, with a number of active faults close by. The Norwalk fault traverses the northern and northeastern portions of the city, while the Los Coyotes fault lies near the city's northern boundary. Additionally, the Whittier-Elsinore, Newport-Inglewood, and Los Alamitos faults all lie within 5 miles of the city. The Norwalk fault—the only fault within the city—is not a state-designated Alquist-Priolo Earthquake Fault Zone.

Although the extent of groundshaking would depend on the magnitude of the earthquake and the city's distance from the epicenter, it is the Norwalk fault that has the greatest potential of causing significant groundshaking. The Whittier-Elsinore and Newport-Inglewood faults could also result in significant groundshaking. According to the city's General Plan, the northern portion of Buena Park is most susceptible to seismic groundshaking.

The Buena Park General Plan identifies liquefaction as a seismic activity of concern for the city. According to the Safety Element of the Buena Park General Plan, the California Geological Survey Quadrangles consider the city to be highly susceptible to liquefaction.

City of Cypress

According to the City of Cypress General Plan (City of Cypress 2001), the city is not within an Alquist-Priolo Earthquake Fault Zone. While no potentially active faults are within the city, the entire Southern California region is considered to be seismically active, and thus the city is at risk to seismic groundshaking. The Newport-Inglewood, Norwalk, El Modeno, Whittier-Elsinore, and Elysian Park faults are all close to the city. The San Andreas and San Jacinto faults are farther from the city, but have the potential to deliver larger magnitude earthquakes than the faults near the city.

Surface rupture from earthquake activity is unlikely to occur in the city of Cypress because no faults are known to lie within its boundaries.

According to the City of Cypress General Plan (City of Cypress 2001), the soils underlying Cypress include alluvium deposits that have the potential to become unstable during intense groundshaking. Instability in the form of liquefaction may occur in some portions of Cypress due to the city's granular sandy soil with high water content.

City of Hawaiian Gardens

Hawaiian Gardens is near the Norwalk fault, 4 miles to the northeast, and the Newport-Inglewood fault, 5 miles to the southwest. The Los Alamitos fault is also approximately 2 miles from the city. Although there are no known active earthquake faults within the city, the potential for strong earthquake groundshaking is high because of the many nearby active faults. (City of Hawaiian Gardens 2010).

Mass movements of loose rock, soil, and water-saturated and weathered materials are major effects of earthquakes. Steep slopes commonly favor gravitational movements, and landslides sometimes occur. However, no earthquake-induced landslide zone has been designated in the area. In addition, the city of Hawaiian Gardens has relatively flat topography (City of Hawaiian Gardens 2010).

The entire city of Hawaiian Gardens is in a liquefaction zone, according to the California Geological Survey (City of Hawaiian Gardens 2010). The liquefaction zone covers almost the entire region in the Los Alamitos Quadrangle because of the shallow groundwater table and nearly universal distribution of young sandy alluvial deposits.

City of Los Alamitos

According to the Public Facilities and Safety Element of the 2015 Los Alamitos General Plan (City of Los Alamitos 2015), there are no active or potentially active earthquake faults in the city of Los Alamitos. However, as mentioned above, the entire Southern California region is considered to be seismically active, and thus the city is susceptible to seismic groundshaking. The faults most capable of generating destructive groundshaking in Los Alamitos include the El Modeno, Elysian Park, Newport-Inglewood, Norwalk, and Whittier-Elsinore faults. The Newport-Inglewood fault zone is closest to the city and has been the source of devastating earthquakes in the past. The potential for surface rupture in the Los Alamitos area is unlikely because faults have not been identified within the boundaries of the city.

According to the Los Alamitos General Plan (City of Los Alamitos 2015), the city is underlain by alluvium deposits, which can become unstable during intense groundshaking. Due to the potential for seismic activity to generate groundshaking in the city, there exists the potential for liquefaction. In addition, in areas of the city with generally cohesionless soils (sand) and high ground water, there is also a potential for liquefaction as a result of groundshaking in these areas.

City of Long Beach

The City of Long Beach General Plan Seismic Safety Element (City of Long Beach 1988) identifies the Newport-Inglewood Fault Zone as a possible seismic hazard for the city. Faults that pass within city boundaries as well as faults outside the city capable of generating large earthquakes are considered as potential sources of groundshaking. However, the Newport-Inglewood Fault Zone is of particular

concern for the city, given that its faults lie within city boundaries. The Palos Verdes fault is also of concern because it could produce severe groundshaking within the city.

According to the General Plan (City of Long Beach 1988), the most likely place for surface fault rupture to occur is along major active faults in the region, including those associated with the Newport-Inglewood Fault Zone. Although the damage from surface fault rupture is likely to be significant, it would be less damaging than groundshaking associated with the seismic event.

The potential for liquefaction in the city of Long Beach depends on the extent of seismic groundshaking, groundwater conditions, and subsurface soil conditions in the area. There are areas identified as having low, moderate, and significant potential for liquefaction throughout the city.

City of Lakewood

According to the Safety Element of the City of Lakewood Comprehensive General Plan (City of Lakewood 1996), multiple known active or potentially active faults lie within or in the vicinity of Lakewood. The two known active or potentially active faults closest to the city are the Los Alamitos fault and the Newport-Inglewood Fault Zone, both of which present a risk of damage in the city.

Liquefaction is a potential seismic hazard in the city of Lakewood. There are areas designated as liquefiable and potentially liquefiable throughout the city.

City of Carson

The city of Carson is in a seismically active area, with numerous faults lying in the vicinity of the city. The Newport-Inglewood, Avalon-Compton, San Andreas, Palos Verdes, Whittier (or Elysian Park), and Santa Monica Fault Zones are all capable of generating earthquakes that could affect the city. Any one of these faults could generate detectable groundshaking within the city of Carson in the event of an earthquake. Due to the composition of soils in the area, the city is considered one of the most severe shock areas in the Los Angeles County area (City of Carson 2006). Surface fault rupture has the potential to occur within city limits as a result of seismic activity along the Avalon-Compton structural zone. However, this is not considered to be a significant potential hazard (City of Carson 1981).

Seismically induced ground failure, including liquefaction, is a threat to the city of Carson (City of Carson 1981). Existing conditions in the city make the area susceptible to liquefaction, particularly as a result of earthquake activity along the Newport-Inglewood Fault Zone. A significant portion of the city has been designated as a potential liquefaction area.

City of Torrance

The city of Torrance is susceptible to groundshaking caused by earthquakes from nearby faults. According to the City of Torrance Safety Element (City of Torrance 2010), the highest risks are from the Palos Verdes Fault Zone, the Puente Hills fault, the Newport-Inglewood Fault Zone, the Elysian Park Fault Zone, the Malibu Coast-Santa Monica-Hollywood Fault Zone, and the Whittier Fault Zone. In addition to groundshaking, the city is susceptible to fault rupture. As of 2009, no Alquist-Priolo Earthquake Fault Zones were designated within the city of Torrance limits. However, if the Palos Verdes fault ever becomes zoned as active, the southern portion of Torrance would be in an Alquist-Priolo Earthquake Fault Zone.

According to the city's Safety Element (City of Torrance 2010), some areas of Torrance have the potential for earthquake-induced landslides. These areas mainly occur in the southern portion of the city near the borders with the cities of Palos Verdes Estates and Rolling Hills Estates and unincorporated Los Angeles County.

City of Lomita

The city of Lomita is within seismically active Southern California, and bounded by two of the most active faults in the region. According to the City of Lomita General Plan (City of Lomita 1998), the Palos Verdes fault on the south and the Newport-Inglewood fault to the northeast both generate a potential for seismic groundshaking and surface fault rupture within the city. The Torrance-Wilmington fault, in northeast Lomita, is also capable of generating groundshaking earthquakes in the city. Surface rupture may occur as a result of an earthquake along one of these faults. No Alquist-Priolo Special Studies Zones have been recorded within the city of Lomita. The nearest Alquist-Priolo Special Studies Zone is associated with the Newport-Inglewood fault, approximately 5 miles east of the city.

Strong groundshaking may occur as a result of earthquake activity in the city of Lomita. Faults including the Palos Verdes, Newport-Inglewood, Torrance-Wilmington, Cabrillo, Redondo Canyon, and San Pedro Basin faults are all within or in the vicinity of the city. The Newport-Inglewood and Palos Verdes faults are the most likely to cause groundshaking events in the city, and thus are the most likely to trigger liquefaction in the area (City of Lomita 1998).

Although numerous landslides have occurred in adjacent areas, the City of Lomita General Plan (City of Lomita 1998) identifies no definite or probable landslide hazards within the city; however, hill slopes may be susceptible to debris flows and mudflows in the event of a heavy rainfall.

City of Rolling Hills Estates

According to the Public Safety Element of the City of Rolling Hills Estates General Plan (City of Rolling Hills Estates 1992), the closest active faults to the city are the Newport-Inglewood, Palos Verdes, and Cabrillo faults. Other faults in the area that have the potential for groundshaking in the city include the Redondo Canyon, Santa Monica-Malibu Coast, Whittier, and Torrance-Wilmington fault systems. These faults pose a seismic risk to the city, which could result in groundshaking and other seismic-induced hazards.

No Alquist-Priolo Special Studies Zones have been identified in the city of Rolling Hills Estates (Alquist-Priolo Special Studies Zone Act 1972). The potential for surface fault rupture from the Palos Verdes or Cabrillo fault segments is credible. Fault rupture from other faults in the area is of less concern for the city.

Secondary earthquake hazards such as liquefaction and landsliding are of some concern for the city of Rolling Hills Estates. Most of the city is underlain by consolidated bedrock and thus is not susceptible to liquefaction. The exception includes the Chandler quarry and some canyons, which have been filled with uncompacted artificial or hydraulic fill that may settle during strong groundshaking. Small landslides in the canyon areas and one area northeast of the Peninsula Center may also occur. This area, the Silver Spur Landslide Complex, is postulated as a pull-apart scarp. Additionally, out-of-slope road cuts including Crenshaw Boulevard along Agua Negra Canyon, Palos Verdes Drive between George F. Canyon to the east and Silver Spur Road to the west, and some sections of Hawthorne Boulevard may cause rockfall or landslide threats in the event of seismic

shaking. The San Pedro Formation in the northern flank of the city is also highly at risk of landslide, particularly in the event of heavy rainfall.

City of Rolling Hills

The major seismic sources that could produce significant groundshaking in the city of Rolling Hills include the Palos Verdes, Newport-Inglewood, Whittier, Santa Monica/ Malibu Coast, and the Torrance-Wilmington faults. The Palos Verdes fault is potentially capable of producing the most intense groundshaking in Rolling Hills due to its proximity (approximately 1 mile) (City of Rolling Hills 1990).

According the City of Rolling Hills General Plan, the city is susceptible to shallow earthquake-induced landslides. The most susceptible slopes for rockfalls would be where the bedding is dipping out of slope. If saturated hillslope conditions are extraordinary, the potential for damage caused by debris flows and sudden reactivation of existing deep-seated landslides will increase accordingly. Although Rolling Hills is subject to moderate to high seismic shaking, the general lack of thick, loose, sandy soils and saturated alluvial deposits make the potential for liquefaction low to very low (City of Rolling Hills 1990).

City of Rancho Palos Verdes

Similar to the other cities in the region, Rancho Palos Verdes is in a seismically active area and relatively close to several of the many active and potentially active faults in Southern California. However, there are no Alquist-Priolo Earthquake Fault Zones within the city (City of Rancho Palos Verdes 1975). The Palos Verdes fault zone, which traverses the extreme northeastern corner of the city, is a known active or potentially active fault that could be the site of ground rupture resulting from movement on the fault (City of Rancho Palos Verdes 1975).

Landslides in the city of Rancho Palos Verdes can be grouped into three major landslide systems: the Portuguese Bend, the South Shores, and the Silver Spur system. Historically, the most prominent landslides have occurred within the approximately 900-acre Ancient Portuguese Bend Landslide complex and surrounding areas (City of Rancho Palos Verdes 1975). In general, these landslides are the result of inclined bedding to the south that becomes unsupported due to erosion from beach waves and intrusion from water runoff.

The potential for liquefaction in the area is very low, because the local soil deposits are relatively thin and cohesive. Liquefaction is not considered to be a significant hazard in the city.

Soil Erosion

No soil erosion issues were identified for the Second Lower Feeder study area, with the exception of Los Angeles County, which is discussed above in Section 4.6.2.2, *Calabasas Feeder*, and the cities of Brea and Lomita.

For the city of Brea, as discussed above, stability of natural slopes in the Carbon Canyon area is a significant concern. Most properties within Carbon Canyon are characterized by steep, rugged hillside terrain subject to landslides and soil erosion. Areas adjacent to stream beds and drainage channels tend to exhibit liquefaction conditions and ground instability (City of Brea 2003).

The City of Lomita recognizes that hill slopes are extremely susceptible to erosion in the event of heavy rainfall if not properly planted (City of Lomita General Plan). However, the city grading codes include design guidelines to reduce the hazard of erosion due to surficial sliding.

Unstable Geology or Soils

Other than the earthquake-related landslide and liquefaction hazards discussed above, no other unstable geology or soils hazards were identified within the Second Lower Feeder study area, with the exception of the cities of Yorba Linda, Anaheim, Los Alamitos, and Rolling Hills Estates.

The Second Lower Feeder study area overlaps with unstable geology or soil conditions in the cities of Yorba Linda and Anaheim, which are discussed in Section 4.6.2.1. The potential for landslides in Los Alamitos is low, given the flat topography of the community. However, according to the Los Alamitos General Plan (City of Los Alamitos 2015), some landslide activity may occur along drainage channels and areas with steep banks or slopes.

The majority of Rolling Hills Estates is underlain by shale and siltstone units, which have planes of weakness conducive to landslides and slope instability. Landslides are not numerous in the city, although small landslides in the canyon areas may exist. Furthermore, one postulated landslide complex northeast of the Peninsula Center may exist. There is also conjecture that the northwest-southeast trending valley along Silver Spur Road could be a pull-apart scarp within a postulated Silver Spur landslide complex (City of Rolling Hills Estates 1992). Storm-induced landsliding in the event of heavy rainfall may occur within the city, particularly in the area of the San Pedro Formation.

Expansive Soils

No expansive soils were identified in the Second Lower Feeder study area, with the exception of where the study area crosses unincorporated Orange County, and the cities of Buena Park, Lomita, and Rancho Palos Verdes.

The expansive soils in unincorporated Orange County are discussed in Section 4.6.2.1. According to the Safety Element of the Buena Park General Plan (City of Buena Park 2010), moderately expansive soil potential occurs in the west-central and southern portions of the city. Additionally, some soils in the city of Lomita may be susceptible to significant consolidation and hydrocompaction due to their composition. Soils in central and southern Lomita generally have a high shrink-swell potential according to geologic and engineering reports done for the city, and thus have the potential to expand when wet (City of Lomita 1998).

According to the City of Rancho Palos Verde's General Plan, the entire city is underlain by various combinations of Diablo and Altamont soils, which produce a dark grey, neutral clay. All of these combinations have a high shrink-swell potential. However, the City of Rancho Palos Verde's General Plan also states that while these soils are highly expansive, they should not be a factor in precluding development due to modern soil engineering procedures coupled with present-day foundation designs.

4.6.2.5 Sepulveda Feeder

As shown on Figures 4.6-9 and 4.6-10, the Sepulveda Feeder is in a seismically active area and susceptible to strong groundshaking, seismically induced landslides, and liquefaction as a result of earthquakes. Table 4.6-8 summarizes the Alquist-Priolo Earthquake Fault Zones nearest the

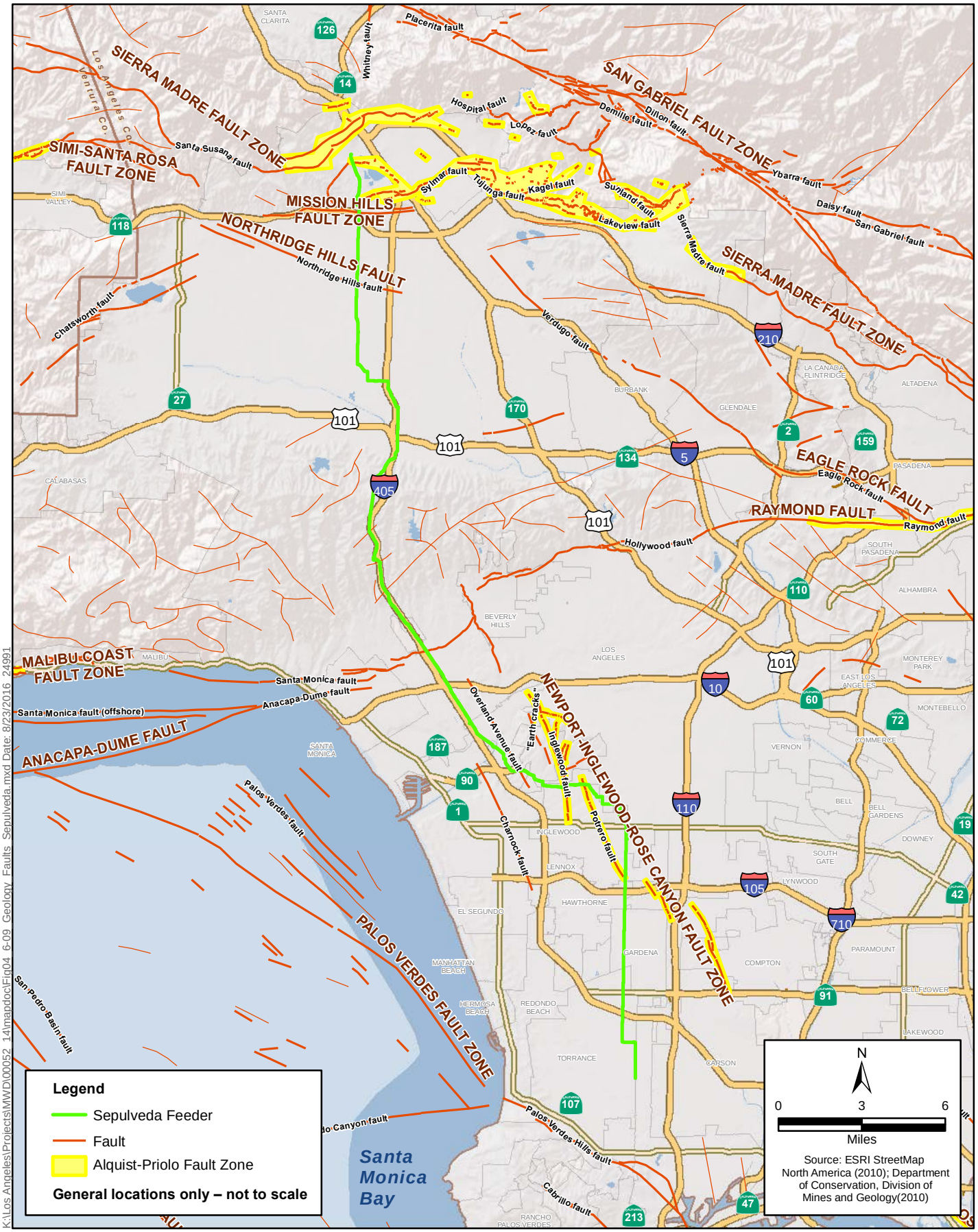


Figure 4.6-9
Regional Fault Map – Sepulveda Feeder
Metropolitan PCCP Program

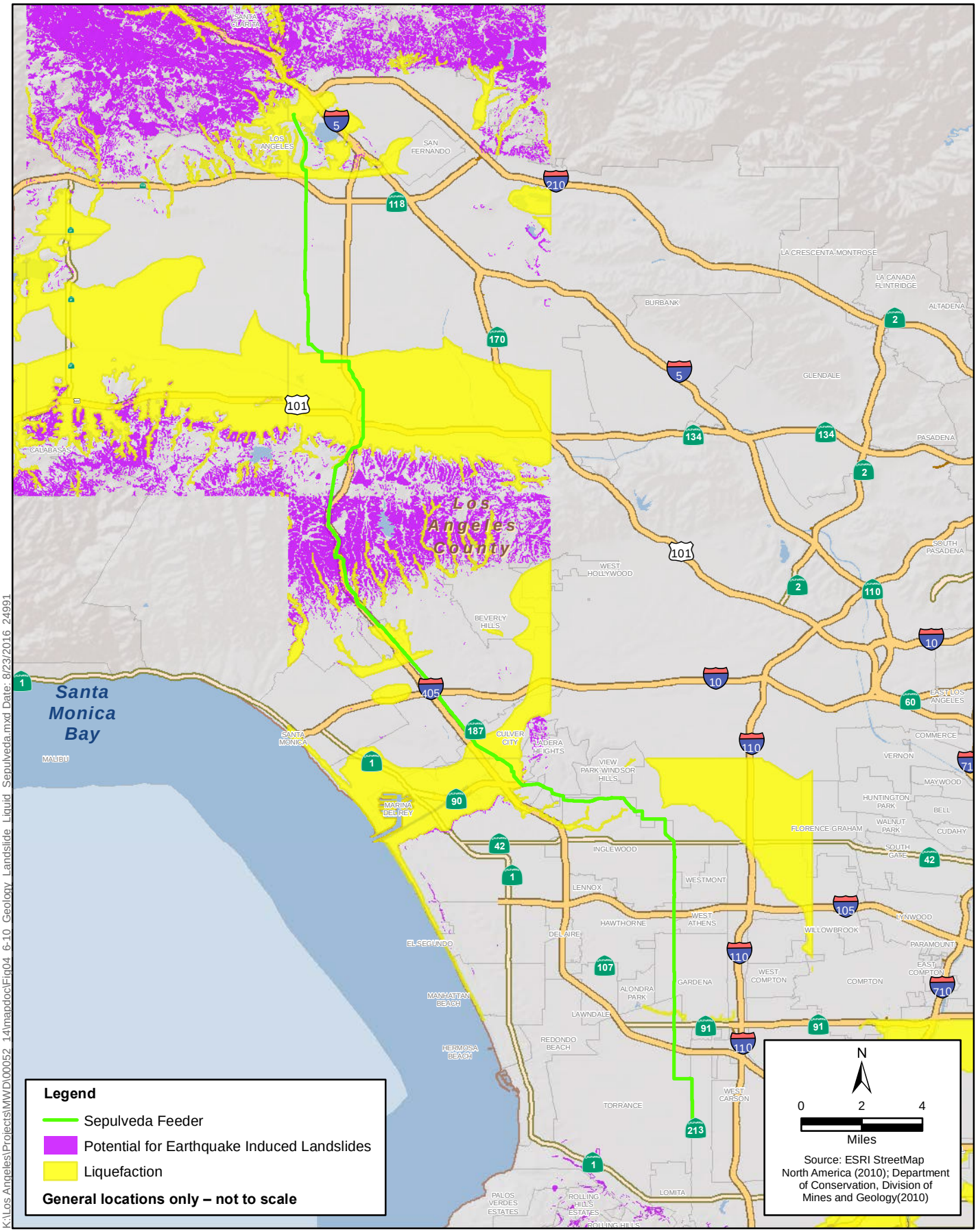


Figure 4.6-10
Regional Landslide/Liquefaction - Sepulveda Feeder
Metropolitan PCCP Program

jurisdictions traversed by the Sepulveda Feeder study area. Table 4.6-9 summarizes approximately how many acres of the Sepulveda Feeder study area overlap with seismic hazards identified in each jurisdiction within the study area.

Table 4.6-8. Estimated Distance to Nearest Alquist-Priolo Earthquake Fault Zone for Jurisdictions in the Sepulveda Feeder Study Area

Jurisdiction	Distance to Nearest Alquist-Priolo Earthquake Fault Zone (miles)	Nearest Alquist-Priolo Earthquake Fault Zone
City of Los Angeles	0.0	Newport-Inglewood
Los Angeles County	1.3	Newport-Inglewood
Culver City	0.9	Newport-Inglewood
City of Inglewood	0.0	Newport-Inglewood
City of Hawthorne	0.0	Newport-Inglewood
City of Gardena	0.7	Newport-Inglewood
City of Torrance	2.1	Newport-Inglewood
Notes: 0.0 = the Sepulveda Feeder study area crosses the Alquist-Priolo Earthquake Fault Zone within that jurisdiction.		

Table 4.6-9. Estimated Area of Overlap between the Sepulveda Feeder Study Area and Identified Seismic Hazard Areas

Jurisdiction	Earthquake-Induced Landslide Overlap (acres)	Liquefaction Overlap (acres)
City of Los Angeles	1,722.6	4,062.6
Los Angeles County	5.2	227.0
Culver City	7.6	952.3
City of Inglewood	-	16.4
City of Hawthorne	-	-
City of Gardena	-	10.0
City of Torrance	-	44.2

The Sepulveda Feeder crosses the following jurisdictions, which are discussed above and thus are not discussed in detail below: city of Los Angeles, Los Angeles County, and the city of Torrance.

Seismic Environment

Culver City

According to the Culver City Seismic Safety Element of the Revised General Plan (Culver City 1996), three major geologic-seismic risks exist within the city: potential future fault movement, the probability of continued subsidence in the Baldwin Hills, and instability resulting from development of hillside areas, particularly those coincident with the Inglewood Oil Field. Both the Inglewood Oil Field and Baldwin Hills are east of and outside the portion of the Sepulveda Feeder study area within Culver City.

The Inglewood Fault Zone is the most likely fault to experience surface displacement in the near term and is the major fault running through the city. The San Andreas Fault Zone may also cause seismic groundshaking in the Culver City area, should an earthquake occur.

Earthquake-induced landslides and liquefaction are also geologic hazards in Culver City. Two major zones have been identified in the city for landslide potential and include the Baldwin Hills and Inglewood Oil Field area and the western portion of the city where hill slopes are flatter and the underlying sedimentary units have shallow dips. In this area, natural slope stability is high, but problematic conditions would generally be restricted to the steeper portions of the natural drainages and to over-steepened, man-made slopes. Additionally, liquefaction hazard areas are generally confined to the floodplain and adjacent areas surrounding Ballona Creek.

City of Inglewood

According to the Safety Element of the Inglewood General Plan (City of Inglewood 1995), the city is dominated by the Newport-Inglewood Fault Zone. This fault zone has been responsible for extensive damage to nearby cities in the relatively recent past. The Potrero fault (a major local component of the Newport-Inglewood fault) is classified as an Alquist-Priolo Study Zone, according to the Inglewood Safety Element. The Seismic Safety Element also notes that major water lines and facilities could be significantly damaged should seismic ground rupture occur.

The potential for liquefaction in the city has been reduced due to water wells lowering the area's water table. According to the Safety Element of the Inglewood General Plan (City of Inglewood 1995), all of Inglewood is classified has having either very low susceptibility or, in the most southern portion of the city, low susceptibility to liquefaction. The one exception is the former water course of Centinela Creek, which has a very high susceptibility to liquefaction. The Sepulveda Feeder crosses mapped liquefaction hazard areas in the northern portion of the city.

City of Hawthorne

The city of Hawthorne is susceptible to seismic activity generated by the Newport-Inglewood and Charnock faults. The Newport-Inglewood fault is considered active, while the Charnock fault is considered potentially active. No Alquist-Priolo Special Studies Zones have been designated within the city of Hawthorne (City of Hawthorne General Plan 1989). The Safety Element of the general plan identifies the potential for groundshaking as generally low. Liquefaction is not an anticipated issue within the city.

City of Gardena

Similar to the other jurisdictions described above, Gardena is subject to risks associated with earthquake activity. The San Jacinto, San Andreas, Newport-Inglewood, Palos Verdes, Whittier-Elsinore, Sierra Madre-Cucamonga, San Fernando, and Raymond Hill fault systems all have the potential to affect the city. An Alquist-Priolo Earthquake Fault Zone is in the northeastern portion of Gardena and is part of the Newport-Inglewood fault system (City of Gardena 2006). Given that this fault is active, the area is at risk of fault rupture.

The city of Gardena also has some areas that are subject to liquefaction risks. Specifically, the area along Artesia Boulevard and the Dominguez Flood Control Channel are within a liquefaction zone identified by the California Department of Conservation Seismic Hazard Zones Map (City of Gardena 2006).

Soil Erosion

No soil erosion issues were identified for the Sepulveda Feeder study area with the exception of Los Angeles County, which is discussed in Section 4.6.2.2.

Unstable Geology or Soils

Culver City

The Seismic Safety Element of the Culver City General Plan identifies subsidence as a geologic hazard in the Baldwin Hills area since the failure of the Baldwin Hills reservoir in 1963. Subsidence is expected to continue in this area. According to the Seismic Safety Element, water injection into the oil reservoirs may slow the subsidence rate with time, as has been accomplished in the Wilmington Oil Field (Culver City General Plan).

City of Inglewood

According to the Safety Element of the Inglewood General Plan (City of Inglewood 1995), there is no historic evidence of subsidence problems in Inglewood. The exception is an area of the Baldwin Hills, approximately 1 mile northwest of Inglewood, which has experienced subsidence as a result of oil extraction.

The former course of Centinela Creek has the potential for settlement due to soil composition and the poorly compacted fill placed along the creekbed in the early 1900s. As previously mentioned, this area is also susceptible to seismically induced settlement.

City of Hawthorne

No issues related to unstable geology and soils were identified in the city of Hawthorne, with the exception of seismically induced instability, discussed above.

City of Gardena

No issues related to unstable geology and soils were identified in the city of Gardena, with the exception of seismically induced instability, discussed above.

Expansive Soils

No expansive soils were identified in the Sepulveda Feeder study area.

4.6.3 Regulatory Framework

This section describes the plans, policies, and regulations related to geology and soils that are applicable to the proposed program.

4.6.3.1 Federal

There are no federal regulations related to geology and soils applicable to the program.

4.6.3.2 State

Alquist-Priolo Earthquake Fault Zoning Act

This act provides policies and criteria to assist cities, counties, and state agencies in the exercise of their responsibility to prevent the location of developments and structures for human occupancy across the trace of active faults. The proposed program does not include development or structures for human occupancy, so this act is not applicable.

Seismic Hazards Mapping Act

This act requires that site-specific geotechnical investigations be conducted within the zones of required investigation to identify and evaluate seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy. The proposed program does not include development or structures for human occupancy, so this act is not applicable.

California Building Code Standards

The California Building Standards Code governs the design and construction of buildings, associated facilities, and equipment and applies to buildings in California.

4.6.3.3 Local

Table 4.6-10 lists the applicable geology and soils regulations for the proposed program.

Table 4.6-10. Applicable Geology and Soils Regulations for Proposed Program

Title of Plan, Policy, Regulation (date)	Applicable Regulation
Allen-McColloch Pipeline	
City of Yorba Linda General Plan, Public Safety Element	**Geologic Instability/Seismic Hazards Implementation Program 5**: All construction excavations and trenches relative to human occupancy and public works infrastructure of 5 feet or deeper in mapped fault zones shall be inspected by the city for any evidence of faulting. **Geologic Instability/Seismic Hazards Implementation Program 8**: A liquefaction report shall be required for proposed projects located in areas susceptible to liquefaction. Liquefaction reports will be submitted prior to issuance of construction permits.
City of Anaheim General Plan, Safety Element	**Goal 1.1**: Minimize the risk to public health and safety and disruptions to vital services, economic vitality, and social order resulting from seismic and geologic activities. **Policy 1**: Minimize the risk to life and property through the identification of potentially hazardous areas, adherence to proper construction design criteria, and provision of public information. **Policy 7**: Require that new construction and significant alterations to structures located within potential landslide areas be evaluated for site stability, including the potential impact to other properties, during project design and review.

Title of Plan, Policy, Regulation (date)	Applicable Regulation
City of Tustin General Plan, Conservation/ Open Space/ Recreation Element	**Policy 8.2**: Control erosion during and following construction through proper grading techniques, vegetation replanting, and the installation of proper drainage control improvements. **Policy 8.3**: Encourage the practice of proper soil management techniques to reduce erosion, sedimentation, and other soil-related problems.
City of Irvine, Seismic Element	**Policy D-2(d)**: Require detailed site studies to determine the potential for seismic hazards for facilities which are critical in an emergency. These facilities include but are not limited to: … major public utilities (electrical, gas, and water facilities…
Mission Viejo General Plan, Public Safety Element	**Policy 2.1**: Follow established standards for grading and construction to mitigate the potential for seismic hazards. **Policy 2.6**: Continue to implement operational guidelines and design standards, consistent with Public Utility Commission limitations, for subsurface transmission lines including natural gas, petroleum, water, and waste water which minimizes potential environmental damage resulting from operational failure due to natural or man-made catastrophes.
Orange County General Plan, Safety Element, Seismic Safety and Geologic Hazards	**Policy 5:** To encourage establishment of seismic design criteria and standards for county facilities (e.g., transmission lines, water and sewage systems, and highways), any structures housing necessary mobile units and support equipment, and other vital resources which would be needed following an earthquake (e.g., "back-up" power generation facilities and water storage).
Calabasas Feeder	
Conservation Element of the City of Calabasas 2030 General Plan	**Policy IV-32:** Regulate construction activities to eliminate potentially destructive practices that remove topsoil or place soils in areas intended to be preserved in open space, as well as practices such as dumping of construction wastes in unauthorized areas, washing out concrete trucks and spreading lime-laden water.
Rialto Pipeline	
City of Rialto General Plan, Safety and Noise	**Policy 5-1.2**: Require all construction to be in conformance with the Uniform Building Code (UBC) and the California Building Code (CBC), and to be consistent with the Municipal Code as it provides for earthquake resistant design, evacuation, and grading.
City of Upland General Plan	**Policy SAF-3.6**: Promote the upgrade, retrofitting, and/or relocation of all existing critical facilities (e.g., hospitals, schools, police stations, fire stations, water facilities, emergency operation centers, emergency access routes, public works yard, public refuge areas) and other important public facilities that do not meet current building code standards and are within areas susceptible to seismic or geologic hazards.
La Verne General Plan, Public Safety	**Policy 2.1, Implementation Measure (b)**: Adhere to Chapter 70 of the *Uniform Building Code* regulating earth work and grading during construction, and hillside grading guidelines to minimize erosion.
Second Lower Feeder	
Orange County General Plan, Safety Element, Seismic Safety and Geologic Hazards	**Policy 5:** To encourage establishment of seismic design criteria and standards for county facilities (e.g., transmission lines, water and sewage systems, and highways), any structures housing necessary mobile units and support equipment, and other vital resources which would be needed following an earthquake (e.g., "back-up" power generation facilities and

Title of Plan, Policy, Regulation (date)	Applicable Regulation
	water storage).
City of Yorba Linda General Plan, Public Safety Element	**Geologic Instability/Seismic Hazards Implementation Program 5**: All construction excavations and trenches relative to human occupancy and public works infrastructure of 5 feet or deeper in mapped fault zones shall be inspected by the city for any evidence of faulting. **Geologic Instability/Seismic Hazards Implementation Program 8**: A liquefaction report shall be required for proposed projects located in areas susceptible to liquefaction. Liquefaction reports will be submitted prior to issuance of construction permits.
City of Anaheim General Plan, Safety Element	**Goal 1.1**: Minimize the risk to public health and safety and disruptions to vital services, economic vitality, and social order resulting from seismic and geologic activities. **Policy 1**: Minimize the risk to life and property through the identification of potentially hazardous areas, adherence to proper construction design criteria, and provision of public information. **Policy 7**: Require that new construction and significant alterations to structures located within potential landslide areas be evaluated for site stability, including the potential impact to other properties, during project design and review.
City of Carson General Plan, Open Space and Conservation Element	**Policy OSC-2.2**: Minimize soil erosion and siltation from construction activities through monitoring and regulation.
Rolling Hills Estates General Plan, Public Safety Element	**Policy 1.5**: Support earthquake strengthening and provision of alternative or backup services, such as water, sewer, electricity, and natural gas pipelines and connections, especially in areas of high seismic or geologic high hazard or where weak segments are identified by existing or future studies.
Sepulveda Feeder	
Inglewood General Plan, Safety Element (1995)	**Policy 1**: Provide measures to reduce seismic impacts … Ensure that all utility lifelines, critical facilities, and places of assembly are seismically sound.

4.6.4 Thresholds and Methodology

4.6.4.1 Thresholds of Significance

Table 4.6-11 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to geology and soils. It also indicates which impacts were determined to be less than significant in the Initial Study and therefore do not require additional analysis, and which impacts must be analyzed in the PEIR for the proposed program.

Table 4.6-11. CEQA Thresholds for Geology and Soils

Threshold *Would the proposed program:*	**Analysis Required for the Proposed Program**

Threshold *Would the proposed program:*	**Analysis Required for the Proposed Program**
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42)?	X
ii. Strong seismic groundshaking?	X
iii. Seismically related ground failure, including liquefaction?	X
iv. Landslides?	X
b. Result in substantial soil erosion or the loss of topsoil?	X
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	X
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	X
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	N/A*
*Determined to be less than significant in the Initial Study (Appendix A).	

4.6.4.2 Methodology

Known Earthquake Fault Rupture

As documented in Section 4.6.2, this PEIR identifies known earthquake faults that could affect the pipelines in the PCCP Rehabilitation Program. For this program-level analysis, the Alquist-Priolo Earthquake Fault Zoning Act is not applicable, because the proposed program does not include structures intended for human occupancy. However, the Alquist-Priolo Earthquake Fault Zoning Map is helpful in identifying earthquake faults that could affect construction crews when rehabilitating the pipelines. The potential for impacts to occur related to fault rupture during rehabilitation anywhere along the pipelines is evaluated.

As part of any project within the PCCP Rehabilitation Program, Metropolitan would require its contractors to comply with the requirements of the California Building Code (CBC) and the California Division of Occupational Safety and Health (better known as Cal/OSHA). The analysis in this section assumes all contractors would comply with these requirements.

Strong Seismic Groundshaking

As documented in Section 4.6.2, this PEIR identifies that the study areas for all five pipelines would be subject to strong seismic groundshaking in the event of an earthquake on known or unknown faults in the region. For this program-level analysis, compliance with the requirements of the CBC and Cal/OSHA are assumed. Based on these assumptions, the potential for impacts to occur related to strong seismic groundshaking during rehabilitation anywhere along the pipelines is evaluated.

Seismically Related Ground Failure

As documented in Section 4.6.2, this PEIR identifies areas that could experience ground failure, including liquefaction, during earthquakes. For this program-level analysis, compliance with the requirements of the CBC and Cal/OSHA are assumed. Based on these assumptions, the potential for impacts to occur from seismically related ground failure during rehabilitation anywhere along the pipelines is evaluated.

Seismically Related Landslides

As documented in Section 4.6.2, this PEIR identifies areas that could be subject to seismically related landslides. For this program-level analysis, compliance with the requirements of the CBC and Cal/OSHA are assumed. Based on these assumptions, the potential for impacts related to seismically related landslides during rehabilitation anywhere along the pipelines is evaluated.

Soil Erosion

As documented in Section 4.6.2, this PEIR identifies areas where substantial soil erosion or loss of topsoil could occur. For this program-level analysis, compliance with the requirements of the CBC and Cal/OSHA are assumed. In addition, Metropolitan has included the following environmental commitments as part of all projects in the proposed program.

- Rehabilitation activities would comply with the South Coast Air Management District's Rule 403 to minimize fugitive dust, construction traffic, and particulate matter releases.
- Rehabilitation activities would incorporate water quality Best Management Practices, including a Stormwater Pollution Prevention Plan, as applicable, for sediment and erosion control, pollutant treatment, outlet protection, and general site management.

Based on these assumptions and environmental commitments, the potential for impacts related to soil erosion or loss of topsoil to occur during rehabilitation anywhere along the pipelines is evaluated.

Unstable Geology or Soils

As documented in Section 4.6.2, this PEIR identifies areas that could be affected by unstable geology or soils, potentially resulting in landslides, lateral spreading, subsidence, liquefaction, or collapse. For this program-level analysis, compliance with the requirements of the CBC and Cal/OSHA are assumed. Based on these assumptions, the potential for impacts related to unstable geology or soils during rehabilitation anywhere along the pipelines is evaluated.

Expansive Soils

As documented in Section 4.6.2, this PEIR identifies areas that could be affected by expansive soils. For this program-level analysis, compliance with the requirements of the CBC and Cal/OSHA are assumed. Based on these assumptions, the potential for impacts related to expansive soils during rehabilitation anywhere along the pipelines is evaluated.

4.6.5 Impacts Analysis

4.6.5.1 Program Analysis

Threshold GEO-A.I: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Rupture of a Known Earthquake Fault

All of the feeders with the exception of the Calabasas Feeder would cross at least one Alquist-Priolo Earthquake Fault Zone. Fault rupture, if it were to occur, could affect the integrity of a pipeline and damage could occur. Although there are designated Alquist-Priolo Earthquake Fault Zones within the study area for the PCCP program, the proposed program would not include construction of structures intended for human occupancy. The proposed program would rehabilitate existing feeders, usually located in existing roadway rights-of-way, and would not be an attraction drawing a significant amount of people to the area. Fault rupture, if it were to occur in these areas, could affect construction crews and the integrity of a feeder. However, due to the infrequent occurrence of fault rupture and the relatively short duration of construction, the probability that a seismic event would coincide with construction activities is low. Furthermore, Metropolitan would require its contractors to comply with the requirements of the CBC and Cal/OSHA. Therefore, this hazard is considered to pose an acceptable level of risk of injury and material/property loss that could potentially occur from seismic activity during construction, and impacts would be less than significant. In the event that construction staging areas are situated outside the 0.5-mile study area, Metropolitan would evaluate potentially hazardous geologic conditions in jurisdictions not addressed in this PEIR.

In addition, the hazard of fault rupture at a feeder/fault crossing would exist during program operation. However, similar to construction activities, this hazard is considered to pose an acceptable level of risk for operation of a water conveyance system and would not draw a significant amount of people to the area. Therefore, operation of the PCCP program would not create a substantial risk to life or property involving rupture of a known earthquake fault, and impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold GEO-A.II: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Strong Seismic Groundshaking

All five feeders would be potentially subject to strong seismic shaking as a result of earthquakes on nearby or more distant faults. However, as mentioned above, the proposed program would rehabilitate existing feeders and would not include construction of structures intended for human

occupancy or draw a significant amount of people to the area. As discussed under Threshold GEO-A.I, earthquake-induced groundshaking could affect construction crews and the integrity of a feeder, resulting in injury or loss. However, due to the infrequent occurrence of seismic events and the relatively short duration of construction, the probability that a seismic event would coincide with construction activities is low. Furthermore, Metropolitan would require its contractors to comply with the requirements of the CBC and Cal/OSHA. Therefore, this hazard is considered to pose an acceptable level of risk of injury and material/property loss that could potentially occur from seismic activity during construction, and impacts would be less than significant.

In addition, the PCCP program is in Southern California, which is a seismically active area; therefore, strong seismic shaking could have adverse effects on buried feeders during operation and would result in significant impacts. However, as mentioned above, rehabilitation would be conducted in compliance with current and applicable pipeline design standards, which would minimize potential impacts. Therefore, similar to construction impacts, this hazard is considered to pose an acceptable level of risk for operation of a water conveyance system, and impacts would be less than significant.

Mitigation Measures

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold GEO-A.III: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Seismically Related Ground Failure, Including Liquefaction

The PCCP program is in Southern California, which is a seismically active area, and susceptible to liquefaction during seismic events in some areas of the PCCP program study area. Liquefaction, if it were to occur, could result in settlement and lateral spreading. These effects could damage the feeders and would result in impacts.

As mentioned above, the proposed program would rehabilitate existing feeders, usually located in existing roadway rights-of-way, and would not involve the construction of structures intended for human occupancy or draw a significant amount of people to the area. In addition, due to the infrequent occurrence of seismic events and the relatively short duration of construction, the probability that a seismic event would coincide with construction activities is low. Furthermore, Metropolitan would require its contractors to comply with the requirements of the CBC and Cal/OSHA. Therefore, this hazard is considered to pose an acceptable level of risk of injury and material/property loss that could potentially occur from seismically related ground failure including liquefaction, and impacts would be less than significant.

In addition, the hazard of liquefaction would exist over the design life of the water conveyance system. This is an existing risk for the current operation of the feeders in the study area, and operation of the proposed program would not increase this risk or potential to expose people or structures to seismically related ground failure. Additionally, as previously discussed, rehabilitation would be conducted in compliance with the most up-to-date building codes required by the state of

California and the CBC, which would minimize potential impacts. Therefore, similar to construction impacts, this hazard is considered to pose an acceptable level of risk for operation of a water conveyance system, and impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold GEO-A.IV: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Landslides

Some portions of the PCCP program study area are in hilly areas that are susceptible to earthquake-induced landslides. This effect could damage the feeders and would result in impacts.

As discussed above, the proposed program would rehabilitate existing feeders, usually located in existing roadway rights-of-way, and would not involve the construction of structures intended for human occupancy or draw a significant amount of people to the area. In addition, due to the infrequent occurrence of seismic events and the relatively short duration of construction, the probability that a seismic event would coincide with construction activities is low. Furthermore, Metropolitan would require its contractors to comply with the requirements of the CBC and Cal/OSHA. Therefore, this hazard is considered to pose an acceptable level of risk of injury and material/property loss that could potentially occur from seismically related landslides, and impacts would be less than significant.

Additionally, the hazard of seismically related landslides would exist over the design life of the water conveyance system. This is an existing risk for the current operation of the feeders in the study area, and operation of the proposed program would not increase this risk or potential to expose people or structures to seismically related ground failure. Additionally, as discussed above, rehabilitation would be conducted in compliance with the most up-to-date building codes required by the state of California and the CBC, which would minimize potential impacts. Therefore, similar to construction impacts, this hazard is considered to pose an acceptable level of risk for operation of a water conveyance system, and impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold GEO-B: Result in Substantial Soil Erosion or the Loss of Topsoil

Some portions of the PCCP program study area are in areas where soil erosion or loss of topsoil could occur. This effect could damage the feeders and would result in impacts.

As mentioned above, the proposed program would rehabilitate existing feeders, usually located in existing roadway rights-of-way, and the potential for soil erosion would be limited in the existing street areas. Trenching during pipeline rehabilitation would result in soil disturbance in a relatively narrow corridor along a feeder route. Also, the movement and temporary stockpiling of excavated soil could also result in short-term erosion and sedimentation if improperly handled and stored. Additionally, soil disturbance and erosion and sedimentation could occur at construction staging areas, which may or may not be within the study area. However, Metropolitan has included the following environmental commitments as part of all projects in the proposed program.

- Rehabilitation activities would comply with the South Coast Air Management District's Rule 403 to minimize fugitive dust, construction traffic, and particulate matter releases.
- Rehabilitation activities would incorporate water quality Best Management Practices, including a Stormwater Pollution Prevention Plan, as applicable, for sediment and erosion control, pollutant treatment, outlet protection, and general site management.

These environmental commitments would reduce potential impacts related to soil erosion and loss of topsoil during construction and, therefore, impacts would be less than significant.

As described in Chapter 3, Section 3.7.6, *Site Restoration*, once rehabilitation of a program component is complete, ground surface and work areas including staging areas would be restored to pre-construction conditions. Landscaping would also be replaced and restored to pre-construction conditions. Site restoration would also include restoration of existing roads or sidewalks damaged during rehabilitation activities. Thus, operational impacts resulting in soil erosion and loss of topsoil would be minimized and returned to pre-construction conditions. Therefore, impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold GEO-C: Be Located on a Geologic Unit or Soil that Is Unstable, or that Would Become Unstable as a Result of the Project, and Potentially Result in On- or Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse

Some areas of the PCCP program could be located on a geologic unit or soils that have been identified as potentially unstable. This could expose the feeders and workers to impacts related to landslide, lateral spreading, subsidence, liquefaction, or collapse.

However, as discussed above, the proposed program would rehabilitate existing feeders, usually located in existing roadway rights-of-way, and would not involve the construction of structures intended for human occupancy or draw a significant amount of people to the area. In addition, Metropolitan would require its contractors to comply with the requirements of the CBC and Cal/OSHA. Therefore, this hazard is considered to pose an acceptable level of risk of injury and material/property loss that could potentially occur from unstable geologic units or soils, and impacts would be less than significant.

Additionally, the hazard of unstable geologic conditions would exist over the design life of the water conveyance system. This is an existing risk for the current operation of the feeders in the study area, and operation of the proposed program would not increase this risk or potential to expose people or structures to on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Additionally, as discussed above, rehabilitation would be conducted in compliance with the most up-to-date building codes required by the state of California and the CBC, which would minimize potential impacts. Therefore, similar to construction impacts, this hazard is considered to pose an acceptable level of risk for operation of a water conveyance system, and impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold GEO-D: Be Located on Expansive Soil, Creating Substantial Risks to Life or Property

Some areas of the PCCP program may be underlain by expansive soils that could deform, resulting in damage to feeders and risk of injury to workers. However, as discussed above, the proposed program would rehabilitate existing feeders, usually located in existing roadway rights-of-way, and would not involve the construction of structures intended for human occupancy or draw a significant amount of people to the area. In addition, Metropolitan would require its contractors to comply with the requirements of the CBC and Cal/OSHA. Therefore, this hazard is considered to pose an acceptable level of risk of injury and material/property loss that could potentially occur from expansive soils, and impacts would be less than significant.

Additionally, the hazard of expansive soils would exist over the design life of the water conveyance system. This is an existing risk for the current operation of the feeders in the study area, and operation of the proposed program would not increase this risk or potential to expose people or structures to loss of life or damage to property. Additionally, as discussed above, rehabilitation would be conducted in compliance with the most up-to-date building codes required by the state of California and the CBC, which would minimize potential impacts. Therefore, similar to construction impacts, this hazard is considered to pose an acceptable level of risk for operation of a water conveyance system, and impacts would be less than significant

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

4.6.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

All of the geology and soils thresholds were found to be less than significant after implementation of mitigation. As discussed above, all operational impacts are existing risks for the feeders and considered acceptable for the operation of a water conveyance system. Rehabilitation of the feeders would not change this level of risk. However, impacts could occur during construction that could damage feeders and expose workers to risk of injury. These impacts would be localized to the construction sites and limited to the duration of construction. Therefore, the contribution of these impacts would not be cumulatively considerable, and construction of the proposed program would not result in cumulative geologic impacts.

Section 4.7
Greenhouse Gas Emissions

4.7.1 Introduction

This section describes the existing conditions for greenhouse gas (GHG) emissions, the regulatory framework associated with GHG emissions, the impacts on GHG emissions that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant GHG emissions impacts.

4.7.2 Existing Conditions

According to the U.S. Environmental Protection Agency (EPA), a GHG is any gas that absorbs infrared radiation in the atmosphere. This absorption traps heat within the atmosphere, maintaining the Earth's surface temperature at a level higher than would be the case in the absence of GHGs. GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and halogenated chlorofluorocarbons. Naturally occurring GHGs include water vapor, CO_2, CH_4, N_2O, and O_3. Human activities add to the levels of most of these naturally occurring gases.

Increasing levels of GHGs in the atmosphere result in an increase in the temperature of the Earth's lower atmosphere, a phenomenon that is commonly referred to as "global warming." Warming of the Earth's lower atmosphere induces a suite of additional changes, including changes in global precipitation patterns; ocean circulation, temperature, and acidity; global mean sea level; species distribution and diversity; and the timing of biological processes. These large-scale changes are collectively referred to as "global climate change."

The Intergovernmental Panel on Climate Change (IPCC) has been established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change and its potential impacts and provide options for adaptation and mitigation. As the leading authority on climate change science, IPCC's best estimates are that average global temperature rise between 2000 and 2100 could range from 0.5°F to 8.6°F (IPCC 2013). Large increases in global temperatures, as high as 8.6°F, could have massive deleterious impacts on natural and human environments.

Since the industrial revolution began in approximately 1750, the concentration of CO_2 in the Earth's atmosphere has increased from 270 parts per million (ppm) to roughly 391 ppm. Atmospheric concentrations of CH_4 and N_2O have similarly increased since the beginning of the industrial age. Since 1880, the global average surface temperature has increased by 1.5°F, the global average sea level has risen by nearly 190 millimeters (since 1901), and northern hemisphere snow cover (data available since 1920) has decreased by nearly 3 million square kilometers. These recently recorded changes can be attributed with a high degree of certainty to increased concentrations of GHGs in the atmosphere (IPCC 2013). Sinks of CO_2 (which remove rather than emit CO_2) include uptake by vegetation and dissolution into the ocean. Global GHG emissions greatly exceed the removal capacity

of natural sinks. As a result, concentrations of GHGs in the atmosphere are increasing (California Energy Commission 2006).

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants. Criteria air pollutants and toxic air contaminants occur locally or regionally, and local concentrations respond to locally implemented control measures. The long atmospheric lifetimes of GHGs allow them to be transported great distances from sources and become well mixed, unlike criteria air pollutants, which typically exhibit strong concentration gradients away from point sources. GHGs and global climate change represent cumulative impacts. GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change.

4.7.2.1 Definition of Greenhouse Gases

The GHGs listed by IPCC (CO_2, CH_4, N_2O, HFCs, PFCs, and sulphur hexafluoride [SF_6]) (2013) are discussed in this section in order of abundance in the atmosphere. California law and the State CEQA Guidelines contain a similar definition of GHGs (Health and Safety Code Section 38505(g); 14 California Code of Regulations Section 15364.5). Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources.[1] The sources and sinks[2] of each of these gases are discussed in detail below. Generally, GHG emissions are quantified and presented in terms of metric tons of carbon dioxide equivalent (CO_2e) emitted per year. The primary GHGs associated with the program are CO_2, CH_4, and N_2O. HFCs, PFCs, and SF_6 are associated primarily with industrial processes and, thus, are not discussed herein.

To simplify reporting and analysis, GHGs are commonly defined in terms of global warming potential (GWP). IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e. The GWP of CO_2 is, by definition, 1. The GWP values used in this report are based on IPCC Fourth Assessment Report and United Nations Framework Convention on Climate Change reporting guidelines and defined in Table 4.7-1, below (IPCC 2007). The IPCC Fourth Assessment Report GWP values are used in the California Air Resources Board's (ARB) California inventory and the most recent AB 32 Scoping Plan estimate update (ARB 2014).

Table 4.7-1. Lifetime, Global Warming Potential, and Abundance of Several Significant GHGs

Gas	Global Warming Potential (100 years)	Lifetime (years)[a]	Atmospheric Abundance
CO_2 (ppm)	1	50–200	394
CH_4 (ppb)	25	9–15	1,893
N_2O (ppb)	298	121	326

[a] Defined as the half-life of the gas.
ppm = parts per million; ppb = parts per billion
Sources: Myhre et al. 2013; Blasing 2014; ARB 2014.

[1] Although water vapor plays a substantive role in the natural greenhouse effect, the change in GHGs in the atmosphere due to anthropogenic actions is enough to upset the radiative balance of the atmosphere and result in global warming.
[2] A sink removes and stores GHGs in another form. For example, vegetation is a sink because it removes atmospheric CO_2 during respiration and stores the gas as a chemical compound in its tissues.

CO_2 is the most important anthropogenic GHG. It accounts for more than 75 percent of all GHG emissions emitted by humans. Its atmospheric lifetime of 50 to 200 years ensures that atmospheric concentrations of CO_2 will remain elevated for decades, even after mitigation efforts to reduce GHG concentrations are promulgated (IPCC 2007). The primary sources of anthropogenic CO_2 in the atmosphere include fossil fuel usage (including motor vehicle fuels), gas flaring, cement production, and land use changes (including deforestation).

CH_4, the main component of natural gas, is the second-most abundant GHG and has a GWP of 25 (IPCC 2007). Sources of anthropogenic emissions of CH_4 include rice growing, cattle raising, natural gas combustion, landfill outgassing, and coal mining (National Oceanic and Atmospheric Administration 2005).

N_2O is a powerful GHG, with a GWP of 298 (IPCC 2007). Anthropogenic sources of N_2O include agricultural processes (e.g., fertilizer application), nylon production, fuel-fired power plants, nitric acid production, and vehicle emissions. N_2O is also used in rocket engines and racecars and as an aerosol spray propellant. In the United States, more than 70 percent of N_2O emissions are related to agricultural soil management practices, particularly fertilizer applications.

4.7.2.2 GHG Emissions Sources

More than 97 percent of U.S. GHG emissions result from burning fossil fuels. Although many nations, including the U.S., regularly monitor and report GHG emissions, federal legislation to reduce global emissions has not been adopted, although it is the subject of much debate. EPA is presently pursuing the regulation of GHGs through the federal Clean Air Act (CAA), following a U.S. Supreme Court ruling that clarified its authority under the CAA to do so. Many states, including California, as a prominent leader, have passed legislation to reduce GHG emissions. California's GHG regulatory framework is discussed in Section 4.7.3, *Regulatory Framework*.

4.7.2.3 Greenhouse Gas Inventories

A GHG inventory is a quantification of all GHG emissions and sinks within a selected physical and/or economic boundary. GHGs can be inventoried on a large scale (i.e., for global and national entities) or a small scale (i.e., for a particular building or person). Although many processes are difficult to evaluate, several agencies have developed tools to quantify emissions from certain sources.

U.S. Greenhouse Gas Emissions Inventory

EPA estimates that total U.S. GHG emissions for 2013 amounted to 6,673 million metric tons of CO_2e ($MMTCO_2e$), which represents a 2.0 percent increase compared with 2012 levels but a 9.0 percent decrease from 2005 levels and a 5.9 percent decrease from 1990 levels. The largest contributors to U.S. GHG emissions in 2013 were electricity generation (31 percent), transportation (27 percent), and the industrial sector (21 percent). Emissions in the electricity generation, transportation, residential, commercial, and industrial sectors consist primarily of CO_2 (82 percent of emissions). GHG emissions from agriculture consist predominantly of CH_4 and N_2O. In general, industrial and, to a lesser extent, commercial emissions in the U.S. have declined over the last decade, while emissions in other sectors, such as transportation, have grown steadily. U.S. GHG emissions are responsible for approximately 16 percent of the global total (EPA 2015).

California Greenhouse Gas Emissions Inventory

In 2013, total California GHG emissions were estimated to be 459.3 $MMTCO_2e$. The transportation sector accounted for approximately 37 percent of total emissions, followed by electricity generation (20 percent), the industrial sector (23 percent), commercial and residential sources (12 percent), agriculture (8 percent), and other sources (6 percent) (ARB 2015).

Annual statewide GHG emissions inventories provide an important tool for establishing historical emission trends and tracking California's progress toward the 2020 goal. From 2000 to 2013, GHG emissions decreased by 2.0 percent. In addition, California's per capita GHG emissions have generally decreased over the last 12 years, going from 14.0 metric tons of CO_2e per person in 2001 to 12.0 in 2013, a 14 percent decrease (ARB 2015).

4.7.2.4 California GHG Emissions

California is the second-largest emitter of GHGs in the United States (just behind Texas) and the sixteenth-largest GHG emitter in the world (California Energy Commission 2006). However, because of its more stringent air pollutant emissions regulations and mild climate, California was fourth lowest in carbon emissions per capita in 2001 and fifth lowest in CO_2 emissions from fossil fuel consumption per unit of Gross State Product (i.e., total economic output of goods and services). In 2010, California produced 452 $MMTCO_2e$,[3] of which 38 percent were from transportation sources, 21 percent from activities related to electric power generation, and 19 percent from industrial sources (ARB 2013). Other major sources of statewide GHG emissions include mineral production, waste combustion and related land use, and forestry changes. Agriculture, forestry, commercial, and residential activities make up the balance of California's GHG emissions (ARB 2013).

4.7.3 Regulatory Framework

This section describes the plans, policies, and regulations related to GHG that are applicable to the proposed program.

4.7.3.1 Federal

Massachusetts et al. v. U.S. Environmental Protection Agency (2007)

Twelve U.S. states and cities, including California, in conjunction with several environmental organizations, sued EPA to regulate GHGs as a pollutant, pursuant to the federal CAA. The court ruled that the plaintiffs had standing to sue, finding that GHGs fit within the CAA's definition of a pollutant, and EPA's reasons for not regulating GHGs were insufficiently grounded.

[3] GHG emissions, other than CO_2, are commonly converted into CO_2 equivalents, which take into account the differing GWP of different gases. For example, the IPCC finds that N_2O has a GWP of 310, and CH_4 has a GWP of 21. Thus, the emission of 1 ton of N_2O and 1 ton of CH_4 is represented as the emission of 310 tons of CO_2e and 21 tons of CO_2e, respectively. This allows for the summation of different GHG emissions into a single total.

4.7.3.2 State

Assembly Bill 32, the Global Warming Solutions Act of 2006/2011

Assembly Bill (AB) 32 codified the state's GHG emissions target by requiring California's global warming emissions to be reduced to 1990 levels by 2020. Since its adoption, ARB, the California Energy Commission, the California Public Utilities Commission, and the California Building Standards Commission have been developing regulations that will help the state meet the goals of AB 32 and Executive Order (EO) S-03-05. The scoping plan for AB 32 identifies specific measures to reduce GHG emissions to 1990 levels by 2020 and requires ARB and other state agencies to develop and enforce regulations and other initiatives to reduce GHG emissions. Specifically, the scoping plan articulates a key role for local governments by recommending that they establish GHG emissions-reduction goals for both their municipal operations and the community that are consistent with those of the state (i.e., approximately 15 percent below current levels (ARB 2008).

Climate Change Scoping Plan

On December 11, 2008, pursuant to AB 32, ARB adopted the Climate Change Scoping Plan. This plan outlines how emissions reductions from significant sources of GHGs will be achieved via regulations, market mechanisms, and other actions. The Climate Change Scoping Plan also describes recommended measures that were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately affect low-income and minority communities. These measures put the state on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels.

The First Update to the Scoping Plan was approved by ARB on May 22, 2014, and builds upon the initial Scoping Plan with new strategies and recommendations. The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The First Update defines ARB's climate change priorities for the next 5 years, and also sets the groundwork to reach long-term goals set forth in Executive Orders S-3-05 and B-16-2012. The First Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the initial Scoping Plan. It also evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

Executive Order S-03-05 (2005)

The goal of EO S-03-05 is to reduce California's GHG emissions to (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80 percent below 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of AB 32.

Executive Order B-30-15

Signed on April 29, 2015, EO B-30-15 set a goal of reducing GHG emissions to 40 percent below 1990 levels by 2030. The intent is for the state to achieve this interim goal in advance of AB 32's emissions target of 80 percent below 1990 levels by 2050.

Senate Bill 97

Senate Bill (SB) 97 required the Governor's Office of Planning and Research to develop recommended amendments to the State CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375, Sustainable Communities and Climate Protection Act of 2008

SB 375 requires metropolitan planning organizations to incorporate a "sustainable communities strategy" in their regional transportation plans that will achieve the GHG emissions reduction targets that were set by ARB in February 2011. SB 375 also includes provisions for streamlined CEQA review for some infill projects, such as transit-oriented development. However, those provisions will not become effective until a sustainable communities strategy is adopted. The final targets require the Southern California Association of Governments to identify strategies to reduce per capita GHG emissions from passenger vehicles by approximately 8 percent by 2020 and 13 percent by 2035 compared with base-year (i.e., 2005) emissions. Southern California Association of Governments adopted the final 2012 Regional Transportation Plan, which incorporates the Sustainable Communities Strategy, on April 4, 2012 (SCAG 2012).

4.7.3.3 Regional

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) is responsible for comprehensive air pollution control in the greater Los Angeles area. To provide GHG emissions guidance to local jurisdictions within the South Coast Air Basin, SCAQMD organized a working group to develop GHG emissions analysis guidance and thresholds and released an interim GHG significance threshold for stationary sources (i.e., industrial projects) where SCAQMD is lead agency. At present, SCAQMD offers no regulations or thresholds for non-SCAQMD lead agency projects.

4.7.3.4 Local

Numerous municipalities and other agencies in the Southern California region have adopted climate action plans or have developed programs and policies to comply with state-mandated GHG reductions. However, with the exception of the City of San Diego, no agencies or municipalities within the Metropolitan service area have adopted binding emissions reduction targets, and none of the pipelines in the proposed program are located in San Diego.

4.7.4 Thresholds and Methodology

4.7.4.1 Thresholds of Significance

Table 4.7-2 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to GHG emissions. These thresholds are addressed in the PEIR.

Table 4.7-2. CEQA Thresholds for Greenhouse Gas Emissions

Threshold *Would the proposed program:*
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
b. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

4.7.4.2 Methodology

With regard to Threshold A, there are no established federal, state, or local quantitative thresholds applicable to the proposed program to determine the quantity of GHG emissions that may have a significant effect on the environment. ARB, SCAQMD, and various cities and agencies have proposed, or adopted on an interim basis, thresholds of significance that require the implementation of GHG emission reduction measures.

For the proposed program, the most appropriate screening threshold for determining GHG emissions is the SCAQMD proposed Tier 3 screening threshold (SCAQMD 2008); therefore, a significant impact would occur if the proposed program would exceed the SCAQMD proposed Tier 3 screening threshold of 3,000 metric tons of CO_2e per year. As the Tier 3 screening threshold proposed by SCAQMD is tied to meeting the reduction goals outlined by AB 32, this numeric threshold is also used as the basis for evaluating the proposed program with regard to Threshold B. Based on SCAQMD guidance, construction emissions are amortized over the life of the project, which is defined by SCAQMD as 30 years, and compared to the applicable interim GHG significance threshold tier.

As discussed in Section 4.3, GHG emissions were estimated using emissions factors for off-road construction equipment and on-road vehicle trips and idling derived from CalEEMod and EMFAC2011. Emissions for each of the individual sites were estimated and a full program construction scenario was developed to quantify impacts related to GHGs, which includes the following.

- An average of three relining excavation sites per mile of PCCP
- An average of one new valve/meter vault structure for every 5 miles of PCCP
- An average of one air-release/vacuum valve relocation per mile of PCCP
- 1,000 feet of parallel piping for every 10 miles of PCCP

Emissions have been amortized over the expected 30-year service life of the relined PCCP and appurtenant facilities. Because there would be no change in operational characteristics of the pipelines once rehabilitation is complete, no change in operational GHG emissions would occur.

4.7.5 Impacts Analysis

4.7.5.1 Program Analysis

Threshold GHG-A: Generate Greenhouse Gas Emissions, either Directly or Indirectly, that May Have a Significant Impact on the Environment

Short-term construction activities would result in GHG emissions from fuel combustion associated with on- and off-road construction equipment and vehicles. Emissions associated with construction are summarized in Table 4.7-3. Construction emissions are summed and amortized over the expected 30-year service life of the program. As shown in Table 4.7-3, the full program construction would result in amortized annual emissions of just over 4,700 metric tons, which exceeds the SCAQMD threshold of 3,000 metric tons. As such, impacts would be significant.

Table 4.7-3. Estimate of Total Construction GHG Emissions (metric tons)

Phase	Individual Site CO_2e	Full Program CO_2e
Typical Excavation Site	422	127,891
New Valve/Meter Vault Structure	407	8,149
Typical Below Grade Air-release/Vacuum Valve Relocation	13	1,307
Pipeline Replacement/Parallel Piping	326	3,261
Total Construction Emissions		140,609
30-year Amortized Total		*4,687*
Source: Appendix F.		

Mitigation Measures

With the implementation of MM AIR-1 identified in Section 4.3, *Air Quality*, GHG emissions would be reduced by 0.8 percent through the use of Tier 4 off-road construction equipment. The GHG emissions shown in Table 4.7-3 are emissions with the implementation of MM AIR-1.

Residual Impacts

Impacts that would result from the proposed program would be significant. Implementation of MM AIR-1 would reduce these impacts; however, residual impacts would still be significant and unavoidable.

Threshold GHG-B: Conflict with Any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

Metropolitan has not adopted a qualified plan, policy, or regulation to reduce GHG emissions. Therefore, the most applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions is AB 32, which codified the state's GHG emissions-reduction targets for 2020. Beyond 2020, there are no adopted enforceable plans, policies, or regulations pursuant to EO S-03-05 and

EO B-30-15 that are legally applicable to the program. Regardless, a discussion of proposed plans and discussion documents designed to help meet EO S-03-05 and EO B-30-15 targets is provided.

Consistency with Assembly Bill 32 Scoping Plan

AB 32 identified 427 $MMTCO_2e$ as the acceptable level of GHG emissions for California in 2020, which is the same as the 1990 GHG emissions level and approximately 28.5% less than 2020 business-as-usual (BAU) conditions (596 $MMTCO_2e$).[4] To reach the target level, there will have to be widespread reductions in GHG emissions across California. Some reductions will need to come in the form of changes pertaining to vehicle emissions and mileage standards. Some will come from changes pertaining to sources of electricity and increased energy efficiency at existing facilities. The remainder will need to come from plans, policies, or regulations that will require new facilities to have lower carbon intensities than they have under BAU conditions.

The AB 32 Scoping Plan details specific GHG emissions-reduction measures that target specific GHG emissions sources. The scoping plan considers a range of actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms (e.g., a cap-and-trade system). Also included are mobile-source emissions reduction measures (Pavley, low carbon fuel standards, vehicle efficiency measures), energy production–related emissions-reduction measures (natural gas transmission and distribution efficiency measures, natural gas extraction efficiency measures), and the Renewables Portfolio Standard (electricity). The proposed program would not conflict with the measures within the AB 32 Scoping Plan and other measures adopted by ARB but not yet included in the scoping plan. Accordingly, the program would not conflict with AB 32.

Consistency with Executive Orders S-03-05 and B-30-15

EO B-30-15 established an interim GHG reduction target of 40 percent below 1990 levels by 2030, and EO S-3-05 established a long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050. Achieving these long-term GHG reduction policies will require systemic changes in how energy is produced and used.

There are a number of studies that discuss potential mechanisms for limiting statewide GHG emissions to meet the aggressive goals identified by EO B-30-15 and EO S-3-05. For example, ARB and other State agencies commissioned Energy + Environmental Economics in 2015 to develop feasible GHG reduction scenarios for 2030. Other studies include a report by the California Center for Science and Technology (2012), the California Department of Transportation's (2015) *California Transportation Plan 2040*, ARB's *First Update to the AB 32 Scoping Plan*, and a study published in *Science* that analyzes the changes that will be required to reduce GHG emissions to 80 percent below 1990 levels by 2050 (Williams et al. 2012). In general, these studies reach similar conclusions—deep reductions in GHG emissions can *only* be achieved with significant changes in electricity production, transportation fuels, and industrial processes (e.g., decarbonizing electricity production, electrifying transportation, utilizing alternative fuels for aviation).

The systemic changes that will be required to achieve EO B-30-15 and EO S-3-05, if they are legislatively adopted, will require significant policy, technical, and economic solutions. Some

[4] ARB recently updated the AB 32 Scoping Plan and revised the 2020 BAU downward slightly to 509 $MMTCO_2e$, which reflects the reduced GHG emissions estimates resulting from the recent economic downturn and increased efficiencies.

changes, such as the use of alternative fuels (e.g., biofuel) to replace petroleum for aviation, cannot be accomplished without action by the federal government. Similarly, achieving the reduction goals will require California to dramatically increase the amount of electricity that is generated by renewable generation sources and, correspondingly, advance the deployment of energy storage technology and smart-grid strategies, such as price-responsive demand and the smart charging of vehicles. This would entail a significant redesign of California's electricity system, which can only be accomplished through State action. Accordingly, in evaluating the program's emissions for consistency with EO S-3-05 and EO B-30-15, it is important to note that many of the broad-scale shifts needed to meet the reduction goals are outside of the control of Metropolitan and beyond the scope of the proposed program.

The long-term climate change policy and regulatory changes that will be enacted to meet 2030 and 2050 emissions reduction targets are unknown at this time. As a consequence, the extent to which the program's emissions and resulting impacts would be mitigated through implementation of statewide (and nationwide) changes is not known. However, some of the anticipated statewide actions (e.g., decarbonization, energy efficiency, alternative transportation) can be facilitated, at least to some extent, through implementation of specific GHG reduction measures in large-scale developments.

Program features do not conflict with anticipated long-term statewide strategies to reduce GHG emissions and would help to facilitate substantial progress toward long-term targets as adopted (SB 350) and proposed (Phase 2 trucks) state regulations are fully realized. Accordingly, the program would not conflict with the goals in EO S-3-05 and EO B-30-15.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

4.7.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

GHG emissions are exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective. No single project, when considered in isolation, can cause climate change because a single project's emissions are not enough to change the radiative balance of the atmosphere. Because climate change is the result of GHG emissions and GHGs are emitted by innumerable sources worldwide, global climate change will have a significant cumulative impact on the natural environment as well as human development and activity. As such, GHGs and climate change are cumulatively considerable, even though the contribution may be individually limited (SCAQMD 2008). SCAQMD methodology and thresholds are thus cumulative in nature. As discussed above, the program would exceed the thresholds of significance. Therefore, the proposed

program would contribute to a cumulatively significant impact related to GHG emissions and climate change.

Section 4.8
Hazards and Hazardous Materials

4.8.1 Introduction

This section describes the existing conditions related to hazards and hazardous materials, the regulatory framework associated with hazards and hazardous materials, the impacts related to hazards and hazardous materials that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant impacts related to hazards and hazardous materials.

4.8.2 Existing Conditions

The study area for hazards and hazardous materials varies with topic. Generally, for existing hazardous materials and waste sites, the study area is the pipeline easements or rights-of-way, plus 1 mile. For risks to schools, the study area is 0.25 mile on either side of the pipelines. For airports and airstrips, the study area is 2 miles on either side of the pipelines. For emergency response plans and emergency evacuation plans, the study area is 0.25 mile from the pipelines. Figures 4.8-1 through 4.8-5 show these study areas.

Generally, existing contamination is most likely at commercial and industrial sites. Industrial land uses can encompass a wide range of business operations that have the potential to create hazardous materials impacts. Industrial facilities store hazardous materials in underground storage tanks and/or aboveground storage tanks, and in designated storage locations. Age and improper maintenance of storage tanks have been common causes for soil and groundwater contamination. Improper handling and storage of hazardous material containers can lead to hazardous material incidents.

Commercial locations that may have existing contamination include vehicle repair sites, gasoline fueling stations, and dry cleaning facilities. Like industrial facilities, some commercial sites store hazardous materials in storage tanks and in designated areas within the facility. Hazardous materials spills and leaks in vehicle repair and fueling locations can lead to hydrocarbon-contaminated soil and groundwater. Improper storage and use of hazardous materials in dry cleaning facilities can lead to contaminated soil and groundwater.

Known hazardous materials sites within 1mile of the proposed program were identified in an Environmental Data Resources (EDR) report for the study area from federal, state and local, tribal, or EDR proprietary databases (Appendix F).

Table 4.8-1. Sources for Known Hazardous Materials Site Records

Type of Record	Sources [1]
Federal	• National Priorities List sites (Superfund) [2] • Resource Conservation and Recovery Act sites that generate, transport, store, treat and/or dispose of hazardous waste • U.S. brownfields • Hazardous Materials Incident Report System sites • Toxic Release Inventory System • Other sources
State and Local	• Cortese Hazardous Waste & Substances Sites List • Leaking Underground Storage Tank • Spills, Leaks, Investigations and Cleanup • California Hazardous Material Incident Report System • Department of Toxic Substances Control's EnviroStor • Other sources
Tribal	• Indian Leaking Underground Storage Tank • Underground Storage Tank Voluntary Cleanup Program databases • Other sources
EDR Proprietary Records	• EDR U.S. Historic Auto Stations • EDR U.S. Historic Cleaners • Other sources

Notes:
[1] Superfund sites generally involve complex contamination issues and cover large geographic areas.
[2] Some sites may be found in multiple databases and may overlap in one or more categories. Not all sites in the study area have the potential to affect activities in the study area.

4.8.2.1 Allen-McColloch Pipeline

Known Hazardous Materials Sites

According to information obtained from the EDR report, there are multiple hazardous materials sites within 1 mile of the Allen-McColloch Pipeline alignment. Table 4.8-2 shows the number of sites identified in federal, state and local, tribal, and EDR proprietary databases.

Table 4.8-2. Known Hazardous Materials Sites in the Allen-McColloch Pipeline Study Area

Type of Database	Number of Sites Identified in EDR Report
Federal Records	104
State and Local Records	587
Tribal Records	0
EDR Proprietary Records	82

El Toro Marine Corps Air Station

One of the sites identified in Table 4.8-2 is the El Toro Marine Corps Air Station in Irvine. This is a large National Priorities List (NPL) site (approximately 4,700 acres) with multiple impacted areas

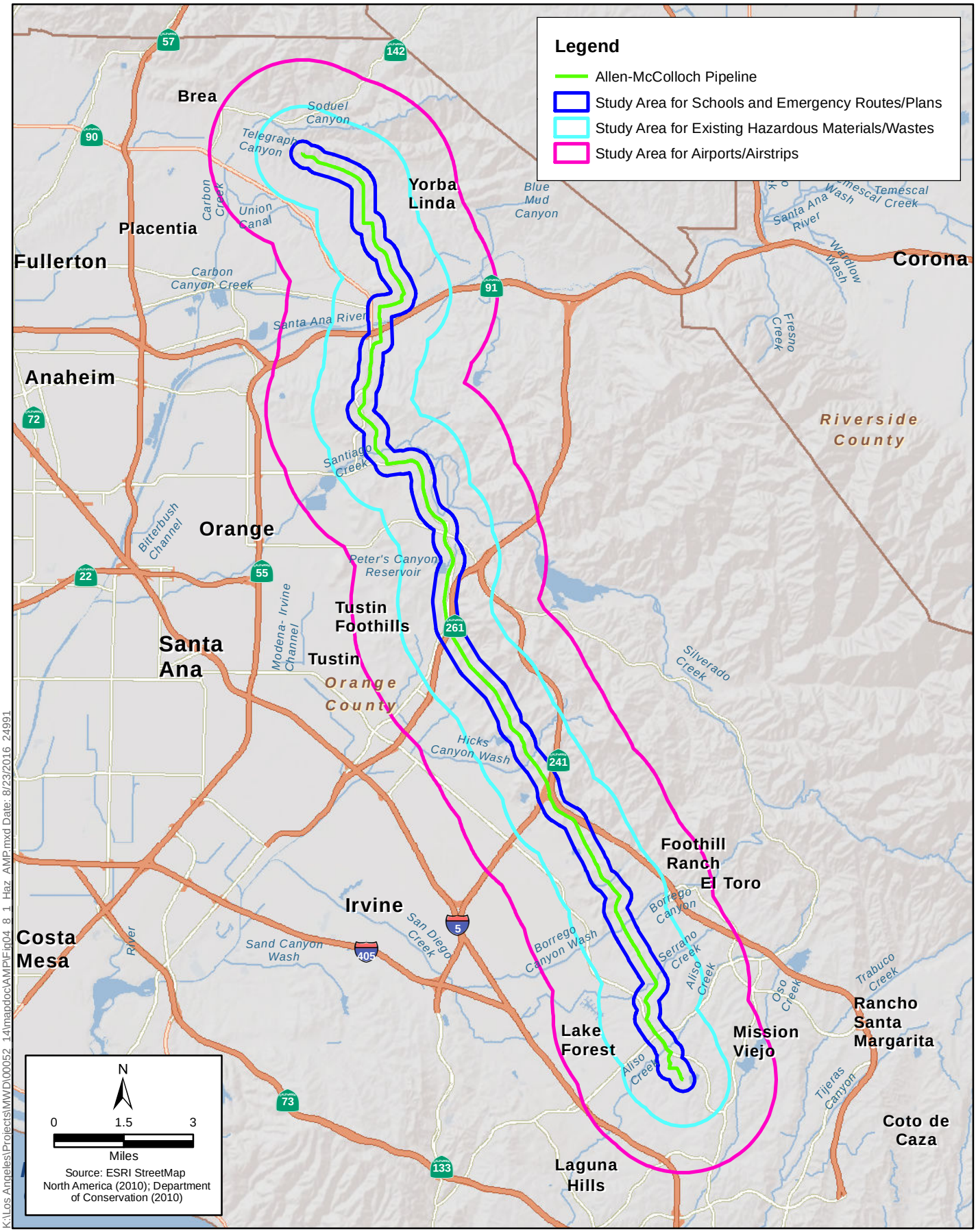


Figure 4.8-1
Allen-McColloch Pipeline Hazards Study Area
Metropolitan PCCP Program

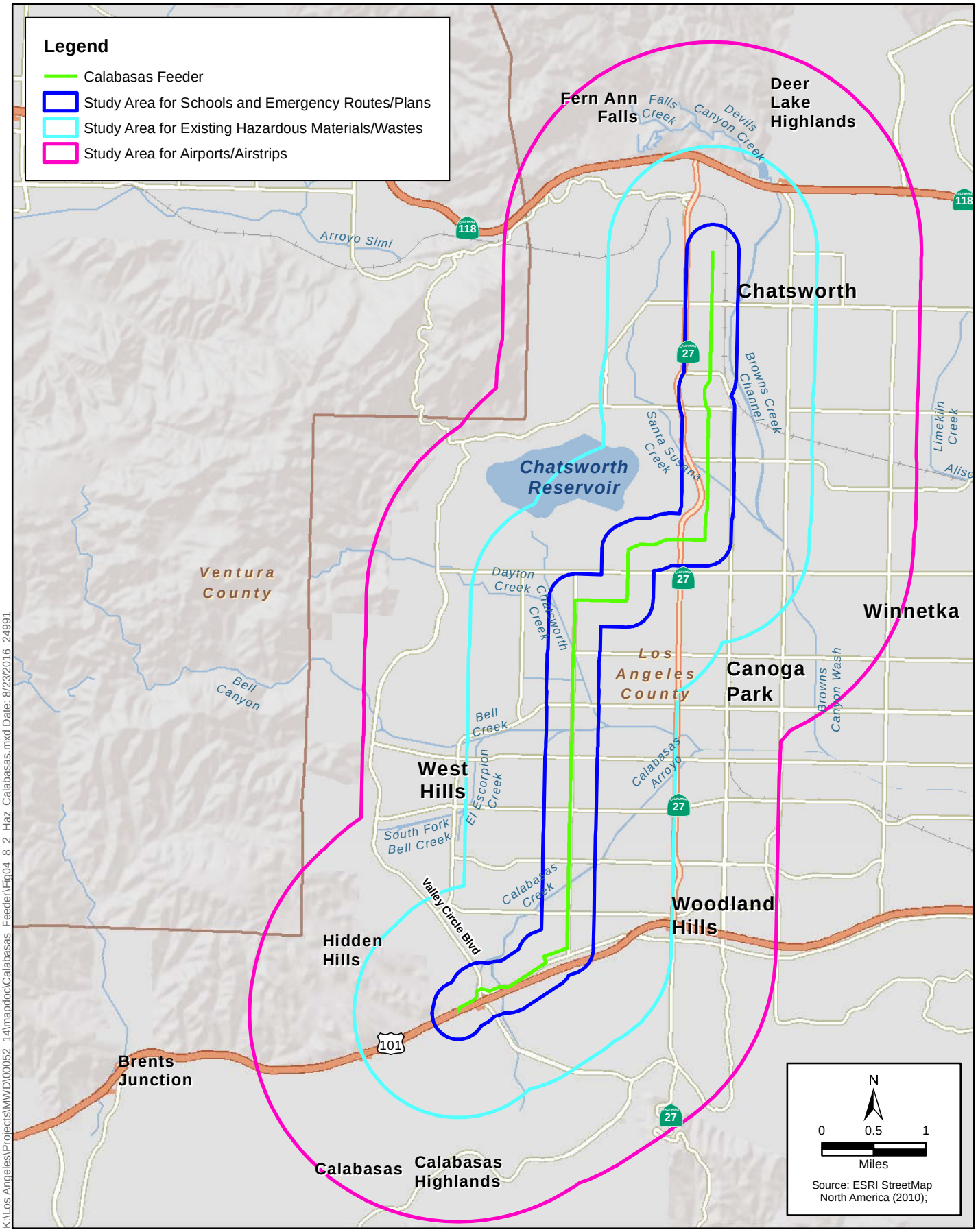


Figure 4.8-2
Calabasas Feeder Hazards Study Area
Metropolitan PCCP Program

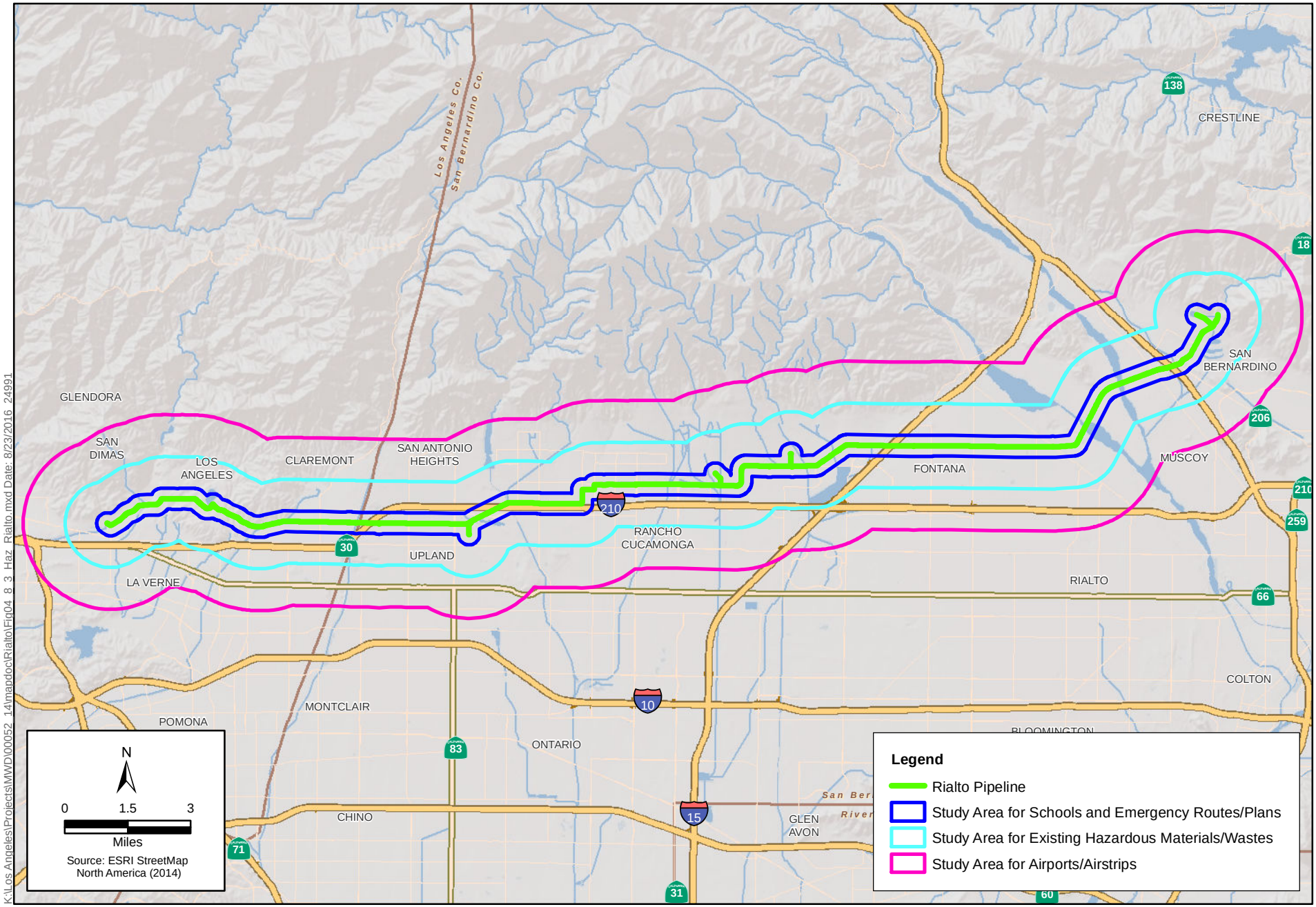


Figure 4.8-3
Rialto Pipeline Hazards Study Area
Metropolitan PCCP Program

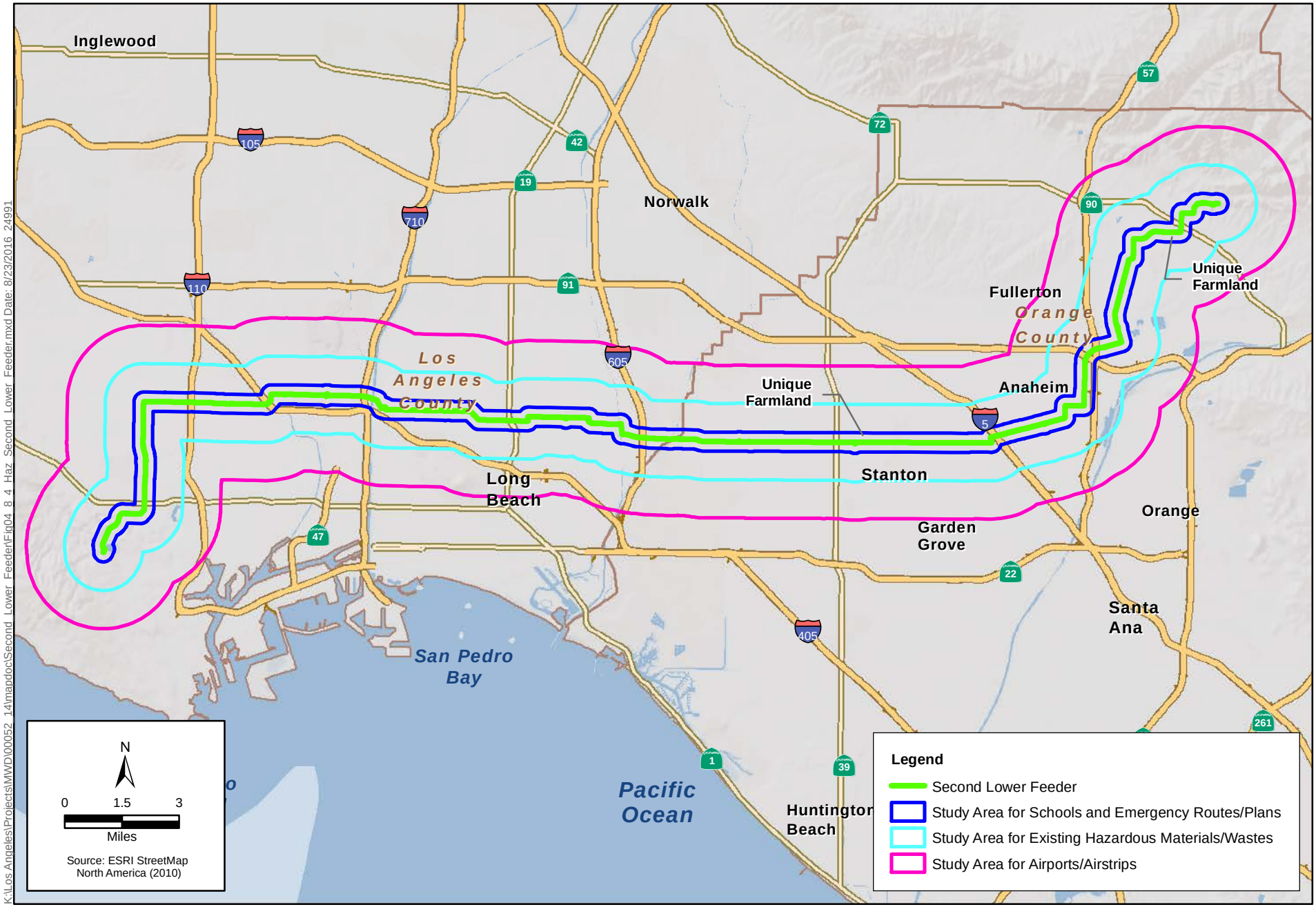


Figure 4.8-4
Second Lower Feeder Hazards Study Area
Metropolitan PCCP Program

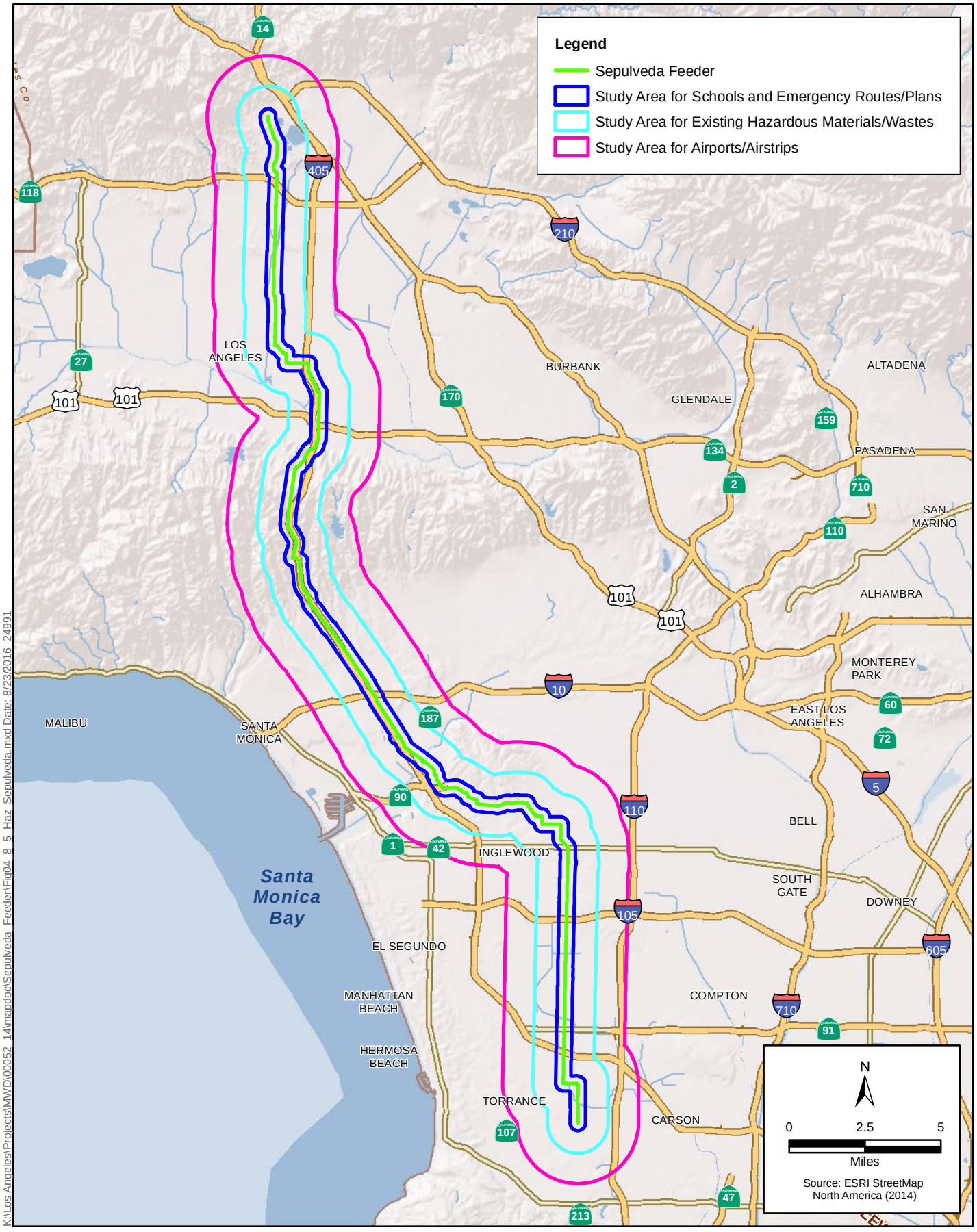


Figure 4.8-5
Sepulveda Feeder Hazards Study Area
Metropolitan PCCP Program

and contamination to both soil and groundwater. Initial environmental studies associated with the site identified 21 areas as potentially impacted on site, including the following.

- three landfill sites containing both hazardous and solid waste
- buried drums containing explosives
- low-level radioactive waste
- areas where PCBs, battery acids, leaded fuels, and other hazardous substances had been released

The site has undergone a multitude of studies and remedial activities. The site is listed as "currently on the Final NPL." The Allen-McColloch Pipeline study area passes through the northeastern portion of the El Toro Marine Corps Air Station NPL site.

Schools

Table 4.8-3 lists schools within 0.25 mile of the Allen-McColloch Pipeline.

Table 4.8-3. Schools in the Allen-McColloch Pipeline Study Area

School	Address	Approximate Distance from Allen-McColloch Pipeline
La Entrada High	4999 Casa Loma Avenue, Yorba Linda	70 feet east
Fairmont Elementary	5241 Fairmont Boulevard, Yorba Linda	60 feet west
Bernardo Yorba Middle	5350 Fairmont Boulevard, Yorba Linda	30 feet east
Woodsboro Elementary	7575 E. Woodsboro Avenue, Anaheim	0.25 mile east
Canyon High	220 S. Imperial Highway, Anaheim	30 feet east
Imperial Elementary	400 S. Imperial Highway, Anaheim	30 feet east
Portola Springs Elementary	12100 Portola Springs, Irvine	0.20 mile west
El Toro High	25255 Toledo Way, Lake Forest	0.23 mile west
Grace Christian Elementary	26052 Trabuco Road, Lake Forest	90 feet west

Public Airports, Airport Land Use Plans, and Private Airstrips

There are no public airports, applicable airport land use plans, or private airstrips in the study area for the Allen-McColloch Pipeline.

Emergency Response Plans and Emergency Evacuation Plans

The following emergency response and evacuation plans have been identified in the study area for the Allen-McColloch Pipeline.

- **City of Orange:** According to the City of Orange General Plan, Public Safety Element, all arterials in the city are recognized as primary emergency response routes. (City of Orange 2010)
- **City of Tustin:** According to the Tustin General Plan, Public Safety Element, Jamboree Road is an evacuation route in the Allen-McColloch Pipeline study area. (City of Tustin 2013)

- **City of Mission Viejo:** According to the City of Mission Viejo General Plan, Public Safety Element, there are city evacuation routes along Trabuco Road and Los Alisos Boulevard within the Allen-McColloch Pipeline study area. (City of Mission Viejo 2009)

Wildland Fire

According to the California Department of Forestry and Fire Protection (CAL FIRE), the Allen-McColloch Pipeline study area passes through a very high fire hazard severity zone in Santiago Oaks Regional Park just south of State Route 91 (SR-91) and in Limestone Canyon Regional Park along State Route 241 (SR-241)/State Route 261 (SR-261) (CAL FIRE 2011a).

4.8.2.2 Calabasas Feeder

Known Hazardous Materials Sites

According to information obtained from the EDR report, there are multiple hazardous materials sites within 1 mile of the Calabasas Feeder alignment. Table 4.8-4 shows the number of sites identified in federal, state and local, tribal, and EDR proprietary databases.

Table 4.8-4. Known Hazardous Materials Sites in the Calabasas Feeder Study Area

Type of Database	Number of Sites Identified in EDR Report
Federal Records	279
State and Local Records	1,009
Tribal Records	0
EDR Proprietary Records	169

Schools

Table 4.8-5 lists schools within 0.25 mile of the Calabasas Feeder.

Table 4.8-5. Schools in the Calabasas Feeder Study Area

School	Address	Approximate Distance from Calabasas Feeder
Academy for Advancement of Children with Autism	10824 Topanga Canyon Boulevard, Chatsworth (Los Angeles)	0.20 mile northwest
Nevada Avenue Elementary	22120 Chase Street, West Hills (Los Angeles)	20 feet south
Capistrano Avenue Elementary	8118 Capistrano Avenue, West Hills (Los Angeles)	30 feet north
Ingenium Charter	22250 Elkwood Street, Los Angeles	0.20 mile southeast
First United Methodist Preschool	22700 Sherman Way, West Hills (Los Angeles)	0.06 mile east
Enadia Way Elementary	22944 Enadia Way, West Hills (Los Angeles)	0.12 mile west

School	Address	Approximate Distance from Calabasas Feeder
Hamlin Charter Academy	22627 Hamlin Street, West Hills (Los Angeles)	0.12 mile east
Calabash Charter Academy	23055 Eugene Street, Woodland Hills (Los Angeles)	0.22 mile southeast

Public Airports, Airport Land Use Plans, and Private Airstrips

There are no public airports, airport land use plans, or private airstrips within 2 miles of the Calabasas Feeder alignment.

Emergency Response Plans and Emergency Evacuation Plans

The following emergency response and evacuation plans have been identified in the study area for the Calabasas Feeder.

- **City of Los Angeles:** According to the City of Los Angeles General Plan, Safety Element, there is a city disaster route on State Route 27 (SR-27) (Topanga Canyon Boulevard) in the Calabasas Feeder study area. (City of Los Angeles 1996)
- **City of Hidden Hills:** According to the Hidden Hills General Plan, Safety Element, there is an evacuation route on Long Valley Road in the Calabasas Feeder study area. (City of Hidden Hills 1995)

Wildland Fire

There are no high fire hazard severity zones in the Calabasas Feeder study area.

4.8.2.3 Rialto Pipeline

Known Hazardous Materials Sites

According to information obtained from the EDR report, there are multiple hazardous materials sites within 1 mile of the Rialto Pipeline alignment. Table 4.8-6 shows the number of sites identified in federal, state and local, tribal, and EDR proprietary databases.

Table 4.8-6. Known Hazardous Materials Sites in the Rialto Pipeline Study Area

Type of Database	Number of Sites Identified in EDR Report
Federal Records	110
State and Local Records	417
Tribal Records	0
EDR Proprietary Records	61

B.F. Goodrich

Amongst the sites identified in the federal records in Table 4.8-6 is the B.F. Goodrich site at 3196 N. Locust Avenue, Rialto. The site is a 160-acre NPL site with impacted soil and groundwater. Contaminants of concern include perchlorate, trichloroethene, and various other chemicals. The site was used initially by the U.S. Army as a rail and storage facility for bombs, ammunition, and other ordinances. In the late 1950s and early 1960s, the B.F. Goodrich Corporation used the facility for research, development, testing, and production of solid-fuel rocket propellant and solid-fuel missile and rocket motors. The property has also been occupied by defense contractors, fireworks manufacturers, and other users. Various investigations and remediation efforts have been conducted on site. The site is listed as "currently on the Final NPL." The Rialto Pipeline passes approximately 50 feet north of the B.F. Goodrich site along West Casa Grande Drive.

Newmark Ground Water Contamination

The Newmark Ground Water Contamination site is within the Newmark Well Field in San Bernardino. The Newmark Well Field is an area of approximately 700 square feet bounded by 48th Street, Magnolia Drive, Reservoir Drive, and the San Bernardino County Flood Control Channel. Various wells in the Newmark Well Field have been closed since the 1980s due to high levels of halogenated organic chemicals, including tetrachloroethylene and trichloroethylene. Impacts have been attributed to historic dumping occurring in the area from the late 1950s to the early 1960s. Remediation in the area has been ongoing since the late 1980s. The Rialto Pipeline passes through the northwestern portion of the contaminant plume.

Schools

Table 4.8-7 lists schools within 0.25 mile of the Rialto Pipeline.

Table 4.8-7. Schools in the Rialto Pipeline Study Area

School	Address	Approximate Distance from Rialto Pipeline
Kucera Middle	2140 W Buena Vista Drive, Rialto	0.21 mile north
Caryn Elementary	6290 Sierra Crestview Loop, Alta Loma (Rancho Cucamonga)	0.10 mile south
Los Osos High	6001 Milliken Avenue, Rancho Cucamonga	90 feet north
Chaffey College	5885 Haven Avenue, Rancho Cucamonga	100 feet north
Banyan Elementary	10900 Mirador Drive, Rancho Cucamonga	50 feet south
Rancho Heritage	9488 19th Street, Alta Loma (Rancho Cucamonga)	0.16 mile south
Pioneer Junior High	245 W 18th Street, Upland	90 feet north
Pepper Tree Elementary	1045 W 18th Street, Upland	50 feet north
Western Christian Schools	3105 Padua Avenue, Claremont	0.14 mile south
The Webb Schools	1175 W Baseline Road, Claremont	100 feet south

Public Airports, Airport Land Use Plans, and Private Airstrips

The Rialto Municipal Airport is 1.7 miles to the south of the Rialto Pipeline. The Cable Airport is approximately 1 mile south of the Rialto Pipeline. There are no private airstrips in the Rialto Pipeline study area.

Airport Land Use Plan for Rialto Municipal Airport

An airport land use plan (ALUP) is adopted for a public airport to provide for the orderly growth of the airport and the area surrounding the airport. The ALUP for the Rialto Municipal Airport was adopted in 1991 and is called the *Final Comprehensive Land Use Plan: Rialto Municipal Airport* (San Bernardino County ALUC 1991).

According to Figure III-7 of the ALUP for Rialto Municipal Airport, the Rialto Pipeline is just north and outside of the airport's safety zones, which are areas in the vicinity of the airport in which land use restrictions are established to protect the safety of the public. Because the Rialto Pipeline is outside the safety zones, the Rialto Airport ALUP is not applicable to the proposed program.

Airport Land Use Plan for Cable Airport

The ALUP for the Cable Airport was adopted in 1981 and is called the *Cable Airport Comprehensive Airport Land Use Plan* (West Valley Planning Agency ALUC 1981).

According to Figure 3 of the ALUP for Cable Airport, the Rialto Pipeline does not encroach into any of the airport's planning area boundaries. Therefore, the Cable Airport ALUP is not applicable to the proposed program.

Emergency Response Plans and Emergency Evacuation Plans

The following emergency route has been identified in the study area for the Rialto Pipeline.

- **County of San Bernardino**: According to the San Bernardino County General Plan, Safety Element, there are county evacuation routes on Interstate 210 (I-210), Interstate 15 (I-15), Interstate 215 (I-215), and State Route 83 (SR-83) (Euclid Avenue). (San Bernardino County 2014)

Wildland Fire

According to CAL FIRE, the Rialto Pipeline study area passes through a very high fire hazard severity zone in the cities of San Bernardino (CAL FIRE 2008), Claremont, and La Verne (CAL FIRE 2011b).

4.8.2.4 Second Lower Feeder

Known Hazardous Materials Sites

According to information obtained from the EDR report, there are multiple hazardous materials sites within 1 mile of the Second Lower Feeder alignment. Table 4.8-8 shows the number of sites identified in federal, state and local, tribal, and EDR proprietary databases.

Table 4.8-8. Known Hazardous Materials Sites in the Second Lower Feeder Study Area

Type of Database	Number of Sites Identified in EDR Report
Federal Records	667
State and Local Records	2,680
Tribal Records	0
EDR Proprietary Records	280

Montrose Chemical Corp

The Montrose Chemical Corp is at 20201 S. Normandie Avenue, Torrance. It is a 13-acre site that was identified as having impacted soil and groundwater. Historic operations at the site included formulation, grinding, packaging, and distribution of dichloro-diphenyltrichloroethane (also known as DDT). During its 35 years of operation, the Montrose plant released hazardous contaminants into the surrounding environment, including surface soils, surface drainage, stormwater pathways, sanitary sewers, the Pacific Ocean, and groundwater. The U.S. Environmental Protection Agency (EPA) began oversight of the site in 1983. Numerous investigations and remediation efforts have been conducted to address contamination. The site is listed as "currently on the Final NPL." The Second Lower Feeder passes approximately 0.08 mile south of the Montrose Chemical Corp site plume.

Schools

Table 4.8-9 lists schools within 0.25 mile of the Second Lower Feeder.

Table 4.8-9. Schools in the Second Lower Feeder Study Area

School	Address	Approximate Distance from Second Lower Feeder
Lakeview Elementary	17510 Lakeview Avenue, Yorba Linda	0.24 mile southeast
Little Friends Preschool	4221 Rose Drive, Yorba Linda	50 feet north
George Key	710 Golden Avenue, Placentia	0.22 mile northwest
Brookhaven Elementary	1851 Brookhaven Avenue, Placentia	50 feet west
El Dorado High	1651 Valencia Avenue, Placentia	20 feet east
Valencia High	500 Bradford Avenue, Placentia	0.10 mile west
Kraemer Middle	645 N. Angelina Drive, Placentia	70 feet west
Sunkist Elementary	500 N. Sunkist Street, Anaheim	20 feet east
South Junior High	2320 E. South Street, Anaheim	50 feet south
Theodore Roosevelt Elementary	1600 E. Vermont Avenue, Anaheim	30 feet south
Palm Lane Elementary	1646 W. Palm Lane, Anaheim	0.16 mile south
Loara High	1765 W. Cerritos Avenue, Anaheim	0.22 mile south
Gilbert High	1800 W. Ball Road, Anaheim	20 feet south
Magnolia High	2450 W. Ball Road, Anaheim	20 feet south
Dale Junior High	900 S. Dale Avenue, Anaheim	90 feet north

School	Address	Approximate Distance from Second Lower Feeder
Hansen Elementary	1300 S. Knott Avenue, Anaheim	0.09 mile south
Cypress High	9801 Valley View Street, Cypress	0.14 mile north
Los Alamitos High	3591 Cerritos Avenue, Los Alamitos	0.18 mile south
Keller Elementary	7020 E. Brittain Street, Long Beach	0.06 mile north
Henry K-8	3720 Canehill Avenue, Long Beach	50 feet north
Burcham Elementary	5610 E. Monlaco Road, Long Beach	0.20 mile south
Long Beach City College	4901 E. Carson Street, Long Beach	0.20 mile northwest
Charles Evans Hughes Middle	3846 California Avenue, Long Beach	50 feet north
Longfellow Elementary	3800 Olive Avenue, Long Beach	30 feet north
Los Cerritos Elementary	515 W San Antonio Drive, Long Beach	50 feet northwest
Rancho Dominguez Preparatory	4110 Santa Fe Avenue, Long Beach	50 feet north
Del Amo Elementary	21228 Water Street, Carson	0.25 mile north
Carnegie Middle	21820 Bonita Street, Carson	50 feet north
Bonita Street Elementary	21929 Bonita Street, Carson	30 feet north
Saint Philomena	21832 S Main Street, Carson	0.06 mile north
White Middle	22102 S Figueroa School, Carson	40 feet south
Meyler Street Elementary	1123 W 223rd Street, Torrance	0.13 mile south
Narbonne High	24300 S Western Avenue, Harbor City	50 feet east
Harbor City Elementary	1508 254th Street, Harbor City	0.20 mile east

Public Airports, Airport Land Use Plans, and Private Airstrips

The Joint Forces Training Base Los Alamitos is 1.2 miles south of the Second Lower Feeder. The pipeline runs through the northern portion of the Long Beach Municipal Airport. The Torrance Municipal Airport is 1.2 miles west of the Second Lower Feeder.

Airport Environs Land Use Plan for Joint Forces Training Base Los Alamitos

The ALUP for the Joint Forces Training Base Los Alamitos is the *Airport Environs Land Use Plan for Joint Forces Training Base Los Alamitos* adopted in 2002 (ALUC of Orange County 2015).

According to Appendix D of the ALUP for the Joint Forces Training Base Los Alamitos, the Second Lower Feeder is not within the airport's runway protection zones or clear zones, but is within a notification area. The notification areas are established to ensure that structures that may affect day-to-day airport operations are not built in their vicinities.

Los Angeles County Airport Land Use Plan

The *Los Angeles County Airport Land Use Plan* covers numerous airports in Los Angeles County, including Long Beach Municipal Airport (Los Angeles County ALUC 2004).

According to the Airport Influence Area map for the Long Beach Municipal Airport in the ALUP, the Second Lower Feeder crosses the northern portion of the airport property, within the airport's planning boundary/airport influence area and a runway protection zone. Runway protection zones are intended to provide for the unobstructed passage of landing aircraft through the above airspace. These zones are the most critical safety areas under the approach paths and should be kept free of all obstructions. No structures or congregation of people are allowed within runway protection zones.

Emergency Response Plans and Emergency Evacuation Plans

The following emergency response and evacuation plans have been identified in the study area for the Second Lower Feeder.

- **City of Lakewood:** According to the City of Lakewood General Plan, Safety Element, all city arterials are recognized as primary evacuation routes. (City of Lakewood 1995)
- **City of Carson:** According to the City of Carson, Safety Element, there are city evacuation routes on Carson Street, Santa Fe Avenue, Alameda Street, Wilmington Avenue, Avalon Boulevard, Main Street, Figueroa Street, and Broadway in the Second Lower Feeder study area. (City of Carson 1982)
- **City of Los Angeles:** According to the City of Los Angeles General Plan, Safety Element, Normandie Avenue and Vermont Avenue are city disaster routes in the Second Lower Feeder study area. (City of Los Angeles 1996)
- **City of Lomita:** According to the City of Lomita General Plan, Safety Element, city evacuation routes are located on Pacific Coast Highway, Western Avenue, Narbonne Avenue, and Lomita Boulevard in the Second Lower Feeder study area. (City of Lomita 1998)
- **City of Rolling Hills Estates:** According to the Rolling Hills Estates General Plan, Safety Element, city emergency evacuation routes are located on Palos Verdes Drive East and Palos Verdes Drive North in the Second Lower Feeder study area. (City of Rolling Hills Estates 1992)

Wildland Fire

According to CAL FIRE, the Second Lower Feeder study area passes through very high fire hazard severity zones in the cities of Yorba Linda (CAL FIRE 2011a) and Rolling Hills Estates (CAL FIRE 2011b).

4.8.2.5 Sepulveda Feeder

Known Hazardous Materials Sites

According to information obtained from the EDR report, there are multiple hazardous materials sites within 1 mile of the Sepulveda Feeder alignment. Table 4.8-10 shows the number of sites identified in federal, state and local, tribal, and EDR proprietary databases.

Table 4.8-10. Known Hazardous Materials Sites in the Sepulveda Feeder Study Area

Type of Database	Number of Sites Identified in EDR Report
Federal Records	1,077
State and Local Records	3,594
Tribal Records	0
EDR Proprietary Records	683

Del Amo

The Del Amo site is a 280-acre NPL site in the city of Los Angeles that was identified in the EDR report as having impacted groundwater. A synthetic rubber manufacturing facility operated at the site from the early 1940s to the early 1970s. A groundwater investigation conducted in 1998 identified multiple areas of concern connected to the on-site groundwater contamination. Contaminants of concern have included various volatile organic compounds and semi-volatile organic compounds such as benzene, toluene, ethylbenzene, and napthalene. Numerous investigations and remediation efforts have been conducted to address contamination. The site is listed as "currently on the Final NPL." The Sepulveda Feeder passes approximately 0.8 mile west of the Del Amo site.

Montrose Chemical Corp

See Section 4.8.2.4 for a description of the Montrose Chemical Corp site. The Sepulveda Feeder passes approximately 0.13 mile west of the Montrose Chemical Corp site plume.

Schools

Table 4.8-11 lists schools within 0.25 mile of the Sepulveda Feeder.

Table 4.8-11. Schools in the Sepulveda Feeder Study Area

School	Address	Approximate Distance from Sepulveda Feeder
Knollwood Elementary	11822 Gerald Avenue, Granada Hills	0.06 mile east
John F. Kennedy High	11254 Gothic Avenue, Granada Hills	0.25 mile east
Tulsa Street Elementary	10900 Hayvenhurst Avenue, Granada Hills	20 feet east
Saint John Baptist de la Salle	16535 Chatsworth Street, Granada Hills	20 feet east
Mayall Street Elementary	16701 Mayall Street, North Hills (Los Angeles)	0.08 mile west
Saint Bridget of Sweden	7120 Whitaker Avenue, Lake Balboa (Los Angeles)	0.23 mile west
Berkeley Hall	16000 Mulholland Drive, Los Angeles	0.08 mile west
Milken Community Middle	15900 Mulholland Drive, Los Angeles	0.08 mile east
Milken Community High	15800 Zeldins Way, Los Angeles	0.15 mile east
Daniel Webster Middle	11330 Graham Place, Los Angeles	0.23 mile west
Clover Avenue Elementary	11020 Clover Avenue, Los Angeles	0.12 mile east
Charnock Road Elementary	11133 Charnock Road, Los Angeles	30 feet east

School	Address	Approximate Distance from Sepulveda Feeder
Culver City High	4401 Elenda Street, Culver City	0.18 mile northeast
Frank D. Parent K-8	5354 West 64th Street, Inglewood.	30 feet south
La Tijera Elementary	1415 N. La Tijera Boulevard, Inglewood	30 feet north
Centinela Elementary	1123 N. Marlborough Avenue, Inglewood	0.13 mile south
Freeman Elementary	2602 W. 79th Street, Inglewood	50 feet west
El Nido Family Center	2152 W. Manchester Avenue, Los Angeles	50 feet east
Saint Eugene	9521 Haas Avenue, Los Angeles	50 feet east
Century Park Elementary	10935 Spinning Avenue, Inglewood	0.07 mile west
Cimarron Avenue Elementary	11559 Cimarron Avenue, Hawthorne	0.06 mile east
Purche Avenue Elementary	13210 Purche Avenue, Gardena	0.06 mile west
Junipero Serra High	14830 S. Van Ness Avenue, Gardena	30 feet east
One Hundred Fifty-Sixth Street	2100 W. 156th Street, Gardena	50 feet east
Lincoln Elementary	2418 166th Street, Torrance	50 feet west
Casimir Middle	17220 Casimir Avenue, Torrance	0.06 mile west
Arlington Elementary	17800 Van Ness Avenue, Torrance	30 feet east

Public Airports, Airport Land Use Plans, and Private Airstrips

The Sepulveda Feeder runs parallel and adjacent to the western side of the Van Nuys Airport. The Santa Monica Municipal Airport is approximately 1.1 miles west of the Sepulveda Feeder. The Hawthorne Municipal Airport is 0.5 mile west of the Sepulveda Feeder. There are no private airstrips in the Sepulveda Feeder study area.

Los Angeles County Airport Land Use Plan

Van Nuys Airport, Santa Monica Municipal Airport, and Hawthorne Airport are all covered by the *Los Angeles County Airport Land Use Plan*, adopted in 1991 (Los Angeles County ALUC 2004).

According to the ALUP's Airport Influence Area map for the Van Nuys Airport, the Sepulveda Feeder is in the airport's planning boundary/airport influence area, within the northern and southern runway protection zones. As discussed in Section 4.8.2.4 for the Long Beach Airport, runway protection zones are intended to provide for the unobstructed passage of landing aircraft through the above airspace. These zones are the most critical safety areas under the approach paths and should be kept free of all obstructions. No structures or congregation of people are allowed within runway protection zones.

According to the ALUP's Airport Influence Maps for Santa Monica Municipal Airport and Hawthorne Municipal Airport, the Second Lower Feeder is not within either airport's planning boundaries. Therefore, the sections of the ALUP for these airports are not applicable to the proposed program.

Emergency Response Plans and Emergency Evacuation Plans

The following evacuation routes have been identified in the study area for the Sepulveda Feeder.

- **Inglewood:** According to the Inglewood General Plan, Safety Element, city evacuation routes are located on La Cienega Boulevard, East Florence Avenue, Crenshaw Boulevard, and South Van Ness Avenue in the Sepulveda Feeder study area. (City of Inglewood 1995)

Wildland Fire

According to CAL FIRE, the Sepulveda Feeder study area passes through a high fire hazard severity zone in the Westbridge-Canyonback Wilderness Park (CAL FIRE 2011b).

4.8.3 Regulatory Framework

This section describes the plans, policies, and regulations related to hazards and hazardous materials that are applicable to the proposed program.

4.8.3.1 Federal

Resource Conservation and Recovery Act (42 U.S.C. § 6901 et seq.)

Hazardous waste in California is regulated primarily under the authority of the federal Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §6901 et seq. The RCRA was established in 1976 to protect human health and the environment, reduce waste, conserve energy and natural resources, and eliminate generation of hazardous waste. Under the authority of the RCRA, the regulatory framework for managing hazardous waste, including requirements for entities that generate, store, transport, treat, and dispose of hazardous waste, is found in 40 CFR 260–299.

Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. § 103)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as "Superfund," was enacted by Congress on December 11, 1980. This law (42 U.S.C. 103) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites, provides for liability of persons responsible for releases of hazardous waste at these sites, and establishes a trust fund for cleanup when no responsible party can be identified. CERCLA also enabled revision of the National Contingency Plan (NCP). The NCP (Title 40, CFR Part 300) provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the NPL. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

Clean Air Act (42 U.S.C. § 7401 et seq.)

The Clean Air Act was first enacted in 1963 but has been amended numerous times in subsequent years (1967, 1970, 1977, and 1990). The act establishes the National Ambient Air Quality Standards and specifies future dates for achieving compliance. The Clean Air Act also mandates that the states submit and implement State Implementation Plans for local areas not meeting those standards. The plans must include pollution control measures that demonstrate how the standards will be met.

Clean Water Act (33 U.S.C. 1251 et seq.)

The Clean Water Act is the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The Clean Water Act prohibits any discharge of pollutants into the nation's waters unless specifically authorized by a permit.

Toxic Substance Control Act (15 U.S.C. § 2601 et seq.)

The Toxic Substances Control Act became law on October 11, 1976. The act authorized EPA to secure information on all new and existing chemical substances, as well as to control any of the substances that were determined to cause unreasonable risk to public health or the environment.

Department of Transportation Hazardous Materials Regulations (49 CFR 100–185)

U.S. Department of Transportation Hazardous Materials Regulations cover all aspects of hazardous materials packaging, handling, and transportation. Parts 107 (Hazard Materials Program), 130 (Oil Spill Prevention and Response), 172 (Emergency Response), 173 (Packaging Requirements), 174 (Rail Transportation), 176 (Vessel Transportation), 177 (Highway Transportation), 178 (Packaging Specifications), and 180 (Packaging Maintenance) are examples.

Hazardous Materials Transportation Uniform Safety Act of 1990 (Public Law 101-615)

Congress enacted the Hazardous Materials Transportation Uniform Safety Act in 1990 to clarify conflicting state, local, and federal hazardous materials transportation regulations. The act requires the Secretary of Transportation to promulgate regulations for the safe transport of hazardous material in intrastate, interstate, and foreign commerce. The Secretary also retains authority to designate materials as hazardous when they pose unreasonable risks to health, safety, or property. The statute includes provisions to encourage uniformity among different state and local highway routing regulations, to develop criteria for the issuance of federal permits to motor carriers of hazardous materials, and to regulate the transport of radioactive materials.

4.8.3.2 State

California Public Resources Code, Section 21151.4

Section 21151.4 of the California Public Resources Code states that an EIR shall not be certified and a negative declaration shall not be approved for any project within 1/4 of a mile of a school involving the construction or alteration of a facility that might reasonably be anticipated to emit hazardous air emissions, handle extremely hazardous air emissions, or handle an extremely hazardous substance or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code.

Porter-Cologne Water Quality Control Act (Cal. Water Code § 13000 et seq.)

Sites that have contaminated groundwater fall within the jurisdiction of the Regional Water Quality Control Board and are subject to the requirements of the Porter-Cologne Water Quality Control Act.

Contaminated groundwater that is proposed to be discharged to surface waters or to a publicly owned treatment works would be subject to the applicable provisions of the Clean Water Act, including permitting and possibly pretreatment requirements. A National Pollutant Discharge Elimination System permit is required to discharge pumped groundwater to surface waters, including local storm drains, in accordance with California Water Code Section 13260. Additional restrictions may be imposed upon discharges to water bodies that are listed as impaired under Section 303(d) of the Clean Water Act.

Hazardous Materials Release Response Plans and Inventory Law (Cal. Health and Safety Code § 25500 et seq.)

Business and area plans were established to protect public health and safety and the environment from the handling and release or threatened release of hazardous materials. The establishment of a statewide environmental reporting system for these plans is a statewide requirement. Information related to the location, type, quantity, and health risks of hazardous materials handled, used, stored, or disposed of in the state is required to be submitted to firefighters, health officials, planners, public safety officers, health care providers, regulatory agencies, etc. The information provided by business and area plans is necessary in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of hazardous materials.

Hazardous Waste Control Act (Cal. Health and Safety Code § 25100 et seq.)

The Department of Toxic Substances Control is responsible for the enforcement of the Hazardous Waste Control Act (California Health and Safety Code Section 25100 et seq.), which creates the framework under which hazardous wastes are managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA cradle-to-grave waste management system in California. It also provides for the designation of California-only hazardous waste and development of standards that are equal to or, in some cases, more stringent than federal requirements.

Safe Drinking Water and Toxic Enforcement Act (Proposition 65, Cal. Health and Safety Code § 25249.5 et seq.)

The Safe Drinking Water and Toxic Enforcement Act of 1986 states that no person in the course of doing business shall knowingly discharge or release a chemical known to the state to cause cancer or reproductive toxicity into water or onto or into land where such chemical passes or probably will pass into any source of drinking water.

Cortese List Statute (Cal. Gov. Code § 65962.5 et seq.)

California Government Code 65962.5 (commonly referred to as the Cortese List) includes Department of Toxic Substances Control–listed hazardous waste facilities and sites, Department of Health Services lists of contaminated drinking water wells, sites listed by the State Water Resources Control Board as having underground storage tank leaks or a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites with a known migration of hazardous waste/material.

4.8.3.3 Local

Table 4.8-12 lists the applicable hazards and hazardous materials regulations for the proposed program.

Table 4.8-12. Applicable Regulations Related to Hazards and Hazardous Materials for the Proposed Program

Title of Plan, Policy, Regulation (date)	Applicable Regulation
Allen-McColloch Pipeline	
County of Orange General Plan Safety Element 2014	**Goals, Objectives, and Policies 2:** To respond to all emergency incidents to oversee and ensure that these incidents involving hazardous waste and medical waste are properly mitigated. **Goals, Objectives, and Policies 6:** To implement and administer all mandated laws, regulations, and ordinances relating to hazardous materials, hazardous waste, and medical waste.
City of Yorba Linda General Plan Public Safety Element 1993	**Goal 7:** Protect public health, safety and welfare and the environment from exposure to hazardous materials and waste.
City of Anaheim General Plan Safety Element 2004	**Goal 4.1:** Decrease the risk of exposure for life, property and the environment to hazardous materials and hazardous waste.
City of Orange General Plan Public Safety Element 2010	**Goal 4.0:** Minimize risks to life, property, and the environment associated with producing, using, storing, or transporting hazardous materials.
City of Tustin General Plan Public Safety Element 2013	**Goal 4:** Reduce the risk to the community's inhabitants from exposure to hazardous materials and wastes.
City of Irvine General Plan Safety Element 2012	**Objective J-2 Policy (d):** Continue to maintain and implement the City of Irvine's Emergency Plan.
City of Lake Forest General Plan Safety and Noise Element 1994	**Policy 2.2:** Reduce the risk to the community from the use and transport of hazardous materials.
Calabasas Feeder	
Safety Element of the Los Angeles City General Plan 1996	**VII-24:** Enforce the requirement that industrial facilities and construction sites have adequate Hazardous Materials Handling and Spill Response Plans to ensure that the goals of pollutant control are consistent with the City's public safety needs and the General Plan's water quality objectives.
City of Calabasas 2030 General Plan Safety Element	**Policy VII-21:** Manage activities within Calabasas involving the transport, use, store or dispose of hazardous materials in a responsible manner that protects public health, safety, and the environment.
Rialto Pipeline	
City of San Bernardino General Plan Safety Chapter 2005	**Goal 10.1:** Protect the environment, public health, safety, and welfare from hazardous wastes. **Goal 10.12:** Ensure the availability and effective response of emergency services in the event of a disaster.

Title of Plan, Policy, Regulation (date)	Applicable Regulation
County of San Bernardino General Plan Safety Element 2007	**Goal S2:** The County will minimize the generation of hazardous waste in the County and reduce the risk posed by storage, handling, transportation, and disposal of hazardous wastes. **Goal S 9:** The County's emergency evacuation routes will quickly and efficiently evacuate all residents in the event of wildland fires and other natural disasters, and will ensure adequate access of emergency vehicles to all communities.
City of Rialto General Plan The Safety and Noise Chapter 2010	**Goal 5-4:** Protect the health and welfare of the public, environment, and economy by providing for the safe and responsible management of hazardous materials and wastes **Goal 5-7:** Maintain a high level of emergency response capability.
City of Fontana General Plan Safety Element 2003	Goal 5 Policy 1: The City shall strive to reduce the potential for residents, workers, and visitors to Fontana to being exposed to hazardous materials and wastes.
Rancho Cucamonga General Plan Public Health and Safety 2010	**Goal PS-3**: Protect City residents, businesses, and employees from the potential hazards associated with the use, storage, transport, and disposal of hazardous materials in and through Rancho Cucamonga.
City of Upland General Plan Safety Element 2015	**Goal SAF-5:** A community protected from harmful effects of hazardous materials and waste. **Goal SAF-6:** Risks associated with aircraft operations at Cable Airport and Ontario International Airport are minimized.
City of Claremont General Plan Public Safety 2009	**Goal 6-2:** Minimize the risk of injury loss of life and damage to property resulting from natural and human-caused disasters and conditions. **Goal 6-7:** Minimize the risks associated with urban and wildland fires. **Goal 6-8:** Minimize the improper storage and dumping of hazardous waste materials.
County of Los Angeles General Plan 2015	**Goal S 4:** Maintain effective County emergency response management capabilities.
City of La Verne General Plan Public Safety 1998	**Goal 3 Policy 3.1:** Protect the public from the dangers of hazardous waste use and transport.
City of San Dimas General Plan Safety Element 1991	**Objective 1.3:** Provide for the safe use and transportation of hazardous materials and wastes.
Second Lower Feeder	
County of Orange General Plan Safety Element 2014	**Goals, Objectives, and Policies 6)**: To implement and administer all mandated laws, regulations, and ordinances relating to hazardous materials, hazardous waste, and medical waste.
City of Yorba Linda General Plan/EIR Public Safety Element 1993	**Goal 8:** Limit the transport of hazardous materials through the City of Yorba Linda in conformance with the State and County HAZMAT program.
City of Anaheim General Plan Safety Element 2004	**Goal 4.1:** Decrease the risk of exposure for life, property and the environment to hazardous materials and hazardous waste.

Title of Plan, Policy, Regulation (date)	Applicable Regulation
Buena Park General Plan Safety Element 2010	**Goal SAF-4:** Minimized threat to the public health and safety and to the environment posed by a release of hazardous materials.
Cypress General Plan Safety Element 2000	**SAF-3:** Minimize risks to life and property associated with the handling, transporting, treating, generating, and storing of hazardous materials
Los Alamitos General Plan Public Facilities and Safety Element 2015	**Policy 2.6 Hazardous materials:** The use and storage of hazardous materials shall comply with applicable federal, state, and local laws to prevent and mitigate hazardous materials releases.
City of Long Beach General Plan Program Public Safety Element 1975	**Protection Goal 2:** Protect existing land uses from the intrusion of safety hazards. **Protection Goal 3:** Reduce public exposure to safety hazards.
City of Lakewood Comprehensive General Plan Safety Element 1996	**Goal 7.0:** To ensure that the generation of hazardous waste is reduced, through elimination or recycling, to maximum extent feasible.
City of Carson General Plan Safety Element 1981	**SAF-4:** Minimize the threat to the public health and safety and to the environment posed by a release of hazardous materials.
Safety Element of the Los Angeles City General Plan 1996	**Goal 1:** A city where potential injury, loss of life, property damage and disruption of the social and economic life of the City due to fire, water related hazard, seismic event, geologic conditions or release of hazardous materials disasters is minimized.
City of Torrance General Plan Safety Element 2010	**Objective S.4:** To reduce the risk associated with the use, storage, transport, or disposal of hazardous waste.
Sepulveda Feeder	
Safety Element of the Los Angeles City General Plan 1996	**VII-24:** Enforce the requirement that industrial facilities and construction sites have adequate Hazardous Materials Handling and Spill Response Plans to ensure that the goals of pollutant control are consistent with the City's public safety needs and the General Plan's water quality objectives.
Gardena General Plan Community Safety Element 2006	**PS Goal 3:** Protect public health, safety and the environment from exposure to hazardous materials and other dangers.
Inglewood General Plan Safety Element 1995	**Safety Goal 5:** Reduce the adverse impacts of hazardous materials.
City of Torrance General Plan Safety Element 2010	**Objective S.4:** To reduce the risk associated with the use, storage, transport, or disposal of hazardous waste.

4.8.4 Thresholds and Methodology

4.8.4.1 Thresholds of Significance

Table 4.8-13 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to hazards and hazardous materials. These thresholds are addressed in the PEIR.

Table 4.8-13. CEQA Thresholds for Hazards and Hazardous Materials

Threshold *Would the proposed program:*
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?
e. For a project located within an airport land use plan or, where such plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including areas where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

4.8.4.2 Methodology

Transport, Use, or Disposal of Hazardous Materials

The potential transport, use, or disposal of hazardous materials during rehabilitation projects included in the program is addressed in this analysis. The analysis considers the requirement of all projects to comply with existing regulations for the transport, use, and disposal of hazardous materials, and Metropolitan's standard requirements for contractors involved in rehabilitation projects.

Risk of Upset

The potential risk of a foreseeable upset or accident occurring during rehabilitation that could release hazardous materials is addressed in this analysis. The analysis considers the requirement of all projects to comply with existing regulations for the transport, use, and disposal of hazardous

materials, and Metropolitan's standard requirements for contractors involved in rehabilitation projects.

Risk to Schools

Schools within 0.25 mile of the pipeline alignments are identified in Section 4.8.2. The potential of projects in the proposed program to expose these schools to hazardous emissions, substances, or wastes is evaluated in this analysis. The analysis considers the requirement of all projects to comply with existing regulations for the transport, use, and disposal of hazardous materials, and Metropolitan's standard requirements for contractors involved in rehabilitation projects.

Exposure to Existing Hazardous Sites

Existing known hazardous materials sites are summarized in Section 4.8.2. The potential of projects in the proposed program to create a significant hazard by exposing the public or environment to the effects of these sites is evaluated at a program level in this analysis. The analysis considers the requirement of all projects to comply with existing regulations for the transport, use, and disposal of hazardous materials, and Metropolitan's standard requirements for contractors involved in rehabilitation projects. Once rehabilitation locations are identified, a project-level analysis of surrounding sites would be required to determine the likelihood of potential impacts affecting the program.

Public Airports

Existing public use airports are identified in Section 4.8.2. The potential risks of working within 2 miles of a public airport and within an ALUP during rehabilitation are evaluated.

Private Airstrips

Existing private airstrips within 2 miles of the pipelines are identified in Section 4.8.2. The potential risks of working in proximity of a private airstrip during rehabilitation are evaluated.

Emergency Response Plans/Emergency Evacuation Plans

Evacuation routes associated with existing emergency response plans and emergency evacuation plans are identified in Section 4.8.2. The potential of the projects included in the proposed program to impair the implementation of or physically interfere with these plans is evaluated.

Wildland Fires

Locations of pipelines in areas with risk of wildland fires are identified in Section 4.8.2. The potential risks of working within these risk areas during rehabilitation are evaluated.

4.8.5 Impacts Analysis

4.8.5.1 Program Analysis

Threshold HAZ-A: Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials

Construction activities associated with the proposed program would require transport, use, and disposal of hazardous materials such as solvents, paints, oils, grease, and fuels. Such transport, use, and disposal must be compliant with applicable regulations such as the regulations discussed in Section 4.8.3, *Regulatory Framework*. Although solvents, paints, oils, grease, and fuels would be transported, used, and disposed of during the construction phase, these materials are typically used in construction projects and would not represent the transport, use, and disposal of acutely hazardous materials. Additionally, and as part of the proposed program, Metropolitan's contractors would implement the following environmental commitments during rehabilitation activities.

- Rehabilitation activities would incorporate Best Management Practices (BMPs), including a Stormwater Pollution Prevention Plan (SWPPP), as applicable, for sediment and erosion control, pollutant treatment, outlet protection, and general site management.
- A Spill Emergency Response Plan would be prepared prior to the start of construction and be responsible for ensuring that hazardous materials and waste are handled, stored, and disposed of in accordance with applicable federal and state laws and regulations. All materials and fuels within the staging areas and excavation sites and work zones would be stored in a manner that reduces the potential for spills.

Due to the implementation of these environmental commitments and because compliance with existing regulations is mandatory, the proposed program would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Impacts would be less than significant.

After rehabilitation is complete, the operation of the pipelines in the proposed program would be the same as the existing condition. Therefore, there would be no impacts related to hazardous materials associated with operation of the program pipelines.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold HAZ-B: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment

As discussed in Threshold HAZ-A, construction activities associated with the proposed program would require transport, use, and disposal of hazardous materials such as solvents, paints, oils, grease, and fuels, which could result in upset or accidents that could release hazardous materials into the environment. Such transport, use, and disposal must be compliant with applicable regulations such as the regulations discussed in Section 4.8.3, *Regulatory Framework*. As discussed above, the proposed program would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; therefore, the risk of upset and accidents involving the release of hazardous materials into the environment would be less than significant.

After rehabilitation is complete, the operation of the pipelines in the proposed program would be the same as the existing condition. Therefore, there would be no impacts related to risk of upset and accidents involving the release of hazardous materials into the environment associated with operation of the program pipelines.

(See Threshold HAZ-D for potential release of hazardous materials related to existing known and unknown hazardous materials sites.)

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold HAZ-C: Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School

As discussed in Section 4.8.2, *Existing Conditions*, there are multiple schools within 0.25 mile of the program pipelines. In addition, Metropolitan may use portions of school sites, including playing fields or school parking lots, as construction staging areas.

Although rehabilitation would involve hazardous materials typical of a construction project (as discussed above under Threshold HAZ-A), it is expected that the proposed program would be operated in compliance with the federal, state, and local regulations discussed in Section 4.8.3, *Regulatory Framework*. Additionally, any potential construction-related hazardous releases would be from commonly used materials such as fossil fuels, solvents, and paints and would not include substances listed in 40 CFR 355, Appendix A, Extremely Hazardous Substances and Their Threshold Planning Quantities. Any such releases of commonly used materials would be localized and immediately contained and cleaned up.

See Threshold HAZ-D regarding encountering existing hazardous materials during rehabilitation. As discussed there, it is possible that construction activities related to the proposed program may encounter contaminated media from nearby hazardous materials sites during excavations, potentially exposing the surrounding environment, including nearby schools, to hazardous conditions. These potential impacts would be significant. Implementation of MM HAZ-1 through MM HAZ-4 would reduce potential impacts on the surrounding environment, including school sites within 0.25 mile, to less-than-significant levels.

After rehabilitation is complete, the operation of the pipelines in the proposed program would be the same as the existing condition. Therefore, there would be no impacts on schools associated with operation of the program pipelines.

Mitigation Measures

Impacts that would result from the proposed program would be significant, but implementation of MM HAZ-1 through MM HAZ-4 (see discussion under Threshold HAZ-D) would reduce these impacts so that residual impacts would be less than significant.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM HAZ-1 through MM HAZ-4 would reduce these impacts so that residual impacts would be less than significant.

Threshold HAZ-D: Be Located on a Site That Is Included on a List of Hazardous Materials Sites and, as a Result, Create a Significant Hazard to the Public or the Environment

Rehabilitation activities would encounter numerous sites found in various environmental databases as discussed in Section 4.8.2, *Existing Conditions*. In some cases, the existing pipelines traverse areas within or near NPL sites. It is expected that most industrial and commercial facilities within 1 mile of the pipes that deal with storage, use, and disposal of hazardous materials comply with all appropriate federal, state, and local regulations, such as the regulations discussed in Section 4.8.3, *Regulatory Framework*, to ensure safety of the surrounding public and environment. However, it is possible that construction activities may encounter contaminated media during excavations either at known or unknown sites, resulting in a significant hazard to the construction workers, the public, or the environment. This would be a significant impact. Implementation of MM HAZ-1 through MM HAZ-4 would reduce potential impacts to less-than-significant levels.

After rehabilitation is complete, the operation of the pipelines in the proposed program would be the same as the existing condition. Therefore, there would be no impacts related to hazards to the public or environment associated with operation of the program pipelines.

Mitigation Measures

MM HAZ-1: Project-Level Hazardous Materials Sites Assessment Prior to Construction Activities

To avoid exposure of construction workers, the public, or the environment to previously identified hazardous materials, during design, qualified Metropolitan staff or consultant(s) ~~will~~

~~retain a professional environmental consultant~~ specializing in hazardous materials impact assessment will ~~to~~ conduct a project-level analysis to determine if there are existing hazardous materials sites in the vicinity of the construction site and potential for existing hazardous materials sites to affect construction. This assessment will consist of a search for environmental-related information present in publicly accessible databases. The information will be reviewed to determine if the construction footprint or adjacent properties are listed in the databases. If the construction footprint or adjacent properties are listed in the databases, qualified Metropolitan staff or consultant(s) ~~the professional environmental consultant~~ will determine the potential risk to construction workers, the public, or the environment from rehabilitation activities and identify all necessary avoidance, abatement, remediation, cleanup, disposal, monitoring, reporting, notifications, and/or other measures to prevent significant impacts.

MM HAZ-2: Encountering Unreported Hazardous Materials

To avoid exposure of construction workers, the public, or the environment to unreported hazardous materials in the soil, contractors will be required to inspect any site to be used for excavation, work zones, staging, or other rehabilitation-related activities prior to beginning construction. If odiferous, stained, or discolored soil is encountered, qualified Metropolitan staff or consultant(s) ~~a professional environmental consultant~~ specializing in the identification and handling of hazardous materials will be retained to assess the site. Identification of possible hazardous materials would typically involve soil samples and laboratory analysis. The suspect soil will be isolated, covered, and avoided by construction personnel until analytical results are reviewed by qualified personnel. Soils identified as hazardous or contaminated will be handled, transported, and treated in accordance with all federal, state, and local existing hazardous materials regulations ~~and based the professional environmental consultant's direction~~.

MM HAZ-3: Engineering Controls and Best Management Practices during Construction

To minimize human exposure to potential contaminants, during construction contractors will employ the use of engineering controls and BMPs. Engineering controls and construction BMPs will include, but are not limited to, the following:

- Contractor employees working on site handling hazardous materials on contaminated media will be certified in the Occupational Health and Safety Administration's 40-hour Hazardous Waste Operations and Emergency Response training.
- Contractors will water or mist soil as it is being excavated and stockpiled or loaded onto transportation trucks.

MM HAZ-4: Encountering Contaminated Groundwater

To avoid exposure of construction workers, the public, or the environment to contaminated groundwater, suspect water removed from excavation areas (but not including dewatering of the pipelines themselves) will be tested by a qualified laboratory ~~professional environmental consultant~~ specializing in the identification ~~and handling~~ of hazardous materials ~~and classified as hazardous or non-hazardous based on laboratory results~~. If groundwater is considered hazardous, Metropolitan will notify the Regional Water Quality Control Board and local Environmental Health agencies regarding assessment and remediation requirements.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM HAZ-1 through MM HAZ-4 would reduce these impacts so that residual impacts would be less than significant.

Threshold HAZ-E: For a Project Located within an Airport Land Use Plan or, Where Such Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Result in a Safety Hazard for People Residing or Working in the Project Area

Although the program pipelines are within 2 miles of several public airports, they are not within areas covered by ALUPs, except as described below.

The Second Lower Feeder is within a notification area for the ALUP for the Joint Forces Training Base Los Alamitos. Notification areas are established to ensure that structures that may affect day-to-day airport operations are not built in their vicinities. The proposed program would not include aboveground structures, except for small valve boxes and electrical panels. These structures would not affect airport operations. Therefore, the program would not result in a safety hazard for people residing or working in the vicinity of the Joint Forces Training Base Los Alamitos.

The Second Lower Feeder crosses under a portion of the Long Beach Municipal Airport and is within a runway protection zone. The Sepulveda Feeder runs parallel and adjacent to the western side of the Van Nuys Airport and is within the northern and southern runway protection zones. Runway protection zones are intended to provide for the unobstructed passage of landing aircraft through the above airspace. These zones are the most critical safety areas under the approach paths and should be kept free of all obstructions. No structures or congregation of people are allowed within runway protection zones. If any aboveground rehabilitation activities were to occur in these runway protection zones, construction equipment and/or personnel could interfere with airport operations. Also, where pipelines cross under runway or taxiway areas, there is the potential for below-ground construction activities to affect or be affected by airport operations and safety. Impacts would be significant. Implementation of MM HAZ-5 would reduce potential impacts to less-than-significant levels.

The only permanent aboveground elements of the proposed program would be manhole covers, valve boxes, and electrical panels. If these aboveground elements were located in a runway protection zone, they could interfere with airport operations and safety. Impacts would be significant. Implementation of MM HAZ-6 would reduce potential impacts to less-than-significant levels.

Mitigation Measures

MM HAZ-5 Construction Activities within Runway Protection Zones

During the design phase for any projects in the program within the runway protection zones for Long Beach Municipal Airport or Van Nuys Airport (even where all construction would be accessed from outside the runway protection zones), project engineers will coordinate with the management of Long Beach Municipal Airport (Second Lower Feeder) or Van Nuys Airport (Sepulveda Feeder), as appropriate, to determine the methods of construction that will be necessary to avoid impacts on airport operations and safety. All operations and safety

requirements of the airports will be incorporated into the construction design packages. All necessary requirements will be implemented during construction.

MM HAZ-6 Aboveground Elements in Runway Protection Zones

To avoid airport operations and safety impacts, no permanent aboveground elements of the proposed program, such as manhole covers, valve boxes, or electrical panels, will be located within runway protection zones (at Long Beach Municipal Airport for the Second Lower Feeder and Van Nuys Airport for the Sepulveda Feeder) without prior approval of the management of the appropriate airport.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM HAZ-5 and MM HAZ-6 would reduce these impacts so that residual impacts would be less than significant.

Threshold HAZ-F: For a Project within the Vicinity of a Private Airstrip, Result in a Safety Hazard for People Residing or Working in the Project Area

No private airstrips are in the vicinity of any of the pipelines; therefore, the project would not result in safety hazards to workers involved in the rehabilitation activities associated with the proposed program.

Mitigation Measures

There would be no impacts for the proposed program.

Residual Impacts

No impacts would result from the proposed program, and no mitigation is necessary. Therefore, there would be no residual impacts for the proposed program.

Threshold HAZ-G: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

As discussed in Section 4.8.2, *Existing Conditions*, in some cases the proposed program pipelines are within street rights-of-way that serve as emergency response routes and/or evacuation routes. If excavation were to take place in roadways that serve as emergency/excavation routes and capacity of the affected streets was reduced during construction (such as reducing four lanes to two lanes), the ability of these streets to serve as emergency/evacuation routes may be impaired. This would be a significant impact during construction. Implementation of MM HAZ-7 would reduce these impacts to less-than-significant levels.

Once rehabilitation is complete, contractors would be required to return the street to pre-construction conditions. Therefore, there would be no long-term impacts on emergency response or evacuation.

Mitigation Measures

MM HAZ-7: Maintaining Emergency/Evacuation Routes

To avoid impacts on emergency/evacuation routes, excavation sites will typically not be placed in roadways that serve as designated emergency/evacuation routes. If such streets cannot be avoided, the contractor will work with the local jurisdiction responsible for the emergency/evacuation routes to maintain adequate capacity. This will be accomplished by utilizing unused portions of the street right-of-way for travel lanes (such as temporarily prohibiting parking, restriping medians or parkway space, or detouring bike lanes) or by detouring the emergency/evacuation route to other roadways during construction. If detours are necessary, appropriate notification of emergency personnel and temporary signage will be used to direct emergency/evacuation traffic during construction.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM HAZ-7 would reduce these impacts so that residual impacts would be less than significant.

Threshold HAZ-H: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires, Including Areas where Wildlands Are Adjacent to Urbanized Areas or where Residences Are Intermixed with Wildlands

Implementation of the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. As discussed in Section 4.8.2, *Existing Conditions*, portions of the Allen-McColloch Pipeline, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder exist within CAL FIRE Very High Fire Hazard Severity Zones.

Although fire can be a significant threat in in these areas, people or structures would not be exposed to significant risk of loss, injury, or death due to the proposed program. The proposed program would not include habitable structures and would only bring a small number of people (construction workers) into the fire hazard severity zones during rehabilitation. Therefore, impacts related to exposing people or structures to risks involving wildland fires would be less than significant. (See Threshold HAZ-G regarding emergency/evacuation routes.)

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

4.8.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of

local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

The proposed program would not have a cumulatively considerable contribution to hazards and hazardous materials impacts. If hazardous materials release were to occur as a result of proposed program implementation, impacts would be site specific (and typically in small, localized quantities) and would not combine with other hazardous material impacts in the surrounding area. In addition, construction activities would be required to follow existing regulations, environmental commitments, and mitigation measures, thus reducing potential impacts on the surrounding environment and negating potential cumulative impacts. Therefore, impacts would not be cumulatively considerable.

Section 4.9
Hydrology and Water Quality

4.9.1 Introduction

This section describes the existing conditions for hydrology and water quality, the regulatory framework associated with hydrology and water quality, the impacts on hydrology and water quality that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant hydrology and water quality impacts.

4.9.2 Existing Conditions

The study area for hydrology and water quality is the pipeline easements or rights-of-way and 0.25 mile on either side of the alignments (a half-mile corridor).

4.9.2.1 Allen-McColloch Pipeline

There are 11 watersheds in Orange County that are grouped by similar characteristics into three Watershed Management Areas: North, Central, and South. The Allen-McColloch Pipeline is located across the North, Central, and South Watershed Management Areas.

The North Watershed Management Area encompasses 376 square miles in northern Orange County and is bordered by Los Angeles County to the north and west and San Bernardino County to the east (OCPW 2011). The three watersheds in this area are the San Gabriel River/Coyote Creek, Anaheim Bay-Huntington Harbour, and the Santa Ana River watersheds. All three watersheds lie within the Santa Ana Regional Water Quality Control Board (RWQCB) boundary.

The Central Watershed Management Area encompasses the entire Newport Bay watershed and the northern portion of the adjacent Newport Coastal Streams watershed and encompasses an area of approximately 154 square miles with overland flows draining toward the Pacific Coast into Newport Bay. The planning area, approximately 40 miles south of Los Angeles and 70 miles north of San Diego, is highly urbanized and is within the jurisdiction of the Santa Ana RWQCB.

The South Watershed Management Area includes the area that encompasses the San Juan Hydrologic Unit. The San Juan Hydrologic Unit is a collection of coastal watersheds that covers 496 square miles in San Diego, Orange, and Riverside counties. The San Juan Hydrologic Unit is naturally divided by major water bodies and represents an important water resource in one of the most arid regions of the nation. It comprises seven major watersheds: (1) Newport Coast, (2) Laguna Coastal Streams, (3) Aliso Creek, (4) Dana Point Coastal Streams (Salt Creek), (5) San Juan Creek, (6) San Clemente Coastal Streams, and (7) San Mateo Creek.

Surface Water Hydrology and Watersheds

The portion of the Allen-McColloch Pipeline in the North Watershed Management Area is within the Santa Ana River watershed (OCPW 2009d). The Santa Ana River watershed is the largest in Orange

County, covering approximately 210 square miles. The river begins almost 75 miles away in the San Bernardino Mountains, crossing central Orange County before emptying into the Pacific Ocean. The river serves as the main tributary to the watershed, with Santiago Creek being the largest tributary within Orange County.

The portion of the Allen-McColloch Pipeline in the Central Watershed Management Area is within the Newport Bay watershed (OCPW 2009b). The Newport Bay watershed drains approximately 152 square miles to the Pacific Ocean within southern Orange County. The watershed encompasses all waters draining to Newport Bay. The principal watercourse of the Newport Bay watershed is San Diego Creek. The main tributary to San Diego Creek is Peters Canyon Wash; smaller tributaries include Serrano Creek, Borrego Canyon Wash, Agua Chinon Wash, Bee Canyon Wash, Sand Canyon Wash, and Bonita Canyon Creek.

The portion of the Allen-McColloch Pipeline in the South Watershed Management Area is within the Aliso Creek and San Juan Creek watersheds (OCPW 2009a, 2009c). Aliso Creek is the main water body in the Aliso Creek watershed; it is a long, narrow coastal canyon with headwaters in the Cleveland National Forest. The Aliso Creek watershed is approximately 35 square miles. The creek ultimately discharges into the Pacific Ocean at Aliso Beach. The Aliso Creek watershed is mainly an urbanized area, with the exception of the Cleveland National Forest in the upper watershed and the Aliso Wood Canyon Regional Park in the lower watershed. The San Juan Creek watershed covers approximately 160 square miles; its main tributary, San Juan Creek, originates in the Santa Ana Mountains district of the Cleveland National Forest in the easternmost part of Orange County. The Arroyo Trabuco and Oso Creek are smaller tributaries.

Local Surface Water Hydrology

The northern portion of the Allen-McColloch Pipeline is situated on pervious surfaces associated with a golf course and natural lands. The alignment then follows street rights-of-way and developed areas (impervious surface) until crossing the Santa Ana River (Figure 4.9-1). The alignment crosses the Santa Ana River Reach 2 and adjacent recharge basins near Imperial Highway. The Santa Ana River Reach 2 and adjacent recharge basins in this location are natural soft bottom (pervious surface) to allow for recharge from the river. The alignment then follows street rights-of-way and developed areas (impervious surface), with the exception of few pervious hillside areas, until reaching Santiago Creek (Figure 4.9-1). The alignment crosses Santiago Creek Reach 1 near the intersection of Santiago Canyon Road and Cannon Street. Santiago Creek in this location is natural soft bottom (pervious surface) to allow for recharge from the creek. The remainder of the alignment typically follows street rights-of-way and developed areas (impervious surface).

The central portion of the Allen-McColloch Pipeline alignment is primarily situated on pervious surfaces associated with Peters Canyon Reservoir and agricultural and undeveloped lands until reaching the city of Lake Forest. Several washes are crossed through the agricultural and undeveloped lands including Borrego Canyon Wash, Serrano Creek, Aliso Creek, and smaller unnamed washes (Figure 4.9-1). These washes are natural soft bottom (pervious surface) where crossed by the Allen-McColloch Pipeline. The alignment then generally follows street rights-of-way and developed areas (impervious surface), with the exception of a few pervious hillside areas.

The southern portion of the Allen-McColloch Pipeline is primarily situated on impervious surfaces associated with street rights-of-way and developed areas.

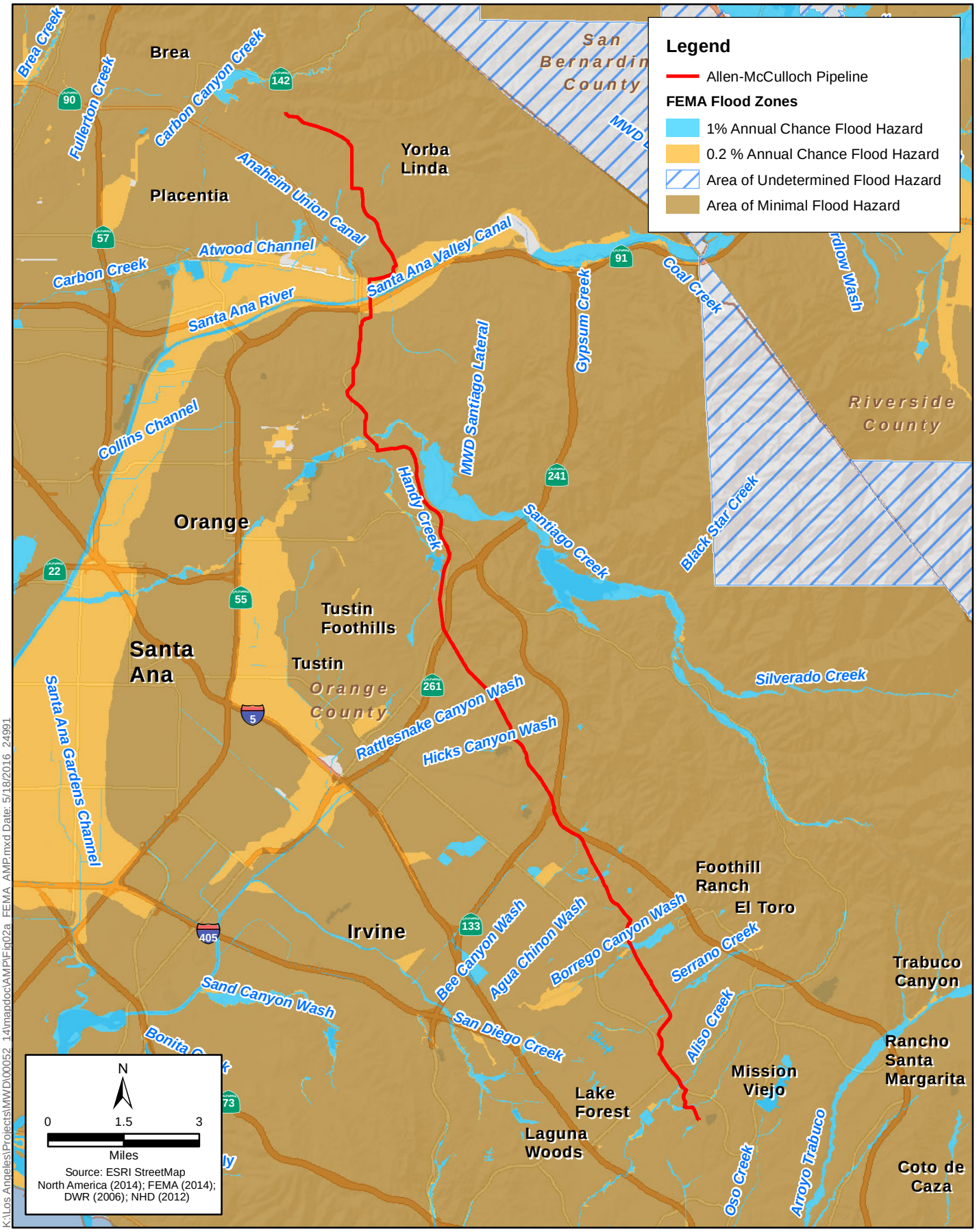


Figure 4.9-1
FEMA Flood Zones near the Allen-McColloch Pipeline
Metropolitan PCCP Program

The majority of the Allen-McColloch Pipeline alignment is within an area of minimal flood hazard (Figure 4.9-1). Where the alignment crosses the above-mentioned water bodies, the flood zone risk elevates to the 1 and 2 percent annual chance flood hazard.

Groundwater Hydrology

The northern portion of the Allen-McColloch Pipeline is situated over the Orange County groundwater basin (DWR 2013). The Orange County Basin is bounded by Coyote Hills and Chino Hills on the north, the Santa Ana Mountains on the northeast, the San Joaquin Hills on the south, and the Pacific Ocean and the Newport-Inglewood fault zone on the southwest (DWR 2004e). The Orange County Basin is separated from the Central Basin along Coyote Creek and the county line, although there is no physical barrier between the two basins. The Newport-Inglewood fault zone acts as a barrier to flow from the ocean along most of its length in Orange County except at ancient river-crossing gaps, most notably the Alamitos Gap along the Los Angeles County line and the Talbert Gap in Huntington Beach and Costa Mesa.

Orange County Water District (OCWD) currently owns and operates more than 1,000 acres of groundwater recharge ponds in and adjacent to the Santa Ana River and Santiago Creek. Water sources used for recharge include Santa Ana River baseflow and stormflow, Santiago Creek flows, imported water from Metropolitan and from the upper Santa Ana River watershed, and previously treated water from OCWD.

Water Quality

Under Section 303(d) of the Clean Water Act (CWA), the State Water Resources Control Board (SWRCB) is required to develop a list of impaired water bodies that do not meet water quality standards after the minimum technology-based effluent limitations have been implemented for point sources.[1] Lists are to be priority ranked for development of a total maximum daily load (TMDL). A TMDL is a calculation of the total maximum amount of a pollutant that a water body can receive on a daily basis and still safely meet water quality standards, established by the U.S. Environmental Protection Agency (EPA). The 303(d) listed impairments of receiving waters within the Allen-McColloch Pipeline study area and downstream receiving waters are shown in Table 4.9-1.

[1] A *point source* is an identifiable source of pollution where pollutants are discharged, such as a pipe, ditch, ship, factory, or sewage treatment plant. *Non-point sources* are sources of pollution that are widely distributed in the environment, such as land runoff and precipitation.

Table 4.9-1. Overview of Water Quality Impairments in the Allen-McColloch Pipeline Study Area

Water Body	Listed Impairments	Potential Sources	Estimated EPA TMDL Completion
Santa Ana River Reach 2	Indicator Bacteria	Source Unknown	2021
Borrego Creek	Ammonia (unionized) Indicator Bacteria	Other Urban Runoff Unknown Nonpoint Source	2021
Serrano Creek	Ammonia (unionized) Indicator Bacteria pH	Source Unknown	2021
Aliso Creek	Indicator Bacteria Phosphorus Selenium Total Nitrogen as N Toxicity	Nonpoint Source Natural Sources Unknown Nonpoint Source Natural Sources Source Unknown	EPA TMDL approval 2005 2019 2021 2019 2019
Source: SWRCB 2011.			

Seiche, Tsunami, and Mudflow

A seiche is a temporary disturbance or oscillation in water levels of a water body, most often caused by earthquakes. No large bodies of permanently stored water are located such that they would affect the Allen-McColloch Pipeline study area in the event of earthquake-induced failure or seiches. The Rattlesnake Reservoir is approximately 0.1 mile to the west of the pipeline.

A tsunami is a series of traveling ocean waves of great length and long period, which are generated by disturbances associated with earthquakes in oceanic and coastal regions. The Allen-McColloch Pipeline study area is over 8 miles from the Pacific Ocean at its closest point along the alignment. As a result, the study area is not subject to inundation from tsunami and is not identified by the California Department of Conservation as a designated tsunami area.

In general, the northern and southern ends of the Allen-McColloch Pipeline are located in relatively flat areas that are susceptible to mudflows. The middle segment of the alignment is within a hilly area, but the majority of the area is planted with agricultural crops and not subject to mudflows.

4.9.2.2 Calabasas Feeder

The Calabasas Feeder is within the Los Angeles River watershed.

Surface Water Hydrology and Watersheds

The Los Angeles River watershed covers a land area of 834 square miles (DPW 2007c). The eastern portion spans from the Santa Monica Mountains to the Simi Hills and the western portion spans from the Santa Susana Mountains to the San Gabriel Mountains. The watershed encompasses and is shaped by the path of the Los Angeles River, which flows from its headwaters in the mountains eastward to the northern corner of Griffith Park, where the channel turns southward through the Glendale Narrows before it flows across the coastal plain and into San Pedro Bay near Long Beach. Much of the watershed is highly developed, with residential (36 percent), open space and

agricultural (44 percent), and commercial/industrial/transportation (20 percent) being the predominant land uses. Overall, the watershed is approximately one-third impervious. Most portions of the Los Angeles River are completely channelized for flood protection, as are many of its tributaries including Compton Creek, Rio Hondo, Arroyo Seco, and Tujunga Wash. They are fed by a complex underground network of storm drains and a surface network of tributaries. Several dams and reservoirs have been constructed within the watershed for flood control and groundwater recharge.

Local Surface Water Hydrology

The majority of the Calabasas Feeder alignment is situated on impervious surfaces associated with street rights-of-way and developed areas. However, the alignment does cross over several concrete creeks, including Santa Susana Creek, Chatsworth Creek, Bell Creek, and Calabasas Creek (Figure 4.9-2). The alignment crosses over Santa Susana Creek near the intersection of Nordhoff Street and Owensmouth Avenue; the concrete channel is below street level. The alignment crosses over Chatsworth Creek near the intersection of Fallbrook Avenue and Saticoy Street; the concrete channel is below street level. The alignment then follows street rights-of-way and developed areas (impervious surface) until it crosses over Bell Creek near the intersection of Fallbrook Avenue and Sherman Way; the concrete channel is below street level. The alignment then follows rights-of-way and developed areas (impervious surface) until it crosses over Calabasas Creek near the intersection of Fallbrook Avenue and E. Hatteras Way; the concrete channel is below street level.

The majority of the Calabasas Feeder study area is within an area of minimal flood hazard (Figure 4.9-2). The very southern portion of the study area is within an area of 2 percent annual chance flood.

Groundwater Hydrology

The Calabasas Feeder study area is in the San Fernando Groundwater Basin (DWR 2013). The San Fernando Groundwater Basin is bounded on the northwest by the Santa Susana Mountains, on northeast by the San Gabriel Mountains, on the east by the San Raphael Hills, on the south by the Santa Monica Mountains, and on the west by the Simi Hills (DWR 2004d). The San Fernando Groundwater Basin underlies the upper Los Angeles River watershed and is an important source of drinking water for the cities of Los Angeles, Glendale, Burbank, San Fernando, La Cañada-Flintridge, and the unincorporated area of La Crescenta.

Recharge of the San Fernando Groundwater Basin is from a variety of sources. Spreading of imported water and runoff occurs in the Pacoima, Tujunga, and Hansen spreading grounds. Runoff contains natural streamflow from the surrounding mountains, precipitation falling on impervious areas, reclaimed wastewater, and industrial discharges. Water flowing in surface washes infiltrates, particularly in the eastern portion of the basin.

Groundwater levels in the San Fernando Groundwater Basin have undergone a general decline during recent years. Probable causes of this decline include increased urbanization and runoff leaving the basin, reduced artificial recharge, and continued groundwater extractions by the major pumping parties, the cities of Los Angeles, Burbank, and Glendale. The Upper Los Angeles River Area Watermaster is monitoring this situation and efforts to reverse this trend are underway.

Water Quality

The Los Angeles River and selected tributaries are impaired by pollutants mainly because of the watershed's large, dense population and the amount of impervious ground surface that prevents large quantities of runoff from infiltrating into the soils. The 303(d) listed impairments of receiving waters within the Calabasas Feeder study area and downstream receiving waters are shown in Table 4.9-2.

Table 4.9-2. Overview of Water Quality Impairments in the Calabasas Feeder Study Area

Water Body	Listed Impairments	Potential Sources	Estimated EPA TMDL Completion
Los Angeles River Reach 6	Coliform Bacteria	Nonpoint Source	EPA TMDL approval 2015
	Selenium	Source Unknown	EPA TMDL approval 2005
Bell Creek	Coliform Bacteria	Nonpoint Source	EPA TMDL approval 2009
Source: SWRCB 2011.			

Seiche, Tsunami, and Mudflow

No large bodies of permanently stored water are located such that they would affect the site in the event of earthquake-induced failure or seiches. The Chatsworth Reservoir is a dry reservoir approximately 0.3 mile to the west of the Calabasas Feeder; the reservoir was drained in 1972 and taken out of service due to safety concerns.

The Calabasas Feeder study area is over 8 miles from the Pacific Ocean at its closest point along the alignment. As a result, the study area is not subject to inundation from tsunami and is not identified by the California Department of Conservation as a designated tsunami area.

In general, the Calabasas Feeder is in relatively flat areas that are not susceptible to mudflows.

4.9.2.3 Rialto Pipeline

The Rialto Pipeline is within the counties of San Bernardino and Los Angeles. Within San Bernardino County, the Rialto Pipeline is situated across three watersheds: the Santa Ana River, Cucamonga Creek, and San Antonio watersheds. Within Los Angeles County, the Rialto Pipeline is within the San Gabriel River watershed.

Surface Water Hydrology and Watersheds

The Santa Ana River watershed is the largest stream system in Southern California. The headwaters originate in the San Bernardino Mountains and are discharged to the Pacific Ocean approximately 100 miles to the southwest in Orange County. The Santa Ana River watershed covers over 2,650 square miles of widely varying forested, rural, and urban terrain and covers the more populated urban areas of San Bernardino, Riverside, and Orange counties, as well as a lesser portion of Los Angeles County. The Upper Santa Ana River watershed consists of many tributaries flowing to the Santa Ana River. These tributaries exhibit a range of development from natural streams to concrete-lined channels. Many of the streams flow through heavily developed areas.

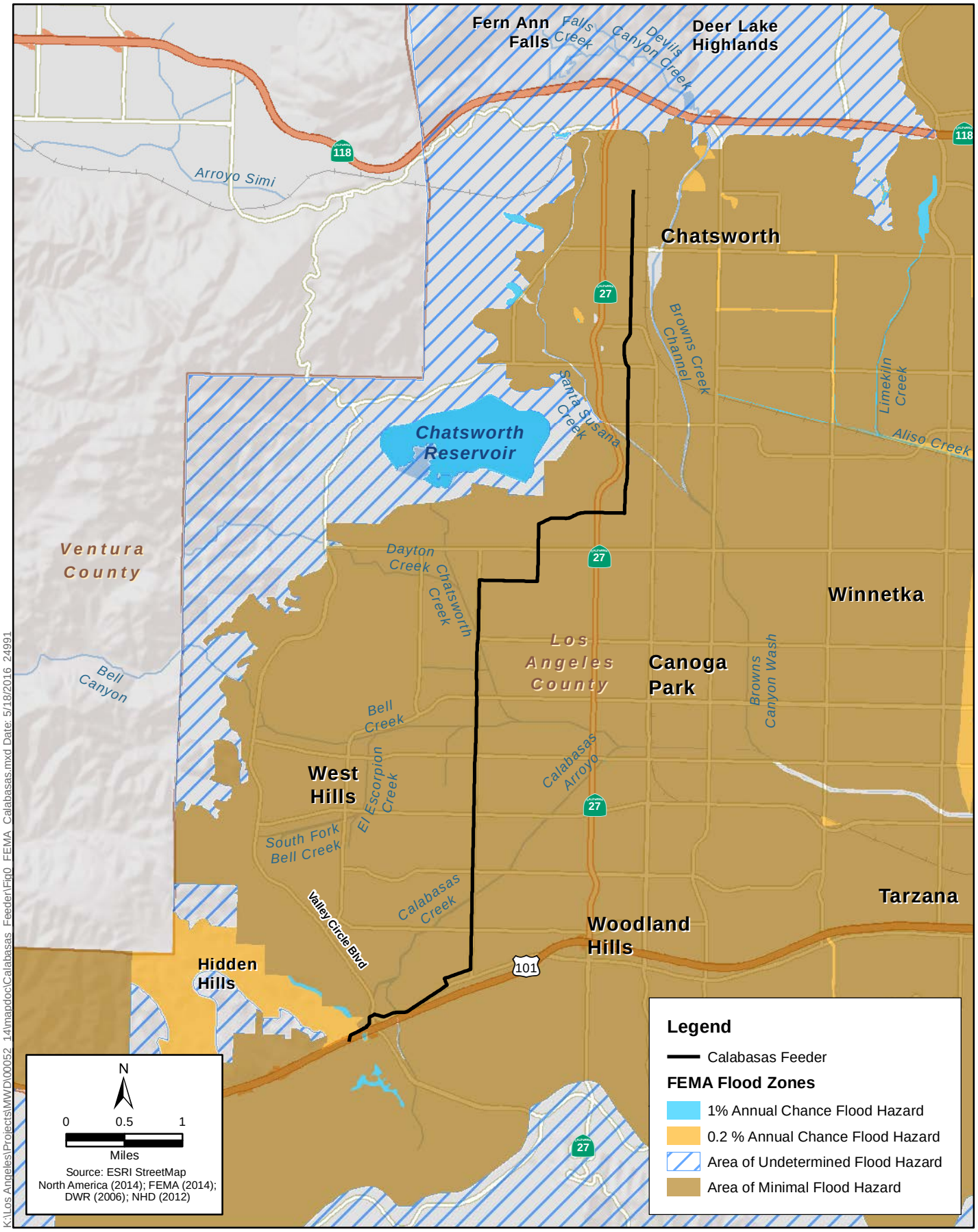


Figure 4.9-2
FEMA Flood Zones near the Calabasas Feeder
Metropolitan PCCP Program

The Cucamonga Creek watershed is approximately 92 square miles (Santa Ana RWQCB 2012; San Bernardino County 2015). The watershed includes portions of the cities of Chino, Ontario, Rancho Cucamonga, and Upland and sections of unincorporated Riverside and San Bernardino counties. The main water bodies in the watershed are Santa Ana River Reach 3 and Cucamonga Creek. Lower Deer Creek, West Cucamonga Channel, Upper Deer Canyon Wash, and Demens Creek are the main tributaries to Cucamonga Creek. There are numerous local storm drain outfalls discharging runoff into the channel and its tributaries.

The San Antonio watershed is at the western boundary of San Bernardino County and includes portions of the counties of San Bernardino, Los Angeles, and Riverside, all of the city of Montclair, and portions of the cities of Pomona, Claremont, Upland, Ontario, Chino, and Chino Hills (San Bernardino County 2015). The main water bodies in the watershed are Santa Ana River Reach 3, San Antonio Channel, and Chino Creek. Little Chino Creek, English Canyon, Carbon Canyon Creek, Los Serranos Channel, and Chino storm drain are the main tributaries.

The San Gabriel River watershed is in the eastern portion of Los Angeles County (DPW 2007d). It is bound by the San Gabriel Mountains to the north, most of San Bernardino County/Orange County to the east, the division of the Los Angeles River from the San Gabriel River to the west, and the Pacific Ocean to the south. The watershed drains into the San Gabriel River from the San Gabriel Mountains, flowing 58 miles south until its confluence with the Pacific Ocean. Major tributaries to the San Gabriel River include Walnut Creek, San Jose Creek, Coyote Creek, and numerous storm drains entering from the 19 cities that the San Gabriel River passes through. Channel flows pass through different sections in the San Gabriel River, diverting from the riverbed into four different spreading grounds, held behind several rubber dams for controlled flow and groundwater recharge, and controlled through 10 miles of concrete channel bottom from below Whittier Narrows Dam to past Coyote Creek.

Local Surface Water Hydrology

The portion of the Rialto Pipeline study area in the Santa Ana River watershed is situated along both pervious and impervious areas. The impervious areas are generally associated with residential and industrial land uses and the pervious areas are drainage features and undeveloped lands. Beginning from the eastern end of the Rialto Pipeline, the alignment follows street rights-of-way through residential and industrial areas (impervious surface) before crossing Cable Creek, Cajon Wash, and Lytle Creek (Figure 4.9-3). Cable Creek, Cajon Wash, and Lytle Creek in this location are natural soft bottom (pervious surface) to allow for recharge. The alignment then follows street rights-of-way and residential and industrial areas (impervious surface) before crossing East Etiwanda Creek west of Interstate 15 (I-15), followed by Day Creek and Deer Creek (Canyon Wash) crossings. East Etiwanda Creek is concrete lined (impervious surface) through the study area. Day Creek and Deer Canyon Wash are both natural and concrete lined. The alignment then continues to follow street rights-of-way and developed (impervious surface) until crossing Cucamonga Creek and then San Antonio Creek. Cucamonga Creek and San Antonio Creek are concrete lined (impervious surface) through the study area. The remainder of the alignment is within Los Angeles County and typically follows street rights-of-way and developed areas (impervious surface), but does cross Marshall Creek and San Dimas Wash, which are both natural soft bottom (pervious surface).

A large portion of the Rialto Pipeline alignment is within an area of minimal flood hazard (Figure 4.9-3). Where the alignment crosses the above-mentioned water bodies, the flood zone risk elevates

to the 1 and 2 percent annual chance flood hazard. Portions of the alignment are in areas of undetermined flood hazards.

Groundwater Hydrology

The Rialto Pipeline study area is in the Upper Santa Ana Valley groundwater basins in San Bernardino County and includes Bunker Hill, Rialto, Chino, and Cucamonga subbasins (SBVMWD 2015; DWR 2013).

The Bunker Hill Subbasin consists of the alluvial materials that underlie the San Bernardino Valley (DWR 2004i). This subbasin is bounded by contact with consolidated rocks of the San Gabriel Mountains, San Bernardino Mountains, and Crafton Hills, and by several faults. The southern boundary is the Banning fault, the eastern boundary is the Redlands fault, the San Andreas fault is roughly the northern boundary, the Glen Helen fault abuts the northwestern boundary, and the southwestern boundary is the San Jacinto fault. The Santa Ana River, Mill Creek, and Lytle Creek are the main tributary streams in the subbasin. Recharge to the Bunker Hill Subbasin historically has resulted from infiltration of runoff from the San Gabriel and San Bernardino Mountains. The Santa Ana River, Mill Creek, and Lytle Creek contribute more than 60 percent of the total recharge to the groundwater system. Lesser contributors include Cajon Creek, San Timoteo Creek, and most of the creeks flowing southward out of the San Bernardino Mountains. The subbasin is also replenished by deep percolation of water from precipitation and resulting runoff, percolation from delivered water, and water spread in streambeds and spreading grounds.

The Rialto-Colton Subbasin underlies a portion of the upper Santa Ana Valley in southwestern San Bernardino County and northwestern Riverside County (DWR 2004h). This subbasin is bounded by the San Gabriel Mountains on the north, the San Jacinto fault on the east, the Box Spring Mountains on the south, and the Rialto-Colton fault on the west. Lytle Creek drains this part of the valley southeastward to its confluence with the Santa Ana River in the southern part of the subbasin. The principal recharge areas are Lytle Creek in the northwestern part of the subbasin, Reche Canyon in the southeastern part, and the Santa Ana River in the south-central part. Lesser amounts of recharge are provided by percolation of precipitation to the valley floor, underflow, and irrigation and septic returns.

The Chino Subbasin is bounded on the east by the Rialto-Colton fault and on the southeast by the contact with impermeable rocks forming the Jurupa Mountains and low divides connecting the exposures (DWR 2004f). The subbasin is bounded on the south by contact with impermeable rocks of the Puente Hills and by the Chino fault, on the northwest by the San Jose fault, and on the north by impermeable rocks of the San Gabriel Mountains and by the Cucamonga fault. San Antonio Creek and Cucamonga Creek drain the surface of the subbasin southward to join the Santa Ana River. Groundwater recharge to the subbasin occurs by direct infiltration or precipitation on the subbasin floor, by infiltration of surface flow, and by underflow of groundwater from adjacent basins. The five recharge facilities in the subbasin are Deer Creek, Day Creek, East Etiwanda, San Sevaine, and Victoria.

The Cucamonga Subbasin underlies the northern part of upper Santa Ana Valley (DWR 2004g). It is bounded on the north by contact of alluvium with the San Gabriel Mountains and on the west, east, and south by the Red Hill fault. This portion of the upper Santa Ana Valley is drained by Cucamonga and Deer Creeks to the Santa Ana River. Recharge to the subbasin is provided by infiltration of stream flow, percolation of rainfall to the valley floor, underflow from the San Gabriel Mountains,

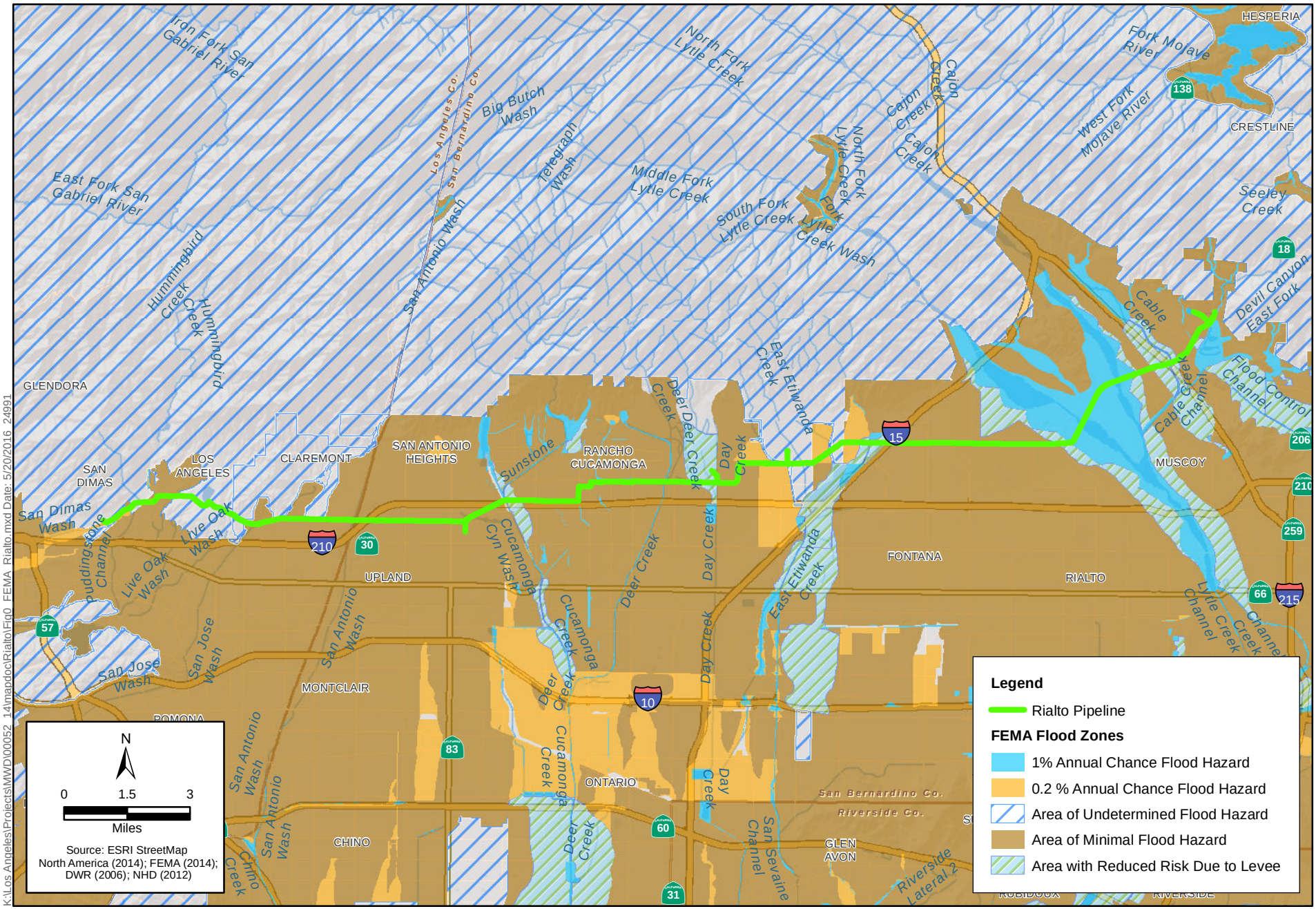


Figure 4.9-3
FEMA Flood Zones near the Rialto Pipeline
Metropolitan PCCP Program

and return irrigation flow. Additional recharge to the subbasin is from storm flow at spreading grounds along Cucamonga Creek and near Red Hill and Alta Loma.

Water Quality

The 303(d) listed impairments of receiving waters within the Rialto Pipeline study area and downstream receiving waters are shown in Table 4.9-3.

Table 4.9-3. Overview of Water Quality Impairments in the Rialto Pipeline Study Area

Water Body	Listed Impairments	Potential Sources	Estimated EPA TMDL Completion
Lytle Creek	Pathogens	Nonpoint Source	2019
San Antonio Creek	pH	Nonpoint Source	2021
Source: SWRCB 2011.			

Seiche, Tsunami, and Mudflow

No large bodies of permanently stored water are situated such that they would affect the Rialto Pipeline study area in the event of earthquake-induced failure or seiches. A portion of the Rialto Pipeline alignment (on Banyan Street between Haven Avenue and Archibald Avenue) is within a dam inundation area (San Bernardino County 2010). However, this area is considered a recharge basin and is not always filled with water that could result in inundation.

The Rialto Pipeline study area is over 30 miles from the Pacific Ocean at its closest point along the alignment. As a result, the study area is not subject to inundation from tsunami and is not identified by the California Department of Conservation as a designated tsunami area.

In general, the Rialto Pipeline alignment is in relatively flat areas that are not susceptible to mudflows. A portion of the western alignment is within the foothills; however, the majority of the area is naturally vegetated and not subject to mudflows.

4.9.2.4 Second Lower Feeder

The Second Lower Feeder is within Orange and Los Angeles counties. Within Orange County, the Second Lower Feeder is within the North Watershed Management Area. Within Los Angeles County, the pipeline is within the San Gabriel River watershed.

The North Watershed Management Area encompasses 376 square miles in northern Orange County and is bordered by Los Angeles County to the north and west and by San Bernardino County to the east. The three watersheds in this area are the Santa Ana River, San Gabriel River/Coyote Creek, and Anaheim Bay-Huntington Harbour. All three watersheds lie within the Santa Ana RWQCB boundary.

Surface Water Hydrology and Watersheds

The Santa Ana River watershed is the largest in Orange County, covering approximately 210 square miles. The river begins almost 75 miles away in the San Bernardino Mountains, crossing central Orange County before emptying into the Pacific Ocean. The river serves as the main tributary to the watershed with Santiago Creek being the largest tributary within Orange County.

The Lower San Gabriel River/Coyote Creek watershed is approximately 86 square miles within the northwestern corner of Orange County and includes parts of the cities of Anaheim, Brea, Buena Park, Cypress, Fullerton, La Habra, La Palma, Los Alamitos, Placentia, and Seal Beach. The primary surface water body within the watershed is Coyote Creek, which flows from Los Angeles County to the San Gabriel River. Carbon Creek flows from the foothills to the San Gabriel River and has six retarding basins. Other creeks/channels include Brea Creek, Moody Creek, Fullerton Creek, and Los Alamitos Channel.

The Anaheim-Bay Huntington Harbour watershed is approximately 80 square miles south and includes portions of the cities of Anaheim, Cypress, Fountain Valley, Garden Grove, Huntington Beach, Los Alamitos, Santa Ana, Seal Beach, Stanton, and Westminster. Surface water systems provide drainage within this watershed, including the Bolsa Chica Channel that provides drainage to Anaheim Bay-Huntington Harbour, and the East Garden Grove-Wintersburg Channel that carries flow to Bolsa Bay and ultimately to Huntington Harbour. Westminster Channel connects to the Bolsa Chica Channel and Sunset Channel.

The San Gabriel River watershed is in the eastern portion of Los Angeles County. (See description in Section 4.9.2.3, *Rialto Pipeline*.)

Local Surface Water Hydrology

The portion of the Second Lower Feeder alignment in the North Watershed Management Area is situated along both pervious and impervious areas. The impervious areas are generally associated with residential and industrial land uses and the pervious areas are drainage features and undeveloped lands. Beginning from the eastern end of the Second Lower Feeder, the alignment generally follows street rights-of-way through residential, commercial, and industrial areas (impervious surface) before crossing the Anaheim Union Canal (Figure 4.9-4). Anaheim Union Canal in this location is concrete lined (impervious surface). The alignment then follows street rights-of-way and developed areas (impervious surface) before crossing Carbon Creek west of Anaheim Lake. Carbon Creek is riprap lined (pervious surface) through the study area. The alignment then continues to follow street rights-of-way and developed (impervious surface) until crossing Carbon Canyon Creek near the intersection of Ball Road and Valley View Street. Carbon Canyon Creek has concrete walls with riprap lining (pervious surface) through the study area. The alignment then continues to follow street rights-of-way and developed areas (impervious surface) until crossing Coyote Creek near the Los Angeles County line. Coyote Creek is concrete lined (impervious surface) through the study area. The remainder of the alignment is within Los Angeles County and follows street rights-of-way and developed areas (impervious surface), and crosses the Artesia-Norwalk Drain, San Gabriel River Reach 1, an unnamed drainage, Los Angeles River Reach 1, and Dominguez Channel Estuary, which are all concrete-lined drainages (impervious surface).

A large portion of the Second Lower Feeder alignment is within an area of minimal flood hazard (Figure 4.9-4). Where the alignment crosses the above-mentioned water bodies, the flood zone risk elevates to the 1 and 2 percent annual chance flood hazard.

Groundwater Hydrology

The Second Lower Feeder study area is in the Coastal Plain of Orange County Groundwater Basin and the Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin, in Los Angeles County (DWR 2013).

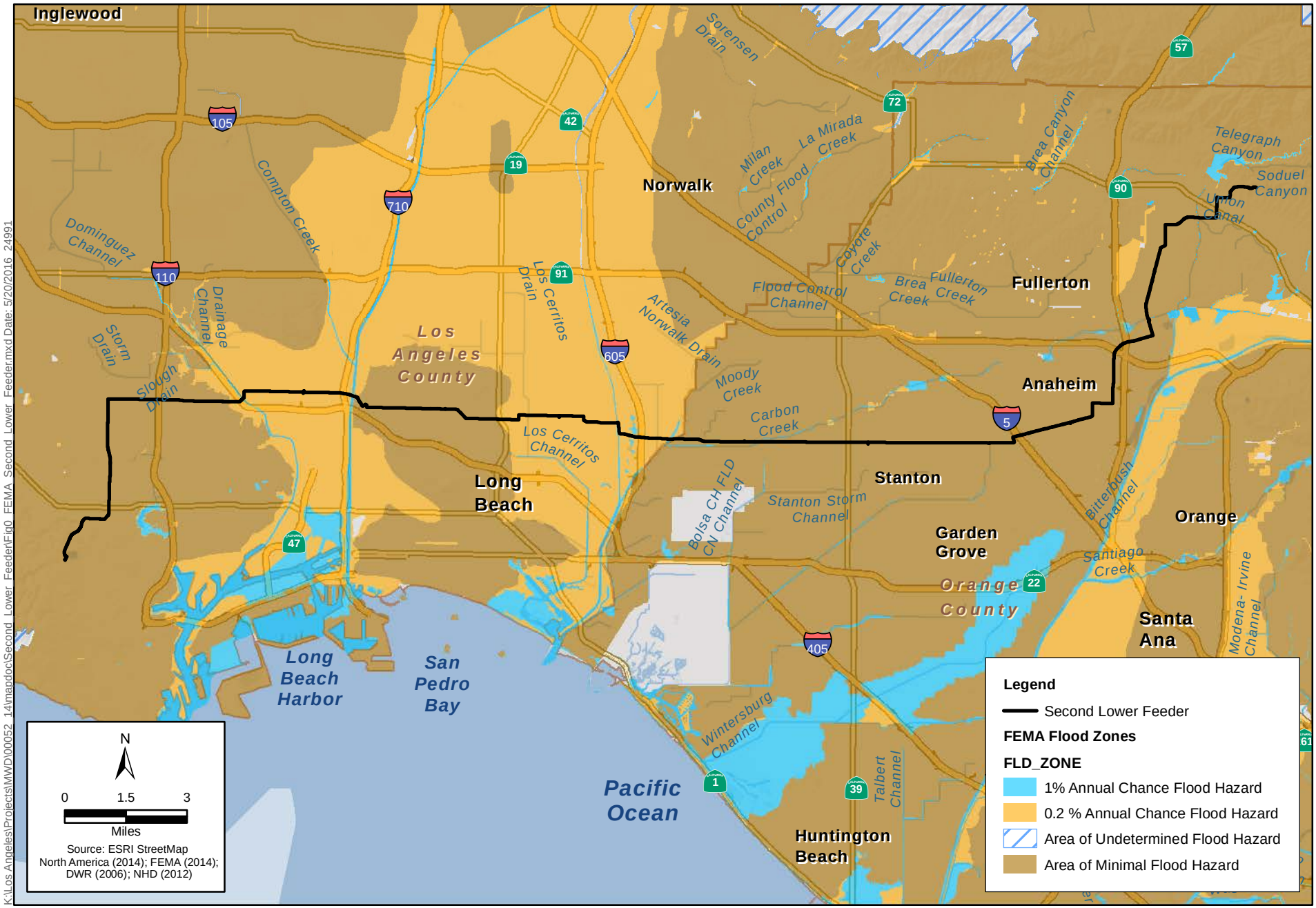


Figure 4.9-4
FEMA Flood Zones near the Second Lower Feeder Pipeline
Metropolitan PCCP Program

The Coastal Plain of Orange County Groundwater Basin underlies northern and central Orange County and covers an area of approximately 350 square miles, bordered by the Coyote Hills and Chino Hills to the north, the Santa Ana Mountains to the northeast, and the Pacific Ocean to the southwest (OCWD 2015a). The basin boundary extends to the Orange County-Los Angeles County line to the northwest, where groundwater flow is unrestricted across the county line into the Coastal Plain of Los Angeles Groundwater Basin. The groundwater basin is divided into three major aquifer systems—the Shallow, Principal, and Deep—which are hydraulically connected, as groundwater is able to flow between them via leakage through the intervening aquitards or discontinuities in the aquitards (OCWD 2015b). Recharge to the basin is derived from percolation of Santa Ana River flow, infiltration of precipitation, and injection into wells. The Santa Ana River flow contains natural flow, reclaimed water, and imported water that is spread in the basin forebay.

The Central Subbasin occupies a large portion of the southeastern part of the Coastal Plain of Los Angeles Groundwater Basin (DWR 2004c). This subbasin is commonly referred to as the "Central Basin" and is bounded on the north by a surface divide called the La Brea high, and on the northeast and east by emergent, less permeable Tertiary rocks of the Elysian, Repetto, Merced, and Puente Hills. The southeastern boundary between the Central Basin and Coastal Plain of Orange County Groundwater Basin roughly follows Coyote Creek, which is a regional drainage province boundary. The southwestern boundary is formed by the Newport Inglewood fault system and the associated folded rocks of the Newport Inglewood uplift. The Los Angeles and San Gabriel rivers drain inland basins and pass across the surface of the Central Basin on their way to the Pacific Ocean. Groundwater enters the Central Basin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water, and replenishes the aquifers dominantly in the forebay areas where permeable sediments are exposed at ground surface. Natural replenishment of the subbasin's groundwater supply is largely from surface inflow through Whittier Narrows (and some underflow) from the San Gabriel Valley. Percolation into the Los Angeles Forebay Area is restricted due to paving and development of the surface of the forebay. Imported water purchased from Metropolitan and recycled water from the Whittier and San Jose treatment plants are used for artificial recharge in the Montebello Forebay at the Rio Hondo and San Gabriel River spreading grounds.

Water Quality

The 303(d) listed impairments of receiving waters within the Second Lower Feeder study area and downstream receiving waters are shown in Table 4.9-4.

Table 4.9-4. Overview of Water Quality Impairments in the Second Lower Feeder Study Area

Water Body	Listed Impairments	Potential Sources	Estimated EPA TMDL Completion
Coyote Creek	Ammonia	Point Source	2019
	Dissolved Copper	Source Unknown	EPA TMDL approval 2007
	Diazinon	Source Unknown	2019
	Indicator Bacteria	Source Unknown	2009
	Lead	Major Municipal Point Source-wet weather discharge	EPA TMDL approval 2007
	pH	Source Unknown	2019

Water Body	Listed Impairments	Potential Sources	Estimated EPA TMDL Completion
	Toxicity	Point Source	2008
San Gabriel River Reach 1	Coliform Bacteria	Source Unknown	2019
	pH	Source Unknown	2009
Los Angeles River Reach 1	Ammonia	Point/Non-Point Source	2004
	Cadmium	Source Unknown	2005
	Coliform Bacteria	Point/Non-Point Source	2009
	Dissolved Copper	Point Source	2005
	Cyanide	Source Unknown	2019
	Diazinon	Source Unknown	2019
	Lead	Point/Non-Point Source	2005
	Nutrients (algae)	Point/Non-Point Source	2004
	pH	Point/Non-Point Source	2003
	Trash	Nonpoint Source Surface Runoff Urban Runoff/Storm Sewers	2008
	Dissolved Zinc	Point/Non-Point Source	2005
Dominguez Channel Estuary	Ammonia	Point/Non-Point Source	2019
	Benthic Community Effects	Point/Non-Point Source	2019
	Benzo(a)anthracene	Source Unknown	2019
	Benzo(a)pyrene	Source Unknown	2019
	Chlordane (tissue)	Point/Non-Point Source	2019
	Chrysene	Source Unknown	2019
	Coliform Bacteria	Point/Non-Point Source	2007
	DDT (tissue and sediment)	Point/Non-Point Source	2019
	Dieldrin (tissue)	Point/Non-Point Source	2019
	Lead (tissue)	Point/Non-Point Source	2019
	PCBs	Source Unknown	2019
	Phenanthrene	Source Unknown	2019
	Pyrene	Source Unknown	2019
	Sediment Toxicity	Atmospheric Deposition Nonpoint Source Surface Runoff Urban Runoff/Storm Sewers	2021
	Zinc (sediment)	Point/Non-Point Source	2019
Source: SWRCB 2011.			

Seiche, Tsunami, and Mudflow

No large bodies of permanently stored water are located such that they would affect the Second Lower Feeder study area in the event of earthquake-induced failure or seiches.

The Second Lower Feeder study area is over 3 miles from the Pacific Ocean at its closest point along the alignment. Due to the topography and elevation of the study area, the portion of the alignment closest to the Pacific Ocean is not subject to inundation from tsunami and is not identified by the California Department of Conservation as a designated tsunami area.

In general, the Second Lower Feeder is in relatively flat areas that are not susceptible to mudflows.

4.9.2.5 Sepulveda Feeder

The Sepulveda Feeder is in Los Angeles County within the Los Angeles River, Santa Monica Bay, and Dominguez Channel watersheds.

Surface Water Hydrology and Watersheds

The Los Angeles River watershed covers a land area of 834 square miles. (See description in Section 4.9.2.2, *Calabasas Feeder*.)

The Santa Monica Bay watersheds include the North Santa Monica Bay, South Santa Monica Bay, Ballona Creek, and Marina Del Rey watersheds; the Sepulveda Feeder study area is within Ballona Creek watershed (DPW 2007a). Ballona Creek flows as an open channel for just under 10 miles from mid-Los Angeles (south of Hancock Park) through Culver City, reaching the Pacific Ocean at Playa del Rey (Marina del Rey Harbor) (City of Los Angeles 2016). The estuary portion (from Centinela Avenue to the outlet) is soft bottomed, while the remainder of the creek is lined in concrete. Ballona Creek is fed by a network of underground storm drains. Major tributaries of the creek and estuary include Centinela Creek, Sepulveda Channel, Benedict Canyon Channel, and numerous storm drains (DPW 2016a).

The Dominguez watershed is within the southern portion of Los Angeles County and encompasses approximately 133 square miles of land and water (DPW 2016b). Approximately 96 percent of the land is developed. Residential development covers nearly 40 percent of the watershed, and another 41 percent is made up by industrial, commercial, and transportation uses. Rather than being defined by the natural topography of its drainage area, the Dominguez watershed boundary is defined by a complex network of storm drains and smaller flood control channels. The Dominguez Channel extends from Los Angeles International Airport to Los Angeles Harbor.

Local Surface Water Hydrology

The portion of the Sepulveda Feeder in the Los Angeles River watershed is situated along both pervious and impervious areas. The impervious areas are generally associated with residential and industrial land uses and the pervious areas are drainage features. Beginning from the northern end of the Sepulveda Feeder, the alignment generally follows street rights-of-way through developed areas (impervious surface) before crossing Bull Creek near State Route 118 (SR-118) (Figure 4.9-5). Bull Creek in this location is channelized underground. The alignment then follows street rights-of-way and developed areas (impervious surface) before crossing an unnamed concrete flood control channel that confluences with Bull Creek; the alignment once again crosses Bull Creek approximately 0.25 mile from the confluence with the flood control channel (near the intersection of Hayvenhurst Avenue and Plummer Street). The alignment then continues to follow street rights-of-way and developed areas (impervious surface) until crossing the Los Angeles River Reach 4 near the intersection of U.S. Highway 101 (US-101) and Interstate 405 (I-405). The Los Angeles River is concrete lined (impervious surface) through the Sepulveda Feeder study area.

The portion of the Sepulveda Feeder in the Ballona Creek watershed is situated along both pervious and impervious areas. The impervious areas are generally associated with residential and transportation land uses and the pervious areas are drainage features and undeveloped land. Beginning from the northern end of the Ballona Creek watershed, the alignment generally follows I-405, developed areas, and street rights-of-way before crossing Ballona Creek. Ballona Creek in this area is concrete lined. The alignment then follows street rights-of-way and developed areas (impervious surface) before crossing Dominguez Channel. Dominguez Channel in this area is concrete lined.

A large portion of the Sepulveda Feeder alignment is within an area of minimal flood hazard (Figure 4.9-5). A small portion of the alignment is within an area of undetermined flood hazards.

Groundwater Hydrology

The Sepulveda Feeder study area is in the San Fernando Groundwater Basin (described in Section 4.9.1.2) and the Coastal Plain of Los Angeles Groundwater Basin, Santa Monica and West Coast subbasins, in Los Angeles County (DWR 2013).

The Santa Monica Subbasin underlies the northwestern part of the Central Basin (DWR 2004a). It is bounded by impermeable rocks of the Santa Monica Mountains on the north and by the Ballona escarpment, an abandoned erosional channel from the Los Angeles River, on the south. The subbasin extends from the Pacific Ocean on the west to the Inglewood fault on the east. Ballona Creek is the dominant hydrologic feature and drains surface waters to the Pacific Ocean. Replenishment of groundwater in the Santa Monica Basin is mainly by percolation of precipitation and surface runoff onto the subbasin from the Santa Monica Mountains. The Inglewood fault appears to inhibit replenishment by underflow from the Central Basin to the east, though some inflow may occur at its northern end.

The West Coast Basin is bounded on the north by the Ballona escarpment, on the east by the Newport-Inglewood fault zone, and on the south and west by the Pacific Ocean and consolidated rocks of the Palos Verdes Hills (DWR 2004b). The surface of the subbasin is crossed in the south by the Los Angeles River through the Dominguez Gap and the San Gabriel River through the Alamitos Gap, both of which then flow into San Pedro Bay. Natural replenishment of the basin's groundwater supply is largely limited to underflow from the Central Basin through and over the Newport-Inglewood fault zone. Water spread in the Central Basin percolates into aquifers there, and eventually some cross the Newport-Inglewood fault to supplement the groundwater supply in the West Coast Basin.

Water Quality

The 303(d) listed impairments of receiving waters within the Sepulveda Feeder study area and downstream receiving waters are shown in Table 4.9-5.

Table 4.9-5. Overview of Water Quality Impairments in the Sepulveda Feeder Study Area

Water Body	Listed Impairments	Potential Sources	Estimated EPA TMDL Completion
Bull Creek	Indicator Bacteria	Source Unknown	2021

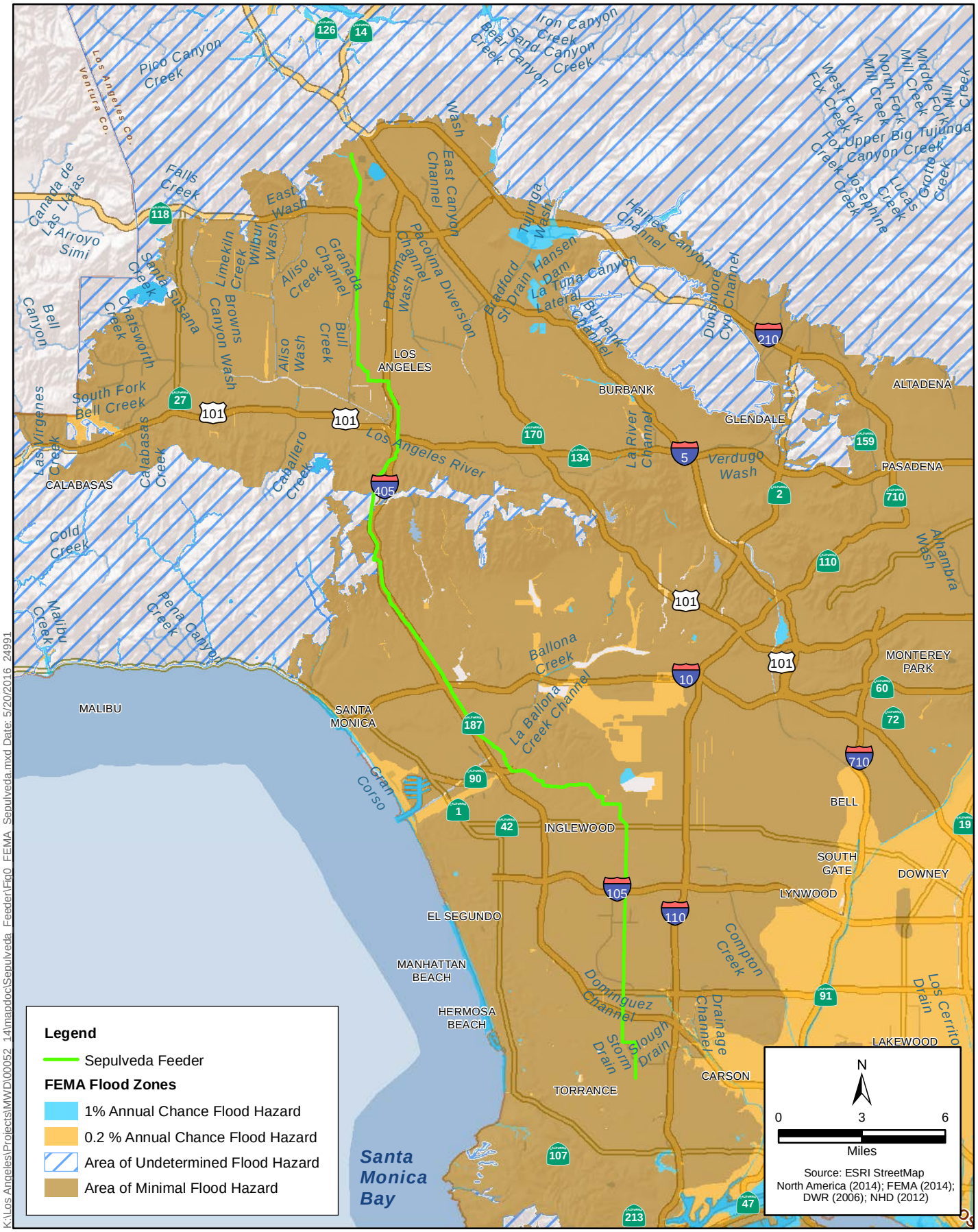


Figure 4.9-5
FEMA Flood Zones near the Sepulveda Feeder
Metropolitan PCCP Program

Water Body	Listed Impairments	Potential Sources	Estimated EPA TMDL Completion
Los Angeles River Reach 4	Ammonia	Point/Non-Point Source	2004
	Coliform Bacteria	Point/Non-Point Source	2019
	Copper	Source Unknown	2005
	Lead	Point/Non-Point Source	2005
	Nutrients (algae)	Point/Non-Point Source	2004
	Trash	Nonpoint Source Surface Runoff Urban Runoff/Storm Sewers	2008
Ballona Creek	Cadmium (sediment)	Point/Non-Point Source	205
	Coliform Bacteria	Point/Non-Point Source	2007
	Dissolved Copper	Non-Point Source	2005
	Cyanide	Source Unknown	2019
	Lead	Source Unknown	2005
	Selenium	Source Unknown	2005
	Toxicity	Source Unknown	2005
	Trash	Source Unknown	2001
	Viruses	Point/Non-Point Source	2007
	Zinc	Source Unknown	2005
Dominguez Channel (lined portion above Vermont Avenue)	Ammonia	Point/Non-Point Source	2019
	Copper	Point/Non-Point Source	2019
	Diazinon	Source Unknown	2021
	Indicator Bacteria	Point/Non-Point Source	2007
	Lead	Point/Non-Point Source	2019
	Toxicity	Point/Non-Point Source	2021
	Zinc	Point/Non-Point Source	2019
Source: SWRCB 2011.			

Seiche, Tsunami, and Mudflow

No large bodies of permanently stored water are located such that they would affect the Sepulveda Feeder study area in the event of earthquake-induced failure or seiches.

The Sepulveda Feeder is over 3.5 miles from the Pacific Ocean at its closest point along the alignment. As a result, the study area is not subject to inundation from tsunami and is not identified by the California Department of Conservation as a designated tsunami area.

In general, the Sepulveda Feeder alignment is in relatively flat areas that are not susceptible to mudflows, with the exception of the alignment through the Santa Monica Mountains. A portion of the alignment travels through the Santa Monica Mountains; however, the majority of the alignment is in developed areas and is not subject to mudflows.

4.9.3 Regulatory Framework

This section describes the plans, policies, and regulations related to hydrology and water quality that are applicable to the proposed program.

4.9.3.1 Federal

Clean Water Act (33 U.S.C. § 1251 et seq.)

The federal CWA of 1977 (33 U.S. Code Section 1251 et seq.), which amended the federal Water Pollution Control Act of 1972, establishes the basic structure for regulating discharges of pollutants into waters of the United States (not including groundwater). The CWA delegates authority to EPA to implement pollution control programs. Under the CWA, it is unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a National Pollutant Discharge Elimination System (NPDES) permit is obtained and implemented within compliance. In addition, the CWA requires the states to adopt water quality standards for receiving water bodies and to have those standards approved by EPA. Water quality standards consist of designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing), along with water quality criteria necessary to support those uses.

Section 303: Impaired Water Bodies (303(d) list) and Total Maximum Daily Loads

Under Section 303(d) of the CWA, SWRCB is required to develop a list of impaired water bodies that do not meet water quality standards (promulgated under the National Toxics Rule or the California Toxics Rule) after the minimum technology-based effluent limitations have been implemented for point sources. Lists are to be priority ranked for development of a TMDL. A TMDL is a calculation of the total maximum amount of a pollutant that a water body can receive on a daily basis and still safely meet water quality standards. The California RWQCBs and EPA are responsible for establishing TMDL waste-load allocations and incorporating improved load allocations into water quality control plans, NPDES permits, and waste discharge requirements. Section 305(b) of the CWA requires that states assess the status of water quality conditions within the state in a report to be submitted every 2 years.

Section 402: National Pollutant Discharge Elimination System Permits

Section 402(p) of the CWA was amended in 1987 to require EPA to establish regulations for permitting of municipal and industrial (including active construction sites) stormwater discharges under the NPDES permit program. EPA published final regulations for industrial and municipal stormwater discharges on November 16, 1990. The NPDES program requires all industrial facilities and municipalities of a certain size that discharge pollutants into waters of the United States to obtain a permit. Stormwater discharges in California are commonly regulated through general and individual NPDES permits, which are adopted by SWRCB or the RWQCBs and are administered by the RWQCBs. EPA requires NPDES permits to be revised to incorporate waste-load allocations for TMDLs when the TMDLs are approved (40 Code of Federal Regulations [CFR] 122).

4.9.3.2 State

Responsibility for the protection of water quality in California resides with SWRCB and the nine RWQCBs. SWRCB establishes statewide policies and regulations for the implementation of water

quality control programs mandated by federal and state water quality statutes and regulations. The Los Angeles, Santa Ana, and San Diego RWQCBs and SWRCB implement a number of federal and state laws regarding water quality, the most important of which are the State of California's Porter-Cologne Water Quality Control Act and the federal CWA.

Porter-Cologne Water Quality Control Act (Cal. Water Code § 13000 et seq.)

The State of California's Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California, including the California Toxics Rule, the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan, or SIP), Inland Surface Water Quality Standards, the California Urban Water Management Act, and NPDES permits. SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the RWQCBs conduct planning, permitting, and enforcement activities. The Porter-Cologne Water Quality Control Act authorizes SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and groundwater) and directs the RWQCBs to develop regional water quality control plans (Basin Plans). Section 13170 of the California Water Code also authorizes SWRCB to adopt Basin Plans on its own initiative.

The RWQCBs are required, by law, to develop, adopt, and implement a Basin Plan for the entire region. The principal elements of the Basin Plan are a statement of beneficial water uses that the RWQCBs will protect; water quality objectives needed to protect the designated beneficial water uses; and strategies and time schedules for achieving the water quality objectives. The water quality objectives are achieved primarily through the establishment and enforcement of waste discharge requirements (WDRs).

National Pollutant Discharge Elimination System Permits

Construction General Permit

Pursuant to CWA Section 402(p) and as related to the goals of the Porter-Cologne Water Quality Control Act, SWRCB has issued a statewide NPDES General Permit for Stormwater Discharges Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order 2010-0014-DWQ and 2012-006-DWQ) (Construction General Permit), adopted September 2, 2009 (SWRCB 2012). Every construction project that disturbs 1 or more acres of land surface or that is part of a common plan of development or sale that disturbs more than 1 acre of land surface would require coverage under this Construction General Permit. To obtain coverage under this Construction General Permit, the landowner or other applicable entity must file Permit Registration Documents prior to the commencement of construction activity, which include a Notice of Intent (NOI) and Stormwater Pollution Prevention Plan (SWPPP) prepared by a Qualified SWPPP Developer, and mail the appropriate permit fee to SWRCB.

Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least 1 acre of total land area. The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and (2) to describe and ensure the implementation of best management practices (BMPs) to reduce or eliminate sediment and other pollutants in stormwater and non-stormwater discharges. BMPs are intended to reduce impacts to the maximum extent practicable (MEP), which is a standard created

by Congress to allow regulators the flexibility necessary to tailor programs to the site-specific nature of municipal stormwater discharges. The SWPPP is required to be implemented and monitored regularly by a Qualified SWPPP Practitioner. Reducing impacts to the MEP generally relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed. The Construction General Permit requires that specific minimum BMPs are incorporated into the SWPPP, depending on the project's sediment risk to receiving waters based on the project's erosion potential and receiving water sensitivity to sediment.

Municipal Separate Storm Sewer System

CWA Section 402 mandates permits for municipal stormwater discharges, which are regulated under the NPDES General Permit for Municipal Separate Storm Sewer Systems (MS4 Permit). Phase I MS4 Permit regulations cover medium (serving between 100,000 and 250,000 people) and large (serving more than 250,000 people) municipalities. Phase II (Small MS4 Permit) regulations require that stormwater management plans/programs be developed by municipalities with populations smaller than 100,000, including non-traditional Small MS4s, which are facilities such as military bases, public campuses, and prison and hospital complexes.

MS4 Permits require that cities and counties develop and implement programs and measures, including BMPs, control techniques, system design and engineering methods, and other measures as appropriate, to reduce the discharge of pollutants in stormwater to the maximum extent possible. As part of permit compliance, these permit holders have created stormwater management plans for their respective locations. These plans outline the requirements for municipal operations, industrial and commercial businesses, construction sites, and planning and land development. These requirements may include multiple measures to control pollutants in stormwater discharge. During implementation of specific projects under the program, project applicants are required to follow the guidance contained in the stormwater management plans as defined by the permit holder in that location.

SWRCB is advancing Low-Impact Development (LID) in California as a means of complying with municipal stormwater permits. LID incorporates site design, including among other things the use of vegetated swales and retention basins and minimization of impermeable surfaces, to manage stormwater to maintain a site's predevelopment runoff rates and volumes.

4.9.3.3 Regional

Regional Water Quality Control Boards

The RWQCBs develop and implement Basin Plans that consider regional beneficial uses, water quality characteristics, and water quality problems.

Basin Plans and Water Quality Objectives

The preparation and adoption of Basin Plans is required by the California Water Code (Section 13240) and supported by the CWA. Section 303 of the CWA requires states to adopt water quality standards that "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses." According to Section 13050 of the California Water Code, Basin Plans consist of a designation or establishment for the waters within a specified area of beneficial uses to be protected, water quality objectives to protect those uses, and a program of

implementation needed for achieving the objectives. Because beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the state and federal requirements for water quality control.

Water quality standards are set forth in the regional Basin Plan. Designated beneficial uses, along with water quality objectives to meet beneficial uses, compose the relevant water quality standards. Water quality objectives are achieved primarily through the establishment and enforcement of WDRs. All dischargers of waste to waters of the state are subject to regulation under the Porter-Cologne Water Quality Control Act. This includes both point- and nonpoint-source dischargers. All current and proposed discharges to land must be regulated under WDRs, waivers of WDRs, a Basin Plan prohibition, or some combination of these administrative tools. Discharges of waste directly to state waters would be subject to an individual or general NPDES permit, which also serves as a WDR.

The RWQCBs specifically designate beneficial uses for surface and groundwater; set narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy; and describe implementation programs to protect all waters in the region. In cases where the Basin Plan does not contain a criterion for a particular pollutant, other criteria are used to establish a water quality objective. These may be applied from SWRCB documents (e.g., the Inland Surface Waters Plan, the Pollutant Policy Document) or from water quality criteria developed under Section 304(a) of the CWA, which requires development of criteria for water quality that accurately reflect the latest scientific knowledge (e.g., California Toxics Rule).

Discharges from artificial conveyances, such as flood control channels and minor lakes that are part of the storm drain system, may not have designated beneficial uses or water quality objectives. For those waters that don't have specific beneficial uses or water quality objectives, the tributary rule[2] applies.

Stormwater Management Programs

The proposed program study area is within the jurisdiction of the Los Angeles, Santa Ana, and San Diego RWQCBs.

Los Angeles RWQCB

Los Angeles County Municipal Stormwater NPDES Permit (MS4 Permit)

The current MS4 Permit for Los Angeles County (Order No. R4-2012-0175, as amended by SWRCB Order WQ 2015-0075) was adopted on November 8, 2012, became effective December 28, 2012, and will expire on December 28, 2017. Order No. R4-2012-0175 is the fourth iteration of the stormwater permit for the MS4s in the Los Angeles region, which includes the Los Angeles County Flood Control District, county of Los Angeles, and 84 incorporated cities (including the study area cities in Los Angeles County) within the county watersheds, excluding the city of Long Beach. The permit contains requirements that are necessary to improve efforts to reduce the discharge of pollutants in stormwater runoff to the MEP and achieve water quality standards. This permit

[2] The "tributary rule" refers to any streams not specifically listed in the Basin Plan that are deemed to have the same beneficial uses and water quality objectives of the listed stream, river, or lake to which they are a tributary.

requires that runoff is addressed during the major phases of urban development (planning, construction, and operation) in order to reduce the discharge of pollutants from stormwater to the MEP, effectively prohibiting non-stormwater discharges and protecting receiving waters. The MS4 Permit also includes construction requirements for implementation of minimum construction site BMPs for erosion, sediment, non-stormwater management, and waste management on construction sites.

The permit also requires the design and implementation of specific post-construction controls to mitigate stormwater pollution, prior to project completion, for all "new development" and "redevelopment" projects that meet certain criteria as specified in the permit. During operation of new development or redevelopment, the permit prohibits non-stormwater discharges from the development (with some conditional exceptions), and requires BMPs to eliminate discharges to the MEP. Stormwater effluent must meet water quality–based effluent limitations, or water quality standards for discharge leaving the site, and must not cause or contribute to the exceedance of receiving water limitations (water quality standards for receiving waters).

Redevelopment projects are all discretionary permit projects or project phases that have not been deemed complete for processing. The proposed program may be considered a redevelopment project subject to permittee conditioning and approval for the design and implementation of post-construction controls to mitigate storm water pollution, should the following criteria apply within the Los Angeles program study area (except the City of Long Beach).

1. Where redevelopment results in an alteration to more than 50 percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction storm water quality control requirements, the entire project must be mitigated.
2. Where redevelopment results in an alteration of less than 50 percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction storm water quality control requirements, only the alteration must be mitigated, and not the entire development.
    a. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility, or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways that does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.

Long Beach City Municipal Stormwater NPDES Permit (MS4 Permit)

In March 2014, Los Angeles RWQCB reissued the City of Long Beach MS4 Storm Water Permit as WDR Order R4-2014-0024 (NPDES Permit No. CAS004003). Pursuant to this MS4 Permit, the City of Long Beach is required to develop and implement Minimum Control Measures as part of a Stormwater Management Program. In order to comply with the updated MS4 Permit, the *Low Impact Development (LID) Best Management Practices (BMP) Design Manual* was developed (City of Long Beach 2013) in advance of the final permit, which details actions for compliance with the LID regulations adopted in City Ordinance No. ORD-10-035, such as land development policies pertaining to LID and hydromodification for new development and significant redevelopment projects. The use of LID BMPs in project planning and design is to preserve a site's predevelopment hydrology by minimizing the loss of natural hydrologic processes such as infiltration,

evapotranspiration, and runoff detention. LID BMPs try to offset these losses by introducing structural and non-structural design components that restore these water quality functions into the project's land plan.

One component of the New Development/Significant Redevelopment section of the City's Stormwater Management Plan is the provision to prepare a project-specific LID Plan to infiltrate, evapotranspire, and/or capture and use stormwater runoff to prevent pollutants from leaving the site. If partial or complete on-site compliance is infeasible, the LID Plan is required to comply with, at a minimum, all applicable Standard Urban Stormwater Management Plan (SUSMP) requirements. This includes operation and maintenance requirements for all structural or treatment control BMPs required for specific categories of developments to reduce pollutants in post-development runoff to the MEP. All development and redevelopment in Long Beach is subject to LID requirements of the City's Department of Development Services' *Low Impact Development (LID) Best Management Practices (BMP) Design Manual*, except for the following projects.

- A development or redevelopment that does not require a building permit
- A development or redevelopment creating, adding, or replacing less than 500 square feet of impervious surface area
- A development or redevelopment involving only emergency construction activity required to immediately protect public health and safety
- A development or redevelopment involving the grinding/overlaying and replacement of existing parking lots
- A development or redevelopment involving only re-striping of permitted parking lots
- A redevelopment resulting in land-disturbing activities or replacement of 50 percent or less of an existing building, structure, or impervious surface area
- An infrastructure project within the public right-of-way
- A development or redevelopment involving only activity related to gas, water, cable, or electricity services on private property
- A project involving only exterior movie and television production sets, or façades on an existing developed site
- A development or redevelopment where LID requirements are technically infeasible

As required by the City's LID Ordinance on stormwater quality management, all development or redevelopment that does not meet the above-listed exemptions must submit a LID Plan to the City for approval prior to the City issuing any building or grading permits.

The proposed program may be considered exempt from compliance with the Long Beach MS4 Permit should the infrastructure project occur only within the public right-of-way, involve only activity related to water on private property, or not require a building permit. Should any of these conditions not apply, the proposed program may be subject to the Long Beach MS4 Permit.

Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles

Discharges of treated or untreated groundwater generated from permanent or temporary dewatering operations or other applicable wastewater discharges not specifically covered in other

general or individual NPDES permits are currently regulated under a regional general permit, General Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties (General Permit) (Order No. R4-2013-0095, NPDES No. CAG994004). Permittees are required to monitor their discharges from groundwater extraction waste from construction and dewatering activities to ensure that proposed effluent limitations for constituents are not exceeded.

Construction dewatering wastes (except stormwater) are regulated as low-threat discharges to surface waters. An NOI and Report of Waste Discharge must be submitted to the Los Angeles RWQCB to comply with this General Permit. Based on the depth to groundwater, it is anticipated that the proposed program would require groundwater dewatering during construction, and would be subject to the requirements of this General Permit within Los Angeles RWQCB jurisdiction. During the design phase, each pipeline segment is evaluated with site-specific boring tests to determine exact location and potential for groundwater during construction activities. Sites that require dewatering activities due to groundwater encountered on site are required to either obtain permission to discharge to the sanitary sewer system through the local sewer agency or file for the General Permit to discharge to the MS4.

Santa Ana RWQCB

Orange County Municipal Stormwater NPDES Permit (MS4 Permit)

Orange County is split into two RWQCB jurisdictional areas. North and central Orange County (any area north of El Toro Road) are part of the Santa Ana RWQCB. South Orange County (any area south of El Toro Road) is part of the San Diego RWQCB. The County of Orange (unincorporated area) and cities of Laguna Hills, Laguna Woods, and Lake Forest have land area in both regions.

Stormwater discharges from northern and central Orange County are currently regulated under the Waste Discharge Requirements for the County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff (Order No. R8-2009-0030, NPDES No. CAS618030, as amended by Order No. R8-2010-0062) (MS4 Permit). The MS4 Permit requires that discharges from the MS4s shall not cause or contribute to exceedances of receiving water quality standards (designated beneficial uses and water quality objectives) for surface water or groundwater.

The Orange County Flood Control District and certain cities within the county are all co-permittees of this MS4 Permit (including the Orange County study area cities except Mission Viejo); are responsible for the management of storm drain systems within their jurisdictions; and are required to implement management programs, monitoring programs, implementation plans, and all BMPs within each respective jurisdiction and to take any other actions as may be necessary to meet the MEP standard. Provisions for a Monitoring and Reporting Program and compliance inspections are incorporated in the MS4 Permit and include requirements for construction site inspections, including review of erosion control and BMP implementation plans and effectiveness. Each co-permittee is also required to enforce its ordinances and permits at all construction sites.

Developments that qualify as a development or redevelopment project, as specified by criteria in the MS4 Permit, are required to develop a site-specific water quality management plan (WQMP), which includes site design, source control, and treatment control elements to reduce the discharge of pollutants in urban runoff. The WQMP requires identification of hydrologic conditions of concern, which are defined as a significant impact on downstream channels caused by an alteration in the

project site hydrologic regime. Alterations in a hydrologic regime include the following for a 2-year frequency storm event: increases in runoff volume, decreases in infiltration, changes in time of concentration, potential for increases in post-development downstream erosion, and potential for adverse downstream impacts on physical structure and aquatic and riparian habitat.

Significant redevelopment is defined as projects that include the addition or replacement of 5,000 square feet or more of impervious surface on a developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety. Where redevelopment results in the addition or replacement of less than 50 percent of the impervious surfaces of a previously existing developed site, and the existing development was not subject to WQMP requirements, the numeric sizing criterion applies only to the addition or replacement, and not to the entire developed site. Where redevelopment results in the addition or replacement of more than 50 percent of the impervious surfaces of a previously existing developed site, the numeric sizing criterion applies to the entire development. The proposed program may be considered a redevelopment project subject to permittee conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, should the above-listed criteria apply within the Orange County program study area (except the City of Mission Viejo).

San Bernardino County Municipal Stormwater NPDES Permit (MS4 Permit)

On January 29, 2010 the Santa Ana RWQCB adopted Order No. R8-2010-0036 (NPDES Permit CAS618036), the area-wide MS4 Permit for the Santa Ana Region of San Bernardino County. This order was the fourth permit issued to the permit area since 1990 and it expired on January 29, 2015.[3] The MS4 program currently designates the Flood Control District as the principal permittee. The County of San Bernardino and the study area cities of Fontana, Rancho Cucamonga, Rialto, San Bernardino, and Upland are designated as co-permittees. The permit contains provisions for receiving water limitations, discharge prohibitions, and stormwater management, monitoring, and reporting for reducing pollutants to the MEP standard.

The County developed a Model Area-Wide Local Implementation Plan (LIP) in July 2010 that was approved by the Santa Ana RWQCB in January 2011. The LIP, a requirement of the MS4 Permit, describes how the permittees implement the requirements of the MS4 Permit within their own jurisdictions. In addition, the County developed an in-depth Technical Guidance Document for WQMPs in July 2011. Accordingly, the LIP and Technical Guidance Document are the principal documents that comprehensively translate the MS4 Permit requirements into standards, conditions of approval, and actions that manage water quality in the local MS4. Each permittee shall require a project-specific WQMP for priority projects as early as possible during the environmental review or planning phase (land use entitlement). The combination of site design/LID BMPs (where feasible), source control, and/or treatment control BMPs, including regional treatment systems, in project-specific WQMPs shall address all identified pollutants and hydrologic conditions of concern from new development and/or significant redevelopment projects.

Significant redevelopment is defined as projects that include the addition or replacement of 5,000 square feet or more of impervious surface on a developed site subject to discretionary approval of the permittee. Redevelopment does not include routine maintenance activities that are conducted to

[3] Although this permit has expired, it is still in effect until a new permit has been issued.

maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety. Where redevelopment results in the addition or replacement of less than 50 percent of the impervious surfaces of a previously existing developed site, and the existing development was not subject to WQMP requirements, the numeric sizing criterion applies only to the addition or replacement, and not to the entire developed site. Where redevelopment results in the addition or replacement of more than 50 percent of the impervious surfaces of a previously existing developed site, the numeric sizing criterion applies to the entire development. The proposed program may be considered a redevelopment project subject to permittee conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, should the above-listed criteria apply within the San Bernardino County program study area.

General Waste Discharge Requirements for Low-Threat Discharges to Surface Waters

Low-threat discharges are currently regulated under a regional general permit, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant Threat to Water Quality (Low Threat Discharge General Permit) (Order No. R8-2015-0004, NPDES No. CAG998001). Low-threat discharges are not expected to cause toxicity; therefore, no toxicity limits are specified in the Low Threat Discharge General Permit. However, effluent limitations are specified for TDS, Total Inorganic Nitrogen, Total Petroleum Hydrocarbons, Total Residual Chlorine, Suspended Solids, Sulfides, Oil and Grease, and pH.

Construction dewatering wastes (except stormwater) are regulated as low-threat discharges to surface waters. An NOI and Report of Waste Discharge must be submitted to the Santa Ana RWQCB to comply with this Low Threat Discharge General Permit. Based on the depth to groundwater expected in many segments of the program area, it is anticipated the proposed program would require groundwater dewatering during construction and would be subject to the requirements of this Low Threat Discharge General Permit within the Santa Ana RWQCB jurisdiction.

San Diego RWQCB

Orange County Municipal Stormwater NPDES Permit (MS4 Permit)

On May 8, 2013, the San Diego RWQCB approved a regional MS4 Permit for San Diego, southern Orange, and southwestern Riverside counties (Order No. R9-2013-0001). The region-wide NPDES Permit (commonly referred to as the Regional MS4 Permit) sets the framework for municipalities, such as the City of Mission Viejo, to implement a collaborative watershed-based approach to restore and maintain the health of surface waters. The Regional MS4 Permit requires development of Water Quality Improvement Plans that will allow permittees to prioritize and address pollutants through an appropriate suite of BMPs in each watershed.

To implement the requirements of the Regional MS4 Permit, the co-permittees developed a Drainage Area Master Plan (DAMP) that includes a Model New Development and Redevelopment Program. Per the requirements in the DAMP and the Regional MS4 Permit, the permittees are required to adopt a LIP to implement the DAMP and Regional MS4 Permit in their jurisdictions. Using the LIP as a guide, the permittees will approve WQMPs for new development and redevelopment projects within their jurisdictions as part of the development plan and entitlement approval process. WQMPs for new development and significant redevelopment projects that fall under specific priority project categories must include Site Design, Routine Structural and Nonstructural, and Treatment Control BMPs; include an Operations and Maintenance Plan; and

address LID retention/biofiltration and hydromodification criteria. The priority project categories are those determined by the San Diego RWQCB to have the greatest potential to affect receiving waters with polluted runoff.

A Priority Development Project is defined as a redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land. The proposed program may be considered a Priority Redevelopment Project subject to permittee conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution, should the above-listed criteria apply within the south Orange County program study area (Mission Viejo).

General Waste Discharge Requirements for Discharges from Groundwater Extraction and Similar Discharges to Surface Waters

On March 12, 2008, the San Diego RWQCB issued the General WDRs for Discharges from Groundwater Extraction and Similar Discharges to Surface Waters within the San Diego Region Except for San Diego Bay (Order No. R9-2008-0002, Permit No. CAG919002) (Groundwater Discharge Permit). This permit regulates discharges of treated and untreated groundwater from construction to surface waters. It specifies the discharge prohibitions, receiving water limitations, monitoring and reporting program requirements, and general compliance determination criteria for groundwater dewatering during construction activities and drilling, construction, and purging of wells. Dischargers are required to collect and analyze representative groundwater samples for all constituents listed in the Groundwater Discharge Permit. Based on the results, dischargers would be required to provide treatment for any toxic compounds detected above the applicable screening levels. To obtain coverage under the Groundwater Discharge Permit, each permittee must submit an NOI to begin the application process.

4.9.3.4 Local

Table 4.9-6 lists the applicable hydrology and water quality regulations for the proposed program.

Table 4.9-6. Applicable Hydrology and Water Quality Regulations for the Proposed Program

Local Agency	Title of Plan, Policy, Regulation (date)	Applicable Regulation
Allen-McColloch Pipeline		
City of Yorba Linda	Municipal Code Chapter 16.04, Water Quality Control	The purpose of this chapter is to participate in the improvement of water quality and comply with federal requirements for the control of urban pollutants to stormwater runoff. This section of the Municipal Code requires compliance with the municipal NPDES permit and other applicable laws or regulations.
City of Anaheim	Municipal Code Chapters 17.04, 10.09, and 10.19	Chapter 17.04, Grading, Excavations, Fills, Watercourses, reduces the potential for excessive stormwater runoff and erosion and sediment transport; Chapter 10.09, NPDES, ensures compliance with the Municipal Stormwater NPDES Permit and minimization of water quality degradation; and Chapter 10.19, Landscape Water Efficiency, reduces the

Local Agency	Title of Plan, Policy, Regulation (date)	Applicable Regulation
		potential for dry-weather runoff.
City of Orange	Local Implementation Plan (2011)	The City LIP implements the various programs of the DAMP such as the inspection of industrial and commercial businesses, construction projects, new development projects, illegal discharges/illicit connections, and other requirements. The plan describes the activities that the City is currently undertaking to meet the requirements of its NPDES permits and to make meaningful improvements in urban water quality.
City of Tustin	Guidelines for Preliminary Water Quality Management Plans (2015)	The Guidelines identify projects requiring a WQMP. The preliminary WQMP is designed to address a project's quality and quantity of stormwater runoff to allow for the implementation of LID and hydromodification control BMPs. The combination of Site Design, Source Control, and LID and Treatment Control BMPs must adequately address all identified potential pollutants and hydrologic conditions of concern.
City of Irvine	City Council Ordinance No. 10-06 (2010) / Local Implementation Plan (LIP) (2007)	The purpose of the ordinance is to continue the City's participation in the improvement of water quality and to ensure adequate legal authority exists for the City to enforce federal and state requirements for the control of pollutants from stormwater/urban runoff.
City of Lake Forest	Local Implementation Plan (2010)	The City LIP is the principal stormwater guidance and compliance document specific to the City's jurisdiction. The LIP provides description and detail of the City's water quality program implementation activities. The LIP is designed to work in conjunction with the Orange County DAMP.
City of Mission Viejo	Local Implementation Plan (2010)	The City LIP describes the City-specific programs and activities that are being implemented to meet the requirements of the NPDES permit. The City's implementation of the LIP and related countywide programs are managed by the Public Works Department, which coordinates the development, implementation, and administration of the stormwater program for the City overall.
Calabasas Feeder		
City of Los Angeles	City of Los Angeles Low-Impact Development Ordinance and Manual (2011)	The City of Los Angeles institutionalized the use of LID techniques for development and redevelopment projects. Subsequent to the adoption of the Stormwater LID Ordinance, the City prepared the *Development Best Management Practices Handbook: Low Impact Development Manual*, dated June 2011, to describe the required BMPs.
City of Hidden Hills	Storm Water Management and Discharge Control Ordinance	The intent of the ordinance is to protect and enhance the quality of watercourses, water bodies, and wetlands within the City in a manner consistent with the Municipal NPDES Permit. The ordinance is intended to provide the City with the legal authority necessary to control discharges to and from those portions of the stormwater system over which it has jurisdiction.
City of Calabasas	Standard Urban Storm Water Mitigation Plan (2005)	The SUSMP was developed as part of the municipal stormwater program to address stormwater pollution from new development and redevelopment. The SUSMP contains a

Local Agency	Title of Plan, Policy, Regulation (date)	Applicable Regulation
		list of the minimum required BMPs that must be used for a designated project. Additional BMPs may be required on a case-by-case basis.
Rialto Pipeline		
City of San Bernardino	Municipal Code Chapter 8.80, Storm Water Drainage System	The purpose of the chapter is to ensure the health, safety, and general welfare of the residents by prescribing regulations to effectively prohibit non-storm water discharges into the City's stormwater drainage system.
City of Rialto	Municipal Code Chapter 12.60, Municipal Separate Storm Sewer System	The intent is to protect and enhance the quality of watercourses, water bodies, groundwater, and wetlands within the City in a manner consistent with the Municipal NPDES Permit. This chapter is also intended to confirm and consolidate the City's legal authority necessary to control discharges to and from those portions of the MS4 over which it has jurisdiction. This chapter is also intended to ensure the health, safety, and general welfare of the residents by prescribing reasonable regulations to control effectively non-stormwater discharges containing pollutants into the city's MS4 to the MEP.
City of Fontana	Municipal Code Chapter 23-Article IX, Preventing Discharge of Pollutants Into Storm Drains	The purpose is to protect and enhance the water quality of watercourses, water bodies, groundwater, and wetlands in a manner consistent with federal, state, and local laws and regulations, and to implement the requirements of the City's NPDES permit. The environmental manager is authorized to impose BMPs on all users of the storm drain system, including users from existing residential or commercial development.
City of Rancho Cucamonga	Local Implementation Plan (2015)	The LIP describes how the City implements the requirements of the MS4 Permit within its own jurisdiction. Accordingly, the Municipal Stormwater Management Plan and the LIP are the principal documents that comprehensively translate the MS4 Permit requirements into actions that manage water quality in the local MS4. The LIP provides information regarding stormwater management requirements associated with new development or significant redevelopment projects.
City of Upland	Title 13 Public Services, Chapter 13.32, Environmental Quality Enterprise, Article IV. Stormwater Drainage Management	This section of the Municipal Code requires compliance with the Municipal NPDES Permit and other applicable laws or regulations.
City of Claremont	Chapter 8.28 of Title 8, Stormwater and Runoff Pollution Control (2014)	The purpose of the chapter is to protect the health and safety of the residents by protecting the beneficial uses, marine habitats, and ecosystems of receiving waters from pollutants carried by stormwater and non-stormwater discharges.
City of La Verne	Municipal Code Chapter 13.50 Stormwater And Urban Runoff Pollution Control	The purpose is to protect and enhance the water quality of watercourses, water bodies, groundwater, and wetlands in a manner consistent with the CWA. The purpose is to eliminate non-stormwater discharges to the municipal storm drain; control the discharge from spills, dumping, or disposal of materials other than stormwater to municipal storm drains;

Local Agency	Title of Plan, Policy, Regulation (date)	Applicable Regulation
		and reduce pollutants in stormwater discharges to the MEP. This section of the Municipal Code requires compliance with the Municipal NPDES Permit.
City of San Dimas	Municipal Code Chapter 14.11, Stormwater Management and Discharge	This section of the Municipal Code requires the submittal of an urban stormwater mitigation plan prior to the submittal of an application for a new development project, which shall be designed to reduce project runoff through incorporation of design elements and principles that include maximizing the percentage of permeable surfaces on site, minimizing the amount of stormwater directed to impermeable areas, and minimizing parking lot pollution through the effective use of BMPs.
Second Lower Feeder		
City of Yorba Linda	Municipal Code Chapter 16.04, Water Quality Control	The purpose of this chapter is to participate in the improvement of water quality and comply with federal requirements for the control of urban pollutants to stormwater runoff. This section of the Municipal Code requires compliance with the SUSMP.
City of Placentia	Municipal Code Chapter 16.20, Stormwater Runoff And Urban Pollutant Control	The purpose of the chapter is to participate in the improvement of water quality and comply with federal requirements for the control of urban pollutants to stormwater runoff, which enters the network of storm drains throughout Placentia. This section of the Municipal Code requires compliance with the Municipal NPDES Permit and Orange County DAMP.
City of Anaheim	Municipal Code Chapters 17.04, 10.09, and 10.19	Chapter 17.04, Grading, Excavations, Fills, Watercourses, reduces the potential for excessive stormwater runoff and erosion and sediment transport; Chapter 10.09, NPDES, ensures compliance with the Municipal Stormwater NPDES Permit and minimization of water quality degradation; and Chapter 10.19, Landscape Water Efficiency, reduces the potential for dry-weather runoff.
City of Buena Park	Municipal Code Chapter 13.32, Stormwater Drainage	This section of the Municipal Code requires compliance with the Municipal NPDES Permit.
City of Cypress	Local Implementation Plan	The LIP describes the activities the City performs to comply with the permit requirements. This includes the incorporation of design criteria containing water quality protection measures into all new development and redevelopment projects that occur within the City. This is done through the preparation of a WQMP. A Model WQMP document has been developed to assist in this preparation.
City of Los Alamitos	Municipal Code Chapter 8.44, Stormwater and Urban Runoff Pollutant Controls	The purpose of this chapter is to protect the health and safety of the waters of the state and the United States, those who recreate in and consume food from those waters, and marine habitats and ecosystems. This section of the Municipal Code requires compliance with the Municipal NPDES Permit.
City of Long Beach	Municipal Code Chapter 18.74, Low	Requires the use of LID standards and practices in future developments and redevelopments to encourage the beneficial

Local Agency	Title of Plan, Policy, Regulation (date)	Applicable Regulation
	Impact Development Standards (2010)	use of rainwater and urban runoff; reduce stormwater/urban runoff while improving water quality; reduce off-site runoff and provide increased groundwater recharge; and reduce erosion and hydrologic impacts downstream. The requirement to incorporate LID standards into the design plans of development and redevelopment projects to mitigate stormwater quality impacts is implemented through the City's plan review and approval process.
City of Lakewood	Stormwater and Runoff Pollution Control Ordinance	The City adopted the same ordinance as the County of Los Angeles stormwater and runoff pollution control ordinance. The purpose is to protect the beneficial uses, marine habitats, and ecosystems of receiving waters from pollutants carried by stormwater and non-stormwater discharges.
City of Carson	Storm Water Management and Discharge Control Ordinance	This section of the Municipal Code requires compliance with the Municipal NPDES Permit.
City of Los Angeles	City of Los Angeles Low-Impact Development Ordinance and Manual (2011)	The City of Los Angeles institutionalized the use of LID techniques for development and redevelopment projects. Subsequent to the adoption of the Stormwater LID Ordinance, the City prepared the *Development Best Management Practices Handbook: Low Impact Development Manual* to describe the required BMPs.
City of Torrance	Municipal Code Chapter 10, Storm Water And Urban Runoff Pollution Control	This section of the Municipal Code requires compliance with the Municipal NPDES Permit.
City of Lomita	Stormwater and Runoff Pollution Control Ordinance	The City adopted the same ordinance as the County of Los Angeles stormwater and runoff pollution control ordinance. The ordinance requires compliance with the Municipal NPDES Permit.
City of Rolling Hills Estates	Municipal Code Chapter 8.38, Stormwater and Urban Runoff Pollution Control	The purpose of this chapter is to implement the City's municipal NPDES permit by reducing pollutants in stormwater discharges to the MEP and incorporating BMPs and other mitigation measures and design features regarding stormwater runoff in new development and redevelopment projects.
Sepulveda Feeder		
City of Los Angeles	City of Los Angeles Low-Impact Development Ordinance and Manual (2011)	The City of Los Angeles institutionalized the use of LID techniques for development and redevelopment projects. Subsequent to the adoption of the Stormwater LID Ordinance, the City prepared the *Development Best Management Practices Handbook: Low Impact Development Manual* to describe the required BMPs.
City of Culver City	Municipal Code Chapter 5.05, Storm Water And Urban Runoff Pollution Control	The purpose of this chapter is to implement the City's municipal NPDES permit by reducing pollutants in stormwater discharges to the MEP and incorporating BMPs and other mitigation measures and design features regarding stormwater runoff in new development and redevelopment

Local Agency	Title of Plan, Policy, Regulation (date)	Applicable Regulation
		projects.
City of Gardena	Municipal Code Chapter 8.70, Storm Water And Runoff Pollution Control	The purpose of this chapter is to protect the public health, welfare, and safety and to reduce the quantity of pollutants being discharged to waters of the United States through the elimination of non-stormwater discharges to the municipal stormwater system, the elimination of the discharge of pollutants into the municipal storm drain system, the reduction of pollutants in stormwater discharges to the MEP, and the protection and enhancement of the quality of the waters of the United States in a manner consistent with the provisions of the CWA.
City of Hawthorne	Municipal Code Chapter 8.50, Storm Water And Runoff Pollution Control	This section of the Municipal Code requires compliance with the Municipal NPDES Permit.
City of Inglewood	Municipal Code Article 16, Stormwater Management And Discharge Control	The ordinance requires discharges to the storm drain to be composed entirely of stormwater except as permitted; appropriate BMPs; regular sweeping and cleaning of all parking lots with 25 or more spaces; and compliance with all applicable NPDES requirements.
City of Torrance	Municipal Code Chapter 10, Storm Water And Urban Runoff Pollution Control	This section of the Municipal Code requires compliance with the Municipal NPDES Permit.

4.9.4 Thresholds and Methodology

4.9.4.1 Thresholds of Significance

Table 4.9-7 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to hydrology and water quality. It indicates which impacts were determined to be less than significant in the Initial Study and therefore do not require additional analysis and which impacts must be analyzed in the PEIR for the proposed program.

Table 4.9-7. CEQA Thresholds for Hydrology and Water Quality

Threshold *Would the proposed program:*	**Analysis Required for the Proposed Program**
a. Violate any water quality standards or waste discharge requirements?	X
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits	N/A*

Threshold *Would the proposed program:*	**Analysis Required for the Proposed Program**
have been granted)?	
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?	X
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?	X
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	X
f. Otherwise substantially degrade water quality?	X
g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	N/A*
h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	N/A*
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	N/A*
j. Expose people or structures to inundation by seiche, tsunami, or mudflow?	X
*Determined to be less than significant in the Initial Study (Appendix A).	

4.9.4.2 Methodology

Water Quality Standards and Waste Discharge Requirements

This analysis identifies applicable water quality standards and waste discharge standards for the program pipeline alignments and determines if the typical construction scenarios would be consistent with these standards. This analysis assumes that each project would incorporate Metropolitan's environmental commitments and typical BMPs and comply with applicable regulations. Mitigation is provided to reduce potentially significant impacts to less-than-significant levels. ~~and/or to require further analysis at the project level, if necessary.~~

As part of the program, Metropolitan has agreed to implement the following environmental commitment related to water quality standards and waste discharge requirements, and this commitment is considered part of the program for analysis purposes.

- **Sediment and Erosion Control – Post Construction BMPs**. The Contractor shall submit its construction Storm Water Pollution Prevention Plan (SWPPP) for projects over one acre or Water Pollution Control Plan (WPCP) for projects under one acre, whichever is required by the project, to the Engineer for review and approval. The submitted SWPPP or WPCP shall be fully compliant with the requirements of the SWRCB, Construction Storm Water Program. Upon acceptance of Contractor-prepared SWPPP, Metropolitan will file the SWPPP together with the

Notice of Intent (NOI) and obtain a Waste Discharge Identification number (WDID) from the SWRCB. At a minimum, the SWPPP or WPCP shall contain the following, as required:

- Names and qualifications of its SWPPP Manager, Qualified SWPPP Developer (QSD), and Qualified SWPPP Practitioner (QSP).
- Site and source descriptions (including the elements and characteristics specific to the site).
- Descriptions of BMPs for erosion and sediment control, which shall:
  - Prevent runoff from flowing over unprotected slopes.
  - Keep disturbed areas to the minimum necessary for construction.
  - Control sediment transport within the site and prevent sediment transport from the site, using appropriate BMPs, including but not limited to check dams, fiber rolls sand bags, and siltation fences. Reduce sediment transport off site through construction of appropriately designed desilting and retention ponds.
  - Remove and dispose of all construction-generated siltation collected within or behind BMPs, including retention ponds.
  - Confine soil disturbance activities to the dry season, whenever possible. If construction needs to be scheduled for the wet season, ensure that erosion and sediment transport control measures are implemented prior to disturbance of soil and/or vegetation.
  - Stabilize disturbed areas as quickly as possible but in no case shall the time of stabilization exceed the time limits specified by the Permit.
  - Maintain existing temporary controls until they are replaced with permanent controls.
  - Maintain and improve existing controls as necessary to comply with the Permit for construction activity.
- BMPs for construction waste handling and disposal.
- Implementation of approved local plans.
- A sampling plan and/or sampling contingency plan, as required and based on project risk level.
  - The Contractor shall make visual inspections of all erosion control and sediment transport devices as necessary to ensure proper operation not less than once per week, and promptly before and after every rainstorm and at least every 24 hours during an extended rainfall event. If such inspection reveals that additional measures are needed to prevent erosion and sediment transport, the Contractor shall promptly maintain, modify, or install additional devices as needed. The Contractor shall use the forms in the SWPPP for all inspections, and all completed forms shall be included in the SWPPP, and submitted to Metropolitan.
  - The Contractor shall perform routine maintenance, which shall include maintenance and repair of BMPs, debris removal, silt/sediment removal, clearing of vegetation around flow control devices to prevent clogging, and maintenance of healthy vegetative cover.
- Comply with post-construction BMPs for post-construction erosion and sediment control prepared by Metropolitan.

- Non-storm water management.
- All annual compliance certifications, monitoring program reports, and data as required by terms and conditions of the CGP [Construction General Permit] and SWPPP.

- **Dewatering**. If required, the Contractor shall obtain coverage and comply with the applicable NPDES Dewatering Permit for hydrostatic testing, leak testing and disinfection water, and uncontaminated groundwater if discharged into storm drain. Construction (non-storm) waters may include, but are not limited to water from hydrostatic and other leak tests. Waters shall not be discharged to inland surface waters, including storm drains, or groundwater bodies, without first meeting the discharge requirements of the applicable NPDES Dewatering Permit. Waters shall not be discharged into sanitary sewers or storm water drains without first obtaining permits required by all applicable agencies.

Drainage Patterns, Erosion, and Siltation

This analysis considers the typical construction scenarios that would be part of the proposed program to determine if they may result in water discharge, alteration of drainage patterns, increased runoff, and impacts related to erosion or siltation. This analysis assumes that each project would incorporate Metropolitan's environmental commitments and typical BMPs and comply with applicable regulations. ~~Mitigation is provided to reduce potentially significant impacts to less-than-significant levels and/or to require further analysis at the project level, if necessary.~~

Drainage Patterns, Runoff, and Flooding

This analysis considers the typical construction scenarios that would be part of the proposed program to determine if they may result in water discharge, alteration of drainage patterns, increased runoff, and impacts related to flooding on or off the rehabilitation sites. This analysis determined if the proposed program would create or contribute to runoff water that would exceed the capacity of existing or planned drainage systems or provide substantial additional sources of polluted runoff. This analysis assumes that each project would incorporate Metropolitan's environmental commitments and typical BMPs and comply with applicable regulations. ~~Mitigation is provided to reduce potentially significant impacts to less-than-significant levels and/or to require further analysis at the project level, if necessary.~~

Water Quality

Impacts of the program on surface water quality are analyzed considering the program-related sources of pollution during rehabilitation, such as sediments and other construction materials. The proposed program is analyzed for potential impacts on beneficial uses and water quality objectives (i.e., pollutants of concern) of receiving waters. Receiving waters with CWA Section 303(d) impaired water quality are identified, along with the impairment (pollutant/stressor) and an indication of whether the impairment would have the potential to be further affected by projects in the proposed program. Surface water quality impacts are discussed for land disturbance activities occurring near water bodies or storm drains, pipe dewatering into surface waters, and other potential impacts related to stormwater or non-stormwater discharges. This analysis assumes that each project would incorporate Metropolitan's environmental commitments and typical BMPs and comply with applicable regulations. ~~Mitigation is provided to reduce potentially significant impacts to less-than-significant levels and/or to require further analysis at the project level, if necessary.~~

Seiche, Tsunami, and Mudflow

Areas within the study area for each pipeline that are subject to seiche, tsunami, or mudflow are identified in Section 4.9.2. This analysis addresses how the projects in the proposed program would relate to these factors, if rehabilitation activities were to occur in the subjected areas. This analysis assumes that each project would incorporate Metropolitan's environmental commitments and typical BMPs and comply with applicable regulations. ~~Mitigation is provided to reduce potentially significant impacts to less-than-significant levels and/or to require further analysis at the project level, if necessary.~~

4.9.5 Impacts Analysis

4.9.5.1 Program Analysis

Threshold WQ-A: Violate Any Water Quality Standards or Waste Discharge Requirements

Multiple excavation areas would be needed to rehabilitate the pipelines and buried equipment vaults included in the proposed program. For each mile of PCCP line, from three up to five excavation sites may be necessary (though fewer sites would be necessary in most locations). Each excavation area would be approximately 20 feet wide and 50 feet long and would be on average approximately 15 to 20 feet deep; however, these dimensions would vary from site to site based upon the size and depth of the pipe or vault to be rehabilitated. Construction of each excavation area would require the use of heavy equipment and construction-related chemicals, such as fuels, oils, grease, solvents, and paints, that would be stored in limited quantities on site. In the absence of proper controls, these construction activities could result in accidental spills or disposal of potentially harmful materials used during construction that could wash into and pollute surface waters or groundwater. Materials that could potentially contaminate the construction area from a spill or leak include diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids.

Existing surface improvements, such as road pavements, sidewalks, and landscaping, would be removed at each excavation area, and soils would be excavated and temporarily removed from the site to expose the existing pipeline. Once rehabilitation is complete, the excavation area would be backfilled with soils originally excavated, and the surface of each excavation area and surrounding work zone would be restored to existing conditions. This would involve repaving existing roads, replacing or repairing existing sidewalks, and replanting landscaping. Metropolitan would incorporate Sediment and Erosion Control – Post Construction BMPs standard practices and requirements, as identified in Section 4.9.4.2, *Methodology*, into each project to minimize any construction-related runoff impacts.

Because the proposed program would be implemented incrementally over time, there would be no single construction discharge permitting process. Instead, as construction of each of the proposed projects is initiated, individual construction discharge permits would be acquired. As identified in Section 4.9.4.2, *Methodology*, where the anticipated total disturbance for a facility would be greater than 1 acre, coverage under the statewide Construction General Permit (SWRCB Water Quality Order 2009-0009-DWQ) would be fulfilled by submitting an NOI to comply with the Construction

General Permit and having a Qualified SWPPP Developer prepare and implement the SWPPP, among other things. The SWPPP would include BMPs to control erosion, sedimentation, and hazardous materials release from construction sites into surface waters. Construction BMPs would be designed to minimize erosion and sedimentation and prevent spills. Various BMPs may be needed at different times during construction, because activities are constantly changing site conditions. Selection of erosion control BMPs is based on minimizing disturbed areas, stabilizing disturbed areas, and protecting water quality. Selection of sediment control BMPs is based on retaining sediment on site and controlling the site perimeter. In addition, the SWPPP identifies the following: equipment storage, cleaning, and maintenance areas/activities; points of ingress and egress to the construction site; material loading, unloading, and storage practices and areas, including construction materials, building materials, and waste materials; and materials, equipment, or vehicles that may come in contact with stormwater. These measures would prevent excavated and eroded soils, construction materials, or debris from being transported to receiving waters.

If anticipated disturbance is less than 1 acre, the Construction General Permit would not apply. Instead, the project would be required to comply with minimum BMPs as specified by the applicable MS4 Permit (Los Angeles, Long Beach, Orange County, San Bernardino), which would similarly require implementation of BMPs to provide erosion control, sediment control, and waste management strategies for construction sites.

In select areas, shallow groundwater may be present and could potentially interfere with construction activities, requiring groundwater dewatering in support of construction. Metropolitan would incorporate Groundwater Dewatering standard practices and requirements, as identified in Section 4.9.4.2, *Methodology*, into each project to minimize any construction-related dewatering impacts. If groundwater dewatering is determined to be necessary during construction, an NOI to comply with the applicable Groundwater Dewatering General Permit would be required. Dewatering typically involves the extraction of shallow groundwater and subsequent discharge into nearby storm drains or other receiving bodies in order to facilitate the construction of underground facilities. Compliance with the conditions of the applicable general permit would ensure that dewatering discharges would not elevate pollutant concentrations beyond existing water quality limitations or otherwise deleteriously affect beneficial use of receiving waters.

Because the precise location of the PCCP line improvements and the appropriate construction techniques are not known at this time, the specific location of potential effects cannot be determined. However, the sensitive water resources identified along the program pipelines (as identified in Section 4.9.2) could be affected by the proposed program improvements, resulting in impacts on hydrology and water quality. While the work generally would be performed in areas of low environmental sensitivity (street rights-of-way), there are several channels and streams the proposed program crosses that could be potentially affected. The following discussion breaks down the different impacts that could occur on the various water resources within the program area. The analyses describe the impacts on water resources in terms of impervious and pervious surfaces. Impervious surfaces are further broken down to describe impacts within the paved right-of-way and concrete channels. Pervious surfaces are broken down further to describe impacts within natural channels and on natural lands.

Paved Right-of-Way (Impervious)

The existing PCCP lines are predominantly within public rights-of-way. Construction would generally take place in the existing public rights-of-way because that is the current location of the

pipeline. Impacts on hydrology and water quality would be minimized in these paved right-of-way areas. Existing surface improvements, such as road pavements, sidewalks, and landscaping, would be removed at each excavation area, and soils would be excavated and temporarily removed from the site to expose the existing pipeline. Soil stockpiles would be located away from drainage courses, drain inlets, or concentrated flows of stormwater. Non-active soil stockpiles would be covered and contained within temporary perimeter sediment barriers, such as berms, dikes, silt fences, or sandbag barriers. Because excavation areas would be on average approximately 15 to 20 feet deep, potential pollutants generally would be contained within the excavated areas, minimizing the potential discharge of pollutants from the project site to receiving waters. Because Metropolitan would require the contractor to comply with all applicable NPDES regulations, including the Municipal and Construction General permits (Sediment and Erosion Control – Post Construction BMPs standard practices and requirements, as identified in Section 4.9.4.2, *Methodology*), and because the proposed work would occur predominantly in public rights-of-way and below ground, impacts would be less than significant.

Concrete Channel (Impervious)

The existing PCCP lines cross several concrete channels with the program study area (as identified in Section 4.9.2). The surface waters the proposed program facilities cross are channelized and thus have a set drainage pattern; no excavation areas would occur within or adjacent to concrete channels to minimize the potential for discharge to these drainages. Proposed facility operations would not involve the alteration of these channels. It is anticipated the bed and banks of each concrete channel would not be altered because the primary component simply retrofits the existing pipeline under the channels. Because Metropolitan would require the contractor to comply with all applicable NPDES regulations, including the Municipal and Construction General permits (Sediment and Erosion Control – Post Construction BMPs standard practices and requirements, as identified in Section 4.9.4.2, Methodology), and because the proposed work would not occur within the concrete channel, impacts would be less than significant. New pipeline alignments across the concrete channels would require further environmental review and may be subject to additional permitting requirements.

Natural Channel/Streams (Pervious)

The existing PCCP lines cross several natural channels with the program area (as identified in Section 4.9.2). The natural channels the proposed program facilities cross are not channelized and thus have a meandering drainage pattern, such as Cajon Wash and Lytle Creek; no excavation areas would occur within or adjacent to natural channels to minimize the disturbance to these natural drainages. Proposed facility operations would not involve the alteration of these channels. It is anticipated the bed and banks of each natural channel would not be altered because the primary component simply retrofits the existing pipeline under the channels. Because Metropolitan would require the contractor to comply with all applicable NPDES regulations, including the Municipal and Construction General permits (Sediment and Erosion Control – Post Construction BMPs standard practices and requirements, as identified in Section 4.9.4.2, *Methodology*), and because the proposed work would not occur within the bed and banks of the natural channel, impacts would be less than significant. New pipeline alignments across the natural channels would require further environmental review and would be subject to additional permitting requirements.

Natural Land (Hillside/Undeveloped) (Pervious)

While the existing PCCP line is predominantly within public rights-of-way, several portions of the Allen-McColloch Pipeline, Rialto Pipeline, and Sepulveda Feeder traverse natural lands, including hillsides and undeveloped and agricultural land uses. Some of these natural areas are also associated with natural drainages; no excavation areas would occur within or adjacent to natural drainages to minimize the disturbance to these natural drainages. Impacts on hydrology and water quality generally would be minimized in these natural areas. Existing landscaping would be removed at each excavation area, and soils would be excavated and temporarily removed from the site to expose the existing pipeline. Soil stockpiles would be located away from drainage courses, drain inlets, or concentrated flows of stormwater. Non-active soil stockpiles would be covered and contained within temporary perimeter sediment barriers, such as berms, dikes, silt fences, or sandbag barriers. Because excavation areas would be on average approximately 15 to 20 feet deep, potential pollutants generally would be contained within the excavated areas, minimizing the potential discharge of pollutants from the project site to receiving waters. Once rehabilitation is complete, the excavation area would be backfilled with soils originally excavated, and the surface of each excavation area and surrounding work zone would be restored to existing conditions. Because Metropolitan would require the contractor to comply with all applicable NPDES regulations, including the Municipal and Construction General permits (Sediment and Erosion Control – Post Construction BMPs standard practices and requirements, as identified in Section 4.9.4.2, *Methodology*), and because the work zone would be restored to existing conditions, impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold WQ-C: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, in a Manner that Would Result in Substantial Erosion or Siltation On or Off Site

The proposed program facilities would not alter the course of a stream or river. The proposed program would not involve the alteration of these channels, nor is it expected to increase the flow within these channels. As a result, there would be no increase in erosion or siltation along river or stream channels.

Implementation of the proposed program could alter existing drainage patterns at each project site in other ways. Construction would include excavation and the overall disturbance of existing hardscape and landscape, would expose bare soil, and could temporarily alter drainage patterns with the potential to cause erosion and sedimentation. Adherence to applicable NPDES regulations, including the Municipal and Construction General permits (Sediment and Erosion Control – Post Construction BMPs standard practices and requirements, as identified in Section 4.9.4.2, *Methodology*), would ensure erosion or siltation does not occur on site through implementation of

erosion and sediment control BMPs during construction of the projects. These requirements would include the implementation of BMPs for erosion, sediment, non-stormwater management, and waste management, as described further in Threshold WQ-A. Furthermore, once rehabilitation is complete, the excavation area would be backfilled with soils originally excavated, and the surface of each excavation area and surrounding work zone would be restored to existing conditions. With implementation of erosion and sediment control BMPs and restoration of the site, construction-related impacts related to alteration of an existing drainage pattern that could result in substantial erosion or siltation on or off site from the proposed program would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold WQ-D: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Manner That Would Result in Flooding On or Off Site

The proposed program facilities would not alter the course of a stream or river. The proposed program would not involve the alteration of these channels, nor is it expected to increase the flow within these channels. As a result, there would be no associated potential for flooding.

Implementation of the proposed program could alter existing drainage patterns at each project site in other ways. The presence of new aboveground facilities at each project site may change the extent of permeable or impermeable surfaces, which could alter the direction and volume of overland flows during both wet and dry periods. Aboveground enclosures are typically located on sidewalk median strips and house back-flow preventer valves and air vents. For aboveground enclosures on existing impervious surfaces, the addition of the structure would not alter the drainage pattern and no impact would occur. However, for aboveground enclosures on existing pervious surfaces, the addition of the structure may alter the drainage pattern, resulting in flooding on or off site. Given the small size of these structures, they are unlikely to significantly affect the drainage pattern. However, because the precise location of the aboveground facilities and the appropriate construction techniques are not known at this time, the specific location of potential effects cannot be determined. During project design of aboveground enclosures, overland flows and drainage at each project site with pervious conditions would be assessed and drainage facilities designed such that no net increase in runoff would occur, in accordance with the applicable MS4 Permit. As required by MM HYD-1, a grading and drainage plan would be developed during project design for aboveground facilities within pervious areas and implemented to ensure no increase in flooding on or off site. This also would ensure no substantial increases in erosion or sedimentation and no exceedance of the existing capacity of stormwater drainage systems. Impacts would be less than significant with mitigation.

Mitigation Measures

MM HYD-1 Implementation of a Grading and Drainage Plan.

Prior to construction of aboveground project facilities, Metropolitan will prepare a grading and drainage plan that identifies anticipated changes in flow that would occur on site and minimizes any potential increases in flooding, erosion, or sedimentation potential in accordance with applicable regulations and in coordination with ~~requirements for~~ the county and/or the city in which the facility would be located. The ~~In accordance with local requirements, the~~ plan will identify and implement best management practices and other measures to ensure that potential increases in stormwater flows and erosion are minimized.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM HYD-1 would reduce these impacts so that residual impacts would be less than significant.

Threshold WQ-E: Create or Contribute Runoff Water that Would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff

Runoff could be generated during construction of the proposed program facilities during a storm event or from non-stormwater discharges, such as water used for dust control or hydrostatic testing of the pipelines. If BMPs are improperly installed, this could result in runoff that could overwhelm the stormwater drainage system or result in sedimentation. Stormwater controls would be necessary to prevent runoff in amounts that would overwhelm the stormwater drainage system and to prevent pollutants, such as sediments, to increase in concentration and discharge from the project site. Metropolitan would incorporate Sediment and Erosion Control – Post Construction BMPs standard practices and requirements, as identified in Section 4.9.4.2, *Methodology*, into each project to minimize any construction-related runoff impacts. Metropolitan would also incorporate Groundwater Dewatering standard practices and requirements, as identified in Section 4.9.4.2, *Methodology*, into each project to minimize any construction-related dewatering impacts. Dewatering typically involves the extraction of shallow groundwater and subsequent discharge into nearby storm drains or other receiving bodies in order to facilitate the construction of underground facilities. Compliance with the conditions of the applicable general permit would ensure that dewatering discharges would not elevate pollutant concentrations.

Moreover, the work generally would be performed in areas of low environmental sensitivity (public rights-of-way); no excavation areas would be within or adjacent to channels to minimize the disturbance to these drainages. However, the Second Lower Feeder crosses the Dominguez Channel near the I-405 and Carson Street intersection. The downstream receiving waters of the Dominguez Channel Estuary is a 303(d)-listed water body as impaired for sediment toxicity. As a result, this waterway is particularly sensitive to sediment discharges, and additional BMPs may be necessary during construction to control and capture sediment from the project site to prevent discharge. As required by the RWQCB, the SWPPP or WPCP would identify the water body as sensitive for sediment and would implement BMPs to ensure the beneficial uses and water quality objectives are upheld. BMPs would be regularly inspected and monitored for performance during construction activities. Additional BMPs would be installed as necessary to ensure the waterways are protected

to the MEP. Metropolitan would be required to comply with all applicable regulations and permits as noted under Threshold WQ-A. Therefore, impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold WQ-J: Expose People or Structures to Inundation by Seiche, Tsunami, or Mudflow

The program study area does not include coastal areas that could be subject to tsunami. The program area includes some areas that are adjacent to enclosed bodies of water that could be subject to seiche under extreme conditions. However, the flood inundation area is a pre-existing condition within the project area, and the placement of the proposed project facilities in the inundation area would not exacerbate this condition. The proposed program facilities consist of either subterranean improvements or low-profile features (permanent appurtenant structures) that are generally not considered susceptible to substantive damage from these hazards. Aboveground enclosures, typically located on sidewalk median strips, house back-flow preventer valves and air vents. No permanent structures would be staffed and any potential damage the aboveground enclosures might incur would likely be relatively easily repaired. As a result, the potential impact on structures subject to inundation by seiche would be less than significant.

In general, the proposed program would be in relatively flat areas that are not susceptible to mudflows. However, small portions of the Allen-McColloch Pipeline, Rialto Pipeline, and Sepulveda Feeder are within hilly areas that may be susceptible to mudflow under extreme conditions. However, the proposed program is an existing facility, and the proposed program would not add new aboveground facilities that would exacerbate mudflow conditions. Furthermore, proposed program facilities consist of either subterranean improvements or low-profile features that are generally not considered susceptible to substantive damage from these hazards. As a result, the potential impact on structures subject to mudflow would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

4.9.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases implementation of the projects in the proposed program would occur past the planning horizons of

local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

The geographic scope of analysis for cumulative impacts on hydrology and water quality includes the watershed in which the program would occur. The proposed program would involve land-disturbing activities that would expose soils and, as such, would require compliance with the Construction General Permit. Compliance with the Construction General Permit would require development and implementation of a SWPPP by a Qualified SWPPP Developer, which would list BMPs that would be implemented by a Qualified SWPPP Practitioner to protect stormwater runoff and include a monitoring plan for measuring BMP effectiveness. At a minimum, BMPs would include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP would specify properly designed, centralized storage areas that keep these materials out of the rain. The primary BMPs selected would focus on erosion control (i.e., keeping sediment in place), followed by sediment control (i.e., keeping sediment on the site). In addition to the SWPPP, implementation of Metropolitan's environmental commitments and typical BMPs would be required, which would reduce impacts on water quality.

The proposed program would not contribute to a cumulative degradation of water quality. Development of the proposed program and other development within the study area could degrade stormwater quality by contributing pollutants during construction. When the effects of the proposed program on water quality are considered in combination with the potential effects of other cumulative projects, there is the potential for cumulative impacts on surface water, stormwater, and groundwater quality. The incremental water quality impact contribution from implementation of the proposed program would be minor because required BMPs would reduce the potential for pollutant discharge in stormwater runoff. The combined effects on water quality from the proposed program and other projects in the study area could result in a cumulatively significant impact. However, new projects within the study area are also subject to the requirements of the associated Municipal NPDES Permit, the Construction General Permit, and the applicable municipal codes as they relate to water quality; these regulatory requirements have been designed to be protective of water quality. Additionally, development projects would be subject to an environmental review process, which would identify potential site- and/or project-specific water quality impacts and mitigate for any potential significant impacts. Therefore, the proposed program, in conjunction with other cumulative projects, would not result in significant cumulative impacts on hydrology and water quality resources within the program study area, and the proposed program's contribution to impacts would not be cumulatively considerable.

Section 4.10
Land Use

4.10.1 Introduction

This section describes the existing conditions for land use, the regulatory framework associated with land use, the impacts on land use that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant land use impacts.

4.10.2 Existing Conditions

The study area for land use is the pipeline easements or rights-of-way and the immediately adjacent properties. (Note to reader: No figures are provided for existing or planned land uses in this document because it is not practical to map land uses at the program-level scale, and because the proposed program would not change any existing or planned land uses.)

4.10.2.1 Allen-McColloch Pipeline

The Allen-McColloch Pipeline, which is approximately 26 miles in length, is located in Orange County and within the city limits of Yorba Linda, Anaheim, Orange, Tustin, Lake Forest, and Mission Viejo. The Allen-McColloch Pipeline originates from the Diemer Water Treatment Plant in unincorporated Orange County. The pipeline exits the Diemer Water Treatment Plant to the southeast below the Black Gold Golf Club, prior to continuing south between residential and commercial land uses in Yorba Linda. After crossing the Santa Ana River and State Route 91 (SR-91)), the Allen-McColloch Pipeline generally runs parallel to Imperial Highway before crossing undeveloped and residential land uses. It continues southeast along the outskirts of Orange, North Tustin, and Irvine, traversing primarily undeveloped and agricultural land uses until entering residential and commercial land uses of Lake Forest. The Allen-McColloch Pipeline terminates at the El Toro Reservoir in Mission Viejo.

Planned land uses through which the Allen-McColloch Pipeline travels are identified in Table 4.10-1.

Table 4.10-1. Planned Land Uses Associated with the Allen-McColloch Pipeline

Jurisdiction	Planned Land Uses
City of Yorba Linda	Residential, Commercial, Open Space (City of Yorba Linda 1993)
City of Anaheim	Commercial, Parks, Residential (City of Anaheim 2004)
City of Orange	Open Space, Residential (City of Orange 2010)
City of Tustin	Residential, Planned Community Public/Institutional (City of Tustin 2013)
City of Lake Forest	Open Space, Residential, Commercial, Public Facility (City of Lake Forest 1994)
City of Mission Viejo	Residential, Recreation/Open Space, Community Facility (City of Mission Viejo 2013)

Jurisdiction	Planned Land Uses
Unincorporated Orange County	Public Facilities, Open Space (Orange County 2014)

4.10.2.2 Calabasas Feeder

The Calabasas Feeder, which is approximately 9.3 miles in length, is located in Los Angeles County and travels primarily within the city limits of Los Angeles, with a short portion of the pipeline within the city limits of Hidden Hills and Calabasas. The Calabasas Feeder originates from West Valley Feeder No. 2 in the city of Los Angeles and follows Owensmouth Avenue south through densely populated residential and commercial land uses. At Chase Street, the Calabasas Feeder heads west and south, continuing through residential land uses. The Calabasas Feeder then turns southwest and parallels U.S. Highway 101 (US-101) through primarily commercial land uses prior to terminating at the Las Virgenes Municipal Water District Service Connection in Calabasas.

Planned land uses through which the Calabasas Feeder travels are identified in Table 4.10-2.

Table 4.10-2. Planned Land Uses Associated with the Calabasas Feeder

Jurisdiction	Planned Land Uses
City of Los Angeles	Regional Commercial, Residential (City of Los Angeles 2001)
City of Hidden Hills	Commercial (City of Hidden Hills 1995)
City of Calabasas	Public Facilities (City of Calabasas 2015)

4.10.2.3 Rialto Pipeline

The Rialto Pipeline, which is approximately 30 miles in length, is located in San Bernardino and Los Angeles counties and travels within the city limits of San Bernardino, Rialto, Fontana, Rancho Cucamonga, Upland, Claremont, La Verne, and San Dimas, as well as small portions of unincorporated areas in the two counties. The Rialto Pipeline originates at the California Department of Water Resources' Devil Canyon Facility in the city of San Bernardino and exits the facility to the southwest along Pine Avenue through residential land uses. After crossing Interstate 215 (I-215), the Rialto Pipeline continues southwest through vacant land and industrial land uses until entering the northern portions of Rialto and Fontana, where the pipeline traverses a mixture of residential, commercial, and open space land uses. In Rancho Cucamonga, Upland, and Claremont, the Rialto Pipeline travels generally along Interstate 210 (I-210) through primarily residential and open space land uses. After traveling to the south of Live Oak Reservoir, the Rialto Pipeline continues through La Verne, traveling through residential land uses, open space land uses, and golf courses. The Rialto Pipeline continues into San Dimas, where it parallels North San Dimas Canyon Road through open space and residential land uses prior to terminating at the San Dimas Power Plant Control Structure.

Planned land uses through which the Rialto Pipeline travels are identified in Table 4.10-3.

Table 4.10-3. Planned Land Uses Associated with the Rialto Pipeline

Jurisdiction	Planned Land Uses
City of San Bernardino	Industrial, Residential, Public Facility (City of San Bernardino 2005)
City of Rialto	Residential, Business Park, Light Industrial, Open Space (City of Rialto 2010)
City of Fontana	Public Utility Corridors, Public Facilities, Residential (City of Fontana 2003)
City of Rancho Cucamonga	Residential, Flood Control/Utility Corridor, Conservation, Open Space (City of Rancho Cucamonga 2010)
City of Upland	Open Space, Residential, Civic/School, Public Utilities (City of Upland 2015)
City of Claremont	Open Space, Residential, Transportation and Utilities (City of Claremont 2009)
City of La Verne	Open Space, Residential, Transportation and Utilities (City of La Verne 1999)
City of San Dimas	Open Space, Residential (City of San Dimas 2003)
Unincorporated San Bernardino County	Open Space (San Bernardino County 2014)
Unincorporated Los Angeles County	Open Space (Los Angeles County 2015)

4.10.2.4 Second Lower Feeder

The Second Lower Feeder, which is approximately 39 miles in length, is located in Orange County and Los Angeles County and travels within the city limits of Yorba Linda, Placentia, Anaheim, Buena Park, Cypress, Los Alamitos, Long Beach, Carson, Los Angeles, Torrance, Lomita, and Rolling Hills Estates, plus unincorporated areas of the two counties. The Second Lower Feeder originates at the Diemer Water Treatment Plant in Yorba Linda and exits the facility to the west across vacant land, before turning south and crossing the Black Gold Golf Course. It continues southwest through Yorba Linda, traversing residential and commercial land uses along several roadways. Upon entering Placentia, the Second Lower Feeder parallels Angelina Drive through residential, open space, and commercial land uses. The pipeline continues southwest through Anaheim, traversing more residential, open space, and commercial land uses, prior to heading west along Ball Road through Buena Park and Cypress. In Los Alamitos, the Second Lower Feeder crosses west through El Dorado East Regional Park and continues west into Long Beach (and slightly into Lakewood) through residential land uses prior to paralleling the northern edge of the Skylinks at Long Beach Golf Course and the Long Beach Airport. The pipeline continues west along roadways in residential land uses prior to crossing the Los Angeles River and Interstate 710 (I-710) just north of Interstate 405 (I-405). The Second Lower Feeder enters Carson along Carson Street and continues west, traveling through business, residential, and commercial land uses. In west Carson, it travels south along Western Avenue through residential and commercial land uses, and continues through a small portion of unincorporated Los Angeles County and the city of Los Angeles. Prior to terminating at the Palos Verdes Reservoir, the Second Lower Feeder travels southwest, barely touching into Torrance and Lomita, and through Rolling Hills Country Club along Palos Verdes Drive.

Planned land uses through which the Second Lower Feeder travels are identified in Table 4.10-4.

Table 4.10-4. Planned Land Uses Associated with the Second Lower Feeder

Jurisdiction	Planned Land Use
City of Yorba Linda	Residential, Commercial, Open Space (City of Yorba Linda 1993)
City of Placentia	Residential, Commercial (City of Placentia 1989)
City of Anaheim	Parks, Open Space, Water, Residential, Mixed-Use (City of Anaheim 2004)
City of Buena Park	Open Space, Residential (City of Buena Park 2010)
City of Cypress	Commercial, Residential, Education Facilities, Public Parks (City of Cypress 2001)
City of Los Alamitos	Residential, Retail Business (City of Los Alamitos 2015)
City of Long Beach	Open Space/Parks, Residential, Harbor/Airport, Mixed Uses (City of Long Beach 1997)
City of Carson	Light Industrial, Residential, Public Facilities, Commercial (City of Carson 1982)
City of Los Angeles	Residential, Commercial (City of Los Angeles 2001)
City of Rolling Hills Estates	Residential, Commercial Recreation (City of Rolling Hills Estates 1992)

4.10.2.5 Sepulveda Feeder

The Sepulveda Feeder, which is approximately 42 miles in length, is located in Los Angeles County and travels within the city limits of Los Angeles, Culver City, Inglewood, Hawthorne, Gardena, and Torrance, plus a small unincorporated area of Los Angeles County. The Sepulveda Feeder originates at the Jensen Water Treatment Plant in the city of Los Angeles and exits the facility to the south through residential land uses and the eastern portion of the Knollwood Golf Course. The Sepulveda Feeder continues south along Hayvenhurst Avenue, traversing residential and commercial land uses, vacant land and agricultural fields, and the Van Nuys Airport. Just north of the Van Nuys Golf Course, the Sepulveda Feeder turns east through residential land uses and crosses I-405, prior to paralleling the freeway south into commercial and residential land uses of the Sherman Oaks and Encino neighborhoods of Los Angeles. The Sepulveda Feeder continues to generally parallel I-405 toward the southeast into Culver City and Inglewood, where it traverses commercial and residential land uses. Near the Ladera Heights neighborhood, the Sepulveda Feeder travels east through primarily residential land uses before turning south and paralleling Van Ness Avenue through commercial, residential, and industrial land uses of Hawthorne, Gardena, and Torrance. The Sepulveda Feeder terminates at the Second Lower Feeder Interconnection in Torrance.

Planned land uses through which the Sepulveda Feeder travels are identified in Table 4.10-5.

Table 4.10-5. Planned Land Uses Associated with the Sepulveda Feeder

City	Planned Land Use
City of Los Angeles	Residential, Open Space, Public Facilities, Industrial (City of Los Angeles 2001)
City of Culver City	Residential, Commercial, Open Space, Freeway (City of Culver City 1995)
City of Inglewood	Residential (City of Inglewood 2009)
City of Hawthorne	Residential, Commercial, Industrial (City of Hawthorne 2016)
City of Gardena	Residential, Commercial (City of Gardena 2013)

City	Planned Land Use
City of Torrance	Residential, Public/Open Space, Business Park, Industrial (City of Torrance 2010)

4.10.3 Regulatory Framework

Land use plans and policy documents set forth regulations pertaining to allowed development. For a description of applicable plans, laws, and regulations associated with specific resources, such as air quality, historical structures or cultural resources, marine environment, noise, recreation, and traffic and transportation, refer to each specific resource section in this document. For example, all applicable South Coast Air Quality Management District plans and regulations related to air quality are specifically discussed and addressed in Section 4.3, *Air Quality*. Proposed program ~~Project and proposed Program~~ -related land use plans, policies, and regulations are discussed in this section.

4.10.3.1 Federal

Federal land use planning regulations are not applicable to the proposed program elements because land use and planning decisions are made at the local level. None of the pipelines pass through federal lands.

4.10.3.2 State

Regulation of Local Agencies by Counties and Cities (California Government Code Section 53091)

California Government Code Section 53091 limits the powers of local jurisdictions over other agencies. Specifically, it states that building ordinances and zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water by a local agency.

4.10.3.3 Local

Table 4.10-6 lists the applicable land use elements of the general plans for the proposed program.

Table 4.10-6. Applicable Land Use Plans for Proposed Program

Jurisdiction	Applicable General Plan
Allen-McColloch Pipeline	
City of Yorba Linda	City of Yorba Lind General Plan (1993)
City of Anaheim	City of Anaheim General Plan (2004)
City of Orange	Orange General Plan (2010)
City of Tustin	Tustin General Plan (2013)
City of Irvine	City of Irvine General Plan (2012)
City of Lake Forest	Lake Forest General Plan (1994)
City of Mission Viejo	Mission Viejo General Plan (2013)

Jurisdiction	Applicable General Plan
County of Orange	County of Orange General Plan (2014)
Calabasas Feeder	
City of Los Angeles	The City of Los Angeles General Plan (2001)
City of Hidden Hills	City of Hidden Hills General Plan (1995)
City of Calabasas	City of Calabasas 2030 General Plan (2015)
Rialto Pipeline	
City of San Bernardino	City of San Bernardino General Plan (2005)
City of Rialto	Rialto General Plan (2010)
City of Fontana	City of Fontana General Plan (2003)
City of Rancho Cucamonga	Rancho Cucamonga General Plan (2010)
City of Upland	City of Upland General Plan (2015)
City of Claremont	City of Claremont General Plan (2009)
City of La Verne	The City of La Verne General Plan (1999)
City of San Dimas	City of San Dimas General Plan (2003)
San Bernardino County	County of San Bernardino 2007 General Plan (revised 2014)
Los Angeles County	Los Angeles County 2035 General Plan (2015)
Second Lower Feeder	
City of Yorba Linda	City of Yorba Lind General Plan (1993)
City of Placentia	City of Placentia General Plan (1989)
City of Anaheim	City of Anaheim General Plan (2004)
City of Buena Park	Buena Park 2035 General Plan (2010)
City of Cypress	Cypress General Plan (2001)
City of Los Alamitos	Los Alamitos General Plan (2015)
City of Long Beach	City of Long Beach General Plan (1997)
City of Lakewood	The City of Lakewood Comprehensive General Plan (1996)
City of Carson	Carson General Plan (1982)
City of Los Angeles	The City of Los Angeles General Plan (2001)
City of Torrance	City of Torrance General Plan (2010)
City of Lomita	City of Lomita General Plan (1998)
City of Rolling Hills Estates	City of Rolling Hills Estates General Plan (1992)
Orange County	County of Orange General Plan (2014)
Los Angeles County	Los Angeles County 2035 General Plan (2015)
Sepulveda Feeder	
City of Los Angeles	The City of Los Angeles General Plan (2001)
City of Culver City	Culver City General Plan (1995)
City of Inglewood	City of Inglewood General Plan (2009)
City of Hawthorne	City of Hawthorne General Plan (2016)
City of Gardena	Gardena General Plan (2013)
City of Torrance	City of Torrance General Plan (2010)
Los Angeles County	Los Angeles County 2035 General Plan (2015)

4.10.4 Thresholds and Methodology

4.10.4.1 Thresholds of Significance

Table 4.10-7 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to land use. It indicates which impacts must be analyzed in the PEIR for the proposed program.

Table 4.10-7. CEQA Thresholds for Land Use

Threshold *Would the proposed program:*
a. Physically divide an established community?
b. Conflict with applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?*
*See impacts discussion in Section 4.4, *Biological Resources*.

4.10.4.2 Methodology

Division of a Community

The majority of the proposed program elements would be within existing public rights-of-way. During construction, the rehabilitation projects could temporarily create a division within a community if access within the community, especially between residences and community facilities (e.g., parks, schools), were impeded. This potential impact is evaluated in this section under Threshold LU-A.

Conflicts with Plans, Policies, or Regulations

This analysis evaluates the consistency or compliance of the proposed project with relevant land use plans, policies, and regulations. Because the proposed program would not change land uses, the program's consistency with land use plans would be the same as the existing condition. Therefore, under CEQA, the proposed program would not result in impacts related to conflicts with land use plans, policies, and regulations.

Existing plans, policies, and regulations governing specific resources such as aesthetics, agriculture, air quality, etc. are addressed in the relevant resource sections of this PEIR (Sections 4.1 through 4.9 and 4.11 through 4.14).

4.10.5 Impacts Analysis

4.10.5.1 Program Analysis

Threshold LU-A: Physically Divide an Established Community

Rehabilitation work would involve excavation sites, work zones, and staging land uses. Barriers would be used to confine construction for safety purposes. The proposed program consists of improvements to an existing subsurface water distribution pipeline and would not involve the construction or operation of any permanent structures or alterations that would physically divide an established community.

In some cases, construction work areas, primarily for the excavation sites, may require access to certain facilities to be blocked or rerouted during construction. This could temporarily create barriers that would physically divide communities from the most direct access to community facilities. Because these changes would not be permanent and would only affect a given area for a duration between 6 and 9 months, and because the contractors would be required to maintain access to facilities in some manner, these impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold LU-B: Conflict with Applicable Land Use Plan, Policy, or Regulation of an Agency with Jurisdiction over the Project Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect

Because the proposed program would not change land uses, the program's consistency with land use plans would be the same as the existing condition. Therefore, under CEQA, the proposed program would not result in impacts related to conflicts with land use plans, policies, and regulations.

Existing plans, policies, and regulations governing specific resources such as aesthetics, agriculture, air quality, etc. are addressed in the relevant resource sections of this PEIR (Sections 4.1 through 4.9 and 4.11 through 4.14).

Mitigation Measures

There would be no impacts for the proposed program and therefore no mitigation is necessary.

Residual Impacts

No impacts would result from the proposed program, and no mitigation is necessary. Therefore, there would be no residual impacts for the proposed program.

4.10.5.2 Cumulative Analysis

Program Analysis

The proposed program would be implemented over a long period of time; in many cases implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

The only land use impact identified for the proposed program was the potential for construction to create temporary barriers within an established community. These impacts would be temporary and less than significant. Because they would be very localized, they would not combine with other neighborhood division impacts to result in a considerable contribution to a cumulative impact.

Section 4.11
Noise

4.11.1 Introduction

This section describes the existing conditions related to noise, the regulatory framework associated with noise, the impacts caused by noise that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant noise impacts.

4.11.2 Existing Conditions

The study area for noise is the pipeline easements or rights-of-way, and the immediately adjacent properties.

Because specific rehabilitation sites have not been identified for the proposed program's approximate 100 miles of pipelines, ambient noise levels are not provided in this analysis. The existing conditions discussion identifies potential sensitive noise receptors ~~receivers~~. Sensitive receptors ~~receivers~~ include the following.

- residential dwellings
- schools and daycare centers
- churches and other religious facilities
- hospitals
- parks, playgrounds, picnic areas, recreation areas, and some trails
- amphitheaters and auditoriums
- campgrounds
- cemeteries
- hospitals
- libraries
- some public meeting rooms, and public and nonprofit institutional structures
- radio, television, and recording studios
- some historic properties
- other uses that may be sensitive to increased noise levels

Vibration-sensitive land uses include buildings where low ambient vibration is essential for operations within the building, such as concert halls, some forms of manufacturers, hospitals with vibration-sensitive equipment, and university research centers. Residential land uses or other places where people sleep, such as hotels and hospitals, can also be sensitive to vibration levels. Finally, historic buildings and structures may be sensitive to high vibration levels.

Not all of these uses are identifiable at the program level, so this analysis focuses on ones that can be identified (using Google Earth mapping and other sources), and how additional sensitive receptors ~~receivers~~ will be identified prior to construction of any program element.

4.11.2.1 Allen-McColloch Pipeline

Table 4.11-1 lists known noise- and vibration-sensitive land uses in the Allen-McColloch Pipeline study area.

Table 4.11-1. Known Noise- and Vibration-Sensitive Land Uses in Allen-McColloch Pipeline Study Area

Jurisdiction	Land Use
City of Yorba Linda	• Residential land uses • Black Gold Golf Course • Yorba Linda High School • Fairmont Knolls Park • Fairmont Elementary School • Bernardo Yorba Middle School • Bike/horse trail adjacent to Fairmont Boulevard • Ivy Crest Montessori School • Canyon Hills Friends Church
City of Anaheim	• Residential land uses • Santa Ana River Trail • Canyon High School • Imperial Elementary School
City of Orange	• Residential land uses • Salem Lutheran Church and Salem Lutheran School • Riding Academy of Orange County • Cemetery of the Holy Sepulcher • Santiago Canyon College • Peters Canyon Regional Park • Peters Canyon Regional Trail and Bikeway • East Ridge View Trail • Mountains to the Sea Trail
Unincorporated Orange County	• Residential land uses
City of Tustin	• Residential land uses • Pioneer Road Park
City of Irvine	• Residential land uses
City of Lake Forest	• Residential land uses • Santiago de Compostela Catholic Church • El Toro Memorial Park • Trabuco Side Path (trail) • Aliso Creek Bikeway • Grace Community Church/Grace Christian Schools
City of Mission Viejo	• Residential land uses

4.11.2.2 Calabasas Feeder

Table 4.11-2 lists known noise- and vibration-sensitive land uses in the Calabasas Feeder study area.

Table 4.11-2. Known Noise- and Vibration-Sensitive Land Uses in Calabasas Feeder Study Area

Jurisdiction	Land Use
City of Los Angeles	• Residential land uses • Living Praise Christian Center • Nevada Avenue Elementary School • Capistrano Avenue Elementary School • West Hills Church • New Life Church • Beth Ariel Messianic Congregation • Adventure Planet Montessori Learning Center • Beit Hamidrash of Woodland Hills (religious facility) • First Baptist Church • Beit Avraham – Sephardic Community Synagogue
City of Hidden Hills	• Residential land uses
City of Calabasas	• Leonis Adobe Museum

4.11.2.3 Rialto Pipeline

Table 4.11-3 lists known noise- and vibration-sensitive land uses in the Rialto Pipeline study area.

Table 4.11-3. Known Noise- and Vibration-Sensitive Land Uses in Rialto Pipeline Study Area

Jurisdiction	Land Use
City of San Bernardino	• Residential land uses • Trail (adjacent to Pine Avenue North)
City of Rialto	• Residential land uses • Kingdom Hall of Jehovah's Witnesses • Fergusson Park
City of Fontana	• Residential land uses • Hunter's Ridge Park
City of Rancho Cucamonga	• Residential land uses • Trail (adjacent of Crescenta Way) • Trail (adjacent to 24th Street/Wilson Avenue) • Ashley Park • John L. Golden Elementary School • Day Creek Park • Los Osos High School • Trail (adjacent to Banyan Street) • Banyan Elementary School • Chaffey College • Shepherd of the Hills Lutheran Church • Beryl Park • Church of Jesus Christ of Latter-day Saints

Jurisdiction	Land Use
City of Upland	• Residential land uses • Trail (center median of Euclid Avenue) • Pioneer Junior High School • Chaffey Communities Cultural Center/Pioneer Park • Pepper Tree Elementary School
City of Claremont	• Residential land uses • Thompson Creek Trail • La Puerta Sports Park • The Webb Schools
City of La Verne	• Residential land uses • Live Oak Park • Sierra La Verne County Club (golf)
City of San Dimas	• Residential land uses • San Dimas Canyon Golf Course • San Dimas Canyon Park

4.11.2.4 Second Lower Feeder

Table 4.11-4 lists known noise- and vibration-sensitive land uses in the Second Lower Feeder study area.

Table 4.11-4. Known Noise- and Vibration-Sensitive Land Uses in Second Lower Feeder Study Area

Jurisdiction	Land Use
City of Yorba Linda	• Residential land uses • Black Gold Golf Course • Heritage Oak Private Education • Emanuel Danish Lutheran Church and Cultural Center • Friends Christian Middle School
City of Placentia	• Residential land uses • Brookhaven Elementary School • El Dorado High School • Blessed Sacrament Episcopal Church • Kraemer Middle School
City of Anaheim	• Residential land uses • Miraloma Park/Family Resource Center • Kingdom Hall of Jehovah's Witnesses • Pioneer Park • Church of Dream Builders • Iglesia Sunkist (religious facility) • South Junior High School • Mission Community Church • Boysen Park • Theodore Roosevelt Elementary School • Olive Street Elementary School • Walnut Grove Park

Jurisdiction	Land Use
	• Caodai Center (religious facility) • Multiple hotels/motels along Disneyland Drive and Ball Road • Prince of Peace Lutheran Church and School • Gilbert High School • Grace Missionary Baptist Church • Saint Justin Martyr Catholic Church and School • West Anaheim United Methodist Church • Magnolia High School • Korea Buddhist Temple Jung Hye Sa • Anaheim Baptist Fellowship
City of Buena Park	• Residential land uses • Dickerson Elementary School
City of Cypress	• Residential land uses • Cypress Church • Islamic Center of Cypress • Juliet Morris Elementary School • Darrell Essex Park • Veterans Park • Cypress Nature Park
City of Los Alamitos	• Residential land uses
City of Long Beach	• Residential land uses • Coyote Creek Bikeway • Newcomb Academy • El Dorado Regional Park • San Gabriel River Trail • Henry Elementary School • Rosie the Riveter Park and Interpretive Center • Skylinks at Long Beach Golf Course • California Heights United Methodist Church • Charles Evans Hughes Middle School • Longfellow Elementary School • Los Cerritos Park • Los Cerritos Elementary School • The Fitting Studio (golf range) • Rancho Dominguez Preparatory School
City of Lakewood	• Residential land uses
City of Carson	• Residential land uses • Our Lady of Guadalupe Old Catholic Church • Central Baptist Church • Bethel Baptist Church and Christian School • Econo Lodge Carson • United Samoan Congregational Church • John D. Calas, Sr. Community Park • Bonita Elementary School • Carson Community Deliverance (religious facility) • Immanuel Missionary Baptist Church

Jurisdiction	Land Use
	• First Christian Church of Carson • White Middle School • United Baptist Church • Christian Enrichment Center
City of Torrance	• Residential land uses
City of Los Angeles	• Residential land uses • Narbonne High School • George S. Patton Continuation School • The Pines Christian School • Canaan New Life Christian Church
City of Lomita	• Residential land uses • The Harbor Church and Harbor Church Schools
City of Rolling Hills Estates	• Residential land uses • Bridlewood Trail • Rolling Hills Country Club (golf) • Bridle Trail • Dapplegray Park • Rolling Hills Estates Community Center • George F. Canyon Preserve and Nature Center • Native Plant Demonstration Garden • Miller's Trail • Carriage Trail • Stein Hale Nature Trail (Georgette Trail)

4.11.2.5 Sepulveda Feeder

Table 4.11-5 lists known noise- and vibration-sensitive land uses in the Sepulveda Feeder study area.

Table 4.11-5. Known Noise- and Vibration-Sensitive Land Uses in Sepulveda Feeder Study Area

Jurisdiction	Land Use
City of Los Angeles	• Residential land uses • Granada Hills Youth Recreation Center • Knollwood Golf Course • Saint Andrew and Saint Charles Church • Rinaldi Convalescent Hospital • Concordia Granada Hills (school) • First Baptist Church of Granada Hills • Tulsa Street Elementary School • Saint John Baptist de la Salle School • Holy Martyrs Armenian School • Church of Scientology of the Valley • Van Nuys Golf Course • Hampton Inn & Suites Los Angeles/Sherman Oaks • Best Western Plus Carriage Inn

Jurisdiction	Land Use
	• Kingdom Hall of Jehovah's Witnesses • Starlight Cottage (hotel) • Saint Mary Romanian Greek Catholic Church • Sherman Oaks Castle Park • Berkley Hall School • Milken Community Middle School • Skirball Cultural Center • Los Angeles County Open Space • Mountain Gate Country Club (golf) • Getty View Park • Getty Center South Building • Hotel Angeleno • Luxe Sunset Boulevard (hotel) • Village Church Westwood Lutheran • Ahavat Torah Synagogue Los Angeles • Los Angeles National Cemetery • Westwood Recreation Center • Best Western Royal Palace Inn & Suites • Charnock Road Elementary School • Multiple hotels/motels on Sepulveda Boulevard between Venice Boulevard and Washington Place • Saint Eugene's Catholic Church and School
City of Culver City	• Residential land uses • Culver Palms United Methodist Church
City of Inglewood	• Residential land uses • Frank D. Parent Elementary School • Inglewood Park Cemetery • Warren Lane Elementary School • Circle Park • Century Academy for Excellence • Brethren Elementary and Junior High School • El Nido Family Center (school)
City of Hawthorne	• Residential land uses • Hollypark Little League • Chester Washington Golf Course
City of Gardena	• Residential land uses • Hollypark United Methodist Church • Rowley Park • Maria Regina Catholic Church and School • Junipero Serra High School
City of Torrance	• Residential land uses • Lincoln Elementary School • Arlington Elementary School

4.11.3 Regulatory Framework

This section describes the plans, policies, and regulations related to noise that are applicable to the proposed program.

4.11.3.1 Federal

There are no federal regulations related to noise applicable to the program.

4.11.3.2 State

California Noise Control Act (Cal. Health and Safety Code, § 46010 et seq.)

The California Noise Control Act of 1973 gave cities and communities the power to set noise ordinances and enforce them as necessary. The goal of the state and local governments is to prohibit unnecessary, annoying, intrusive, or dangerous noise.

4.11.3.3 Local

Table 4.11-6 lists the applicable regulations related to noise for each jurisdiction for the proposed program. The table includes information found in local jurisdiction general plans, noise ordinances, and CEQA noise guidelines (if the agencies have adopted them).[1] Note that information contained in a general plan regarding noise typically relates to the operation of projects and the ambient noise levels assigned to land use development matrices. The noise ordinance and local CEQA noise guidelines (if adopted) typically regulate noise generated during construction activities. It should be noted that California Government Code Section 53091 exempts Metropolitan, as a regional public water purveyor and utility, from local zoning and building ordinances (but not from noise ordinances that are outside of the zoning and building ordinances). Despite this exemption from local planning ordinances, for purposes of full disclosure of potential impacts on the environment, this assessment of potential noise impacts evaluates proposed program compatibility with noise-related general plan policies and noise ordinances of the cities along the pipeline alignments.

[1] Public agencies are required to adopt implementing procedures for administering their responsibilities under CEQA, including CEQA guidelines (14 CCR Section 15022). In most cases, public agencies adopt the State CEQA Guidelines as their procedures, but in some cases agencies will tailor the guidelines to meet their unique conditions and produce local CEQA guidelines.

Table 4.11-6. Applicable Noise Regulations for the Proposed Program

General Plan Noise Element	Noise Ordinance	Has agency adopted local CEQA Guidelines for noise?
Allen-McColloch Pipeline		
City of Yorba Linda		
No (nothing applicable to construction)	Section 8.32.060 (D): Construction is an exemption as long as it doesn't occur during the hours of 8 p.m. and 7 a.m. on weekdays/Saturday, Sunday or federal holidays. (City of Yorba Linda 2015)	No
City of Anaheim		
• Table N-3 (page N-9) identifies the adopted State of California Noise Standards. • Construction sound exempt from Municipal Code during 7 a.m.–7 p.m. (City of Anaheim 2004)	No (nothing applicable to construction)	No
City of Orange		
Interior/exterior noise standards Table N-3 and N-4. (City of Orange 2010)	Section 8.24.070 E: Construction noise exempt as long as it does not take place between 8 p.m. and 7 a.m. on weekdays, including Saturday or any time on Sunday or a federal holiday. (City of Orange 2014)	No
City of Tustin		
No (nothing applicable to construction)	Chapter 6 Section 4616 (2): Construction activity prohibited between 6 p.m. and 7 a.m. M–F and 5 p.m. and 9 a.m. on Saturday, all hours Sunday, and city-observed federal holidays. Can be permitted outside of these hours with temporary exception by the Department of Public Works. (City of Tustin 2015)	No
City of Irvine		
Requires new construction to meet City Noise Ordinance. (City of Irvine 2012a)	• Chapter 2 Noise ordinance includes Noise Standards dBA. • Sec. 6-8-205: Special Provisions (including construction), as long as occurs between 7 a.m. and 7 p.m. Monday through Friday and 9 a.m. and 6 p.m. on Saturdays. No construction on Sundays and federal holidays. Temporary waiver could be granted by the Chief Building Official. (City of Irvine 2014)	• Outlines considerations for noise impacts and gives direction on what is needed for existing conditions; project impacts; applicable plans, policies and programs; determining impact significance; formulating

		mitigation; and determining significance after mitigation. • Notes the City adopted Appendix G of the CEQA guidelines as the significance threshold for noise. (City of Irvine 2012b)
City of Lake Forest		
• Noise sources not related to transportation, including construction, and may be controlled to minimize exposure to excessive noise levels. • Work schedule limits. (City of Lake Forest 1994)	Noise Control Section 11.16.060 Exemptions, (D). "Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of eight p.m. and seven a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday." (City of Lake Forest 2014)	No (nothing applicable to construction)
City of Mission Viejo		
Table N-4 establishes construction noise levels at 50 feet. (City of Mission Viejo 2009)	Section 9: Special Provisions (Section 9.22.035)—noise sources from construction are short-term impacts (ambient noise), are exempt as long as they don't take place between 8 p.m. and 7 a.m. on weekdays, including Saturday, or any time on Sunday or a federal holiday. (City of Mission Viejo 2014)	No
Calabasas Feeder		
City of Los Angeles		
No (nothing applicable to construction)	• Sec. 41.41: (a) construction, including staging and delivery, not allowed between 9 p.m. and 7 a.m. • Can be outside of these hours with written permission from the Board of Police. (City of Los Angeles 2015)	• Section I, Noise • Adopted the Appendix G CEQA checklist for construction noise and operational noise. • Includes screening criteria; determination of significance threshold and methodology; data, resources and references; categories of construction equipment; and legislation for construction. • Includes screening criteria; determination of significance threshold and methodology;

		data, resources and references; stationary and mobile sources; and legislation for operation. (City of Los Angeles 2006)
City of Hidden Hills		
No (nothing applicable to construction)	• Section 3-8-5: Construction noise prohibited after 8 p.m. or before 7 a.m. on weekdays/after 8 p.m. or before 8 a.m. Saturdays/any time on Sunday or holidays. • Exemption to Section 3-8-6 with written permission of the Building Official. (City of Hidden Hills 1994)	No
City of Calabasas		
No (nothing applicable to construction)	• Noise code 17.20.160 Section C(4). Construction is exempt as long as don't take place before 7 a.m. and after 6 p.m. on weekdays/Saturday not allowed before 8 a.m. or after 5 p.m. No construction on Sundays or federal holidays. • May be modified with a Conditional Use Permit. (City of Calabasas 2015)	No
Rialto Pipeline		
City of San Bernardino		
No (nothing applicable to construction)	Chapter 8.54 Noise Control Section 8.54.070: Construction activities limited to within 7 a.m.–8 p.m. (City of San Bernardino 2009)	No
San Bernardino County		
No (nothing applicable to construction)	• Chapter 83.01 General Performance Standards • Section 83.01.080 Noise (County Development Code) • Exemption from standards include: construction between 7 a.m. and 7 p.m. Monday through Saturday, excluding federal holidays. (San Bernardino County 2007)	No
City of Rialto		
No (nothing applicable to construction)	• Chapter 9.50-Noise Control • Chapter 9.50.070 Disturbances from Construction Activity. • (B) identifies the permitted construction hours by month/day. October 1–April 30: M–F 7 a.m.–5:30 p.m./Saturday 8 a.m.–5 p.m. Sunday and state holiday not permissible. • May 1–September 30: M–F 6 a.m.–7 p.m./Saturday 8 a.m.–5 p.m. Sunday and state holidays not permissible. (City of Rialto 2008)	No

City of Fontana		
No (nothing applicable to construction)	• Article II. Noise. Section 18-63. Scope, enumeration of prohibited noises. • (b)(7): construction between 7 a.m. and 6 p.m. on weekdays and between 8 a.m. and 5 p.m. on Saturdays. Outside of this, permit from building inspector may be granted for up to 3 days. (City of Fontana 2007)	No
City of Rancho Cucamonga		
No (nothing applicable to construction)	• Noise standards Section 17.66.050. • D-4: a- when adjacent to residential land use, school, church or similar, cannot take place between 8 p.m. and 7 a.m. on weekdays, including Saturday/any time on Sunday or national holiday. Cannot exceed 65 dBA when measured at the adjacent property. • D-4: b- when adjacent to a commercial or industrial use, cannot take place between 10 p.m. and 6 a.m. on weekdays, including Saturday and Sunday, and cannot exceed 70 dBA when measured at the adjacent property. (City of Rancho Cucamonga 2012)	No
City of Upland		
Noise Element states preparation of a noise ordinance that will utilize the Model Noise Ordinance of CA and EPA. (City of Upland 2015)	No (nothing applicable to construction except buildings)	No
City of Claremont		
Construction identified as a non-transportation noise source in the element. Notes that the City regulates construction activity for prevention on nights/weekends (Policy 6-12.3). (City of Claremont 2009)	• Noise and Vibration standards 16.154.020 (under Environmental Protective Standards) • F. Exemptions (4a): noise/vibration associated with construction within 7 a.m.–7 p.m. weekdays and Saturdays; no national holidays, providing it doesn't exceed levels set in Section 16.154.020D. (City of Claremont 2005)	No
City of La Verne		
Goal 1g: require stringent mitigation measures to limit construction noise for new projects. (City of La Verne 1999)	• Chapter 8 Health and Safety • D.1. Construction activities between 8 p.m. and 7 a.m. weekdays, any time on Sundays, or legal holidays not allowed. • Identifies "Noisy Construction Activity" as construction noise that disturbs residences.	No

	• States noise sensitive areas are designated by the City Code Enforcement Officer or City Planning Technician. (City of La Verne 2015)	
City of San Dimas		
No (nothing applicable to construction)	• Chapter 8-Noise Ordinance Section 8.36.100 A: construction within or within 500 feet of residential zone prohibited between 8 p.m.–7 a.m. Monday–Saturday, any time on Sunday, or any public holiday. • (B) Can obtain a permit from the building and safety division of the community development department to perform construction activities outside of these hours. (City of San Dimas 1987)	No
Second Lower Feeder		
Orange County		
No (nothing applicable to construction)	Noise Ordinance, Article 4: Section 4-6-7. Special Provisions (e) Construction cannot take place between 8 p.m. and 7 a.m. on weekdays, including Saturday or any time on Sunday or a federal holiday. (Orange County 1975)	No
City of Yorba Linda		
No (nothing applicable to construction)	Section 8.32.060 (D): Construction is an exemption as long as doesn't occur during the hours of 8 p.m. and 7 a.m. on weekdays/Saturday, Sunday or federal holiday. (City of Yorba Linda 2015)	No
City of Placentia		
No (nothing applicable to construction)	• Chapter 23.76 Noise Control. 23.76.070 Activities – Special Provisions (8): Construction noise sources prohibited between 7 p.m. and 7 a.m. Monday through Friday, 6 p.m.–9 a.m. Saturday and Sunday and holidays (23.81.170). • Remodeling/repair and maintenance allowed between 10 a.m. and 5 p.m. on Sunday and Holidays. (City of Placentia 2015)	No
City of Anaheim		
• Table N-3 (page N-9) identifies the adopted State of California Noise Standards. • Construction sound exempt from Municipal Code during 7 a.m.–7 p.m. (City of Anaheim 2004)	No (nothing applicable to construction)	No
City of Buena Park		

No (nothing applicable to construction)	Section 8.28.040: Noise from construction prohibited between 8 p.m. and 7 a.m., Monday through Saturday and anytime Sundays. The Noise Ordinance does not include specific noise level limits for construction activities. (City of Buena Park 2015)	No
City of Cypress		
No (nothing applicable to construction)	Sec. 13-70. Special Provisions (e): Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8 p.m.–7 a.m. on weekdays, before 9 a.m. and after 8 p.m. on Saturday, or anytime on Sunday or a federal holiday. (City of Cypress 1976)	No
City of Los Alamitos		
No (nothing applicable to construction)	17.24.020 Exemptions (D) – Noise sources associated with construction does not take place between the hours of 8 p.m. and 7 a.m. on weekdays, including Saturday or anytime on Sunday or a federal holiday. (City of Los Alamitos 2006)	No
City of Long Beach		
No (nothing applicable to construction)	• Noise. 8.80.202 Construction Activity-Noise regulations for permitted construction. • Weekdays and federal holidays: not during 7 p.m. and 7 a.m. • Saturdays: not during 7 p.m. (Friday) and 7 a.m. (Saturday) and after 6 p.m. (Saturday). • Sundays: no construction, unless have a Sunday work permit form the Noise Control Officer. (City of Long Beach 1977)	No
City of Los Angeles		
No (nothing applicable to construction)	• Sec. 41.41: (a) construction, including staging and delivering, not allowed between 9 p.m. and 7 a.m. • Can be outside of these hours with written permission from the Board of Police. (City of Los Angeles 2015)	• Section I, Noise • Adopted the Appendix G CEQA checklist for construction noise and operational noise. • Includes screening criteria; determination of significance threshold and methodology; data, resources, and references; categories of construction equipment; and legislation for construction. • Includes screening criteria;

		determination of significance threshold and methodology; data, resources, and references; stationary and mobile sources; and legislation for operation. (City of Los Angeles 2006)
City of Lakewood		
No (nothing applicable to construction)	08.36.010: Noise Control (B)(8). Sounds originating from construction between the hours of 10 p.m. and 7 a.m. on weekdays and 10 p.m. and 9 a.m. on weekends are prohibited. (City of Lakewood 1999)	No
City of Carson		
No (nothing applicable to construction)	Chapter 5, 5502 A. sets noise and time limits for single-family and multi-family residential. No general construction exemptions. (City of Carson 2015)	No
Los Angeles County		
No (nothing applicable to construction)	Section 12.08.440 Construction Noise: Contains noise restrictions and schedule for affected structures, but generally operating construction equipment between 7 p.m. and 7 a.m./Sundays or holidays is prohibited. (Los Angeles County 1978)	No
City of Torrance		
No (nothing applicable to construction)	• Article 3- construction. 46.3.1: Construction between 7:30 a.m. to 6 p.m. Monday through Friday/9 a.m. to 5 p.m. on Saturdays. Prohibited on Sundays and Holidays observed by City Hall. • Can request extended hours from the Community Development Director. (City of Torrance 2015)	No
City of Lomita		
No (nothing applicable to construction)	• Article 3, Section 4-4.11 states construction equipment can operate between 7 a.m. and 6 p.m. M–F, except holidays and 9 a.m.–5 p.m. Saturday and Sunday. • Can't reach more than 35 dB for cumulative period of 15 minutes of an hour at any receiving property line. (City of Lomita 2000)	No
Rolling Hills Estates		
No (nothing applicable to construction)	Chapter 8.32- Noise: 8.32.210 A. Permitted construction hours and days. Monday through Friday 7 a.m.–5 p.m./Saturday 9 a.m.–5 p.m. Not allowed any time on Sunday and holidays. (City of Rolling Hills Estates	No

	1997)	
Sepulveda Feeder		
City of Los Angeles		
No (nothing applicable to construction)	• Sec. 41.41: (a) construction, including staging and delivery, not allowed between 9 p.m. and 7 a.m. • Can be outside of these hours with written permission from the Board of Police. (Los Angeles County 1978)	• Section I, Noise • Adopted the Appendix G CEQA checklist for construction noise and operational noise. • Includes screening criteria; determination of significance threshold and methodology; data, resources, and references; categories of construction equipment; and legislation for construction. • Includes screening criteria; determination of significance threshold and methodology; data, resources, and references; stationary and mobile sources; and legislation for operation. (City of Los Angeles 2006)
Culver City		
No (nothing applicable to construction)	• Chapter 9.07 – Noise Regulations. • Section 9.07.035: Constructed prohibited outside of 8 a.m. and 8 p.m. Monday through Friday; 9 a.m. and 7 p.m. Saturdays; 10 a.m. and 7 p.m. Sundays. (Culver City 2015)	No
City of Inglewood		
No (nothing applicable to construction)	• Article 2, Noise Regulations. Section 5-41. Within residential zone, or 500 feet, can't perform construction activities between 8 p.m. and 7 a.m. (Ord. 88-29, 9-13-88). • Can obtain a permit for work outside these hours. (City of Inglewood 1985)	No
City of Hawthorne		
No (nothing applicable to construction)	Nothing specific to noise in Municipal Code	No
City of Gardena		

No (nothing applicable to construction)	• Chapter 8.36 Noise • Noise associated with construction prohibited between 6 p.m. and 7 a.m. on weekdays/6 p.m. and 9 a.m. on Saturdays/any time on Sunday or a federal holiday. (City of Gardena 2006)	No
City of Torrance		
No (nothing applicable to construction)	• Article 3- construction. 46.3.1: Construction between 7:30 a.m. to 6 p.m. Monday through Friday/9 a.m. to 5 p.m. on Saturdays. Prohibited on Sundays and Holidays observed by City Hall. • Can request extended hours from the Community Development Director. (City of Torrance 2015)	No

4.11.4 Thresholds and Methodology

4.11.4.1 Thresholds of Significance

Table 4.11-7 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to noise. These thresholds are addressed in the PEIR.

Table 4.11-7. CEQA Thresholds for Noise

Threshold *Would the proposed program:*
a. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?
c. Result in a substantial permanent increase in ambient noise levels in the project vicinity, above levels existing without the project?
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity, above levels existing without the project?
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?
f. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels?

4.11.4.2 Methodology

Noise Standards

As documented in Table 4.11-6, most jurisdictions through which the existing pipelines in the proposed program travel have construction noise standards, usually established in the local noise ordinance, but occasionally also in their general plans or CEQA guidelines. This analysis discusses the relationship between the types of noise levels likely to be produced during rehabilitation of the pipelines and these standards. As discussed in Section 3.7.1, where possible, construction activities would occur during daytime hours, Monday through Friday and potentially Saturday. However, in order to prevent significant water delivery interruptions, accommodate a request from an affected jurisdiction, or expedite rehabilitation, it is likely that construction activities could proceed outside of the hours allowed by local regulations (i.e., during nighttime or on Sundays).

Vibration

As discussed in Section 4.11.2, certain types of land uses are particularly sensitive to vibration related to construction. This analysis discusses the types of impacts that could occur from construction and whether it is likely to affect any of the known sensitive land uses. It also addresses the potential for unidentified vibration-sensitive land uses to occur in the vicinity of rehabilitation

projects, and provides mitigation to address these impacts or require further analysis once construction locations are known.

Permanent Increased Noise Levels

The proposed program would not result in any permanent increase in noise levels after rehabilitation is complete. This is documented in the analysis.

Temporary or Periodic Increased Noise Levels

The proposed program would result in increased noise levels in the vicinity of the rehabilitation sites. As discussed in Section 4.11.2, certain types of land uses are considered sensitive receptors ~~receivers~~ for noise. This analysis discusses the types of noise impacts that could occur from construction and the factors that would result in significant noise impacts on adjacent sensitive land uses. However, specific noise levels cannot be determined until the locations of rehabilitation projects have been identified. Therefore, any projects near sensitive receptors ~~receivers~~ would require further analysis once site-specific construction information is known. This program-level analysis identifies locations where further analysis would be required and provides mitigation strategies to address impacts.

Exposure to Existing Aircraft Noise

Areas of the study area within airport land use plans and in the vicinity of private airstrips are identified in Section 4.8, *Hazards and Hazardous Materials*. The potential for construction workers to be exposed to excessive noise levels in these areas are addressed in this analysis.

4.11.5 Impacts Analysis

4.11.5.1 Program Analysis

Threshold NOI-A: Expose Persons to or Generate Noise Levels in Excess of Standards Established in the Local General Plan or Noise Ordinance or Applicable Standards of Other Agencies

As documented in Table 4.11-6, most jurisdictions through which the existing pipelines in the proposed program have construction noise standards, usually established in the local noise ordinance, but occasionally also in their general plans or CEQA guidelines. For this analysis, specific city or county regulations were examined. It is likely that work on some construction reaches would occur outside ~~it is assumed that construction would be limited to~~ the hours allowed by local regulations. ~~For any projects that would require construction outside of these hours, supplemental site-specific noise analysis and environmental documentation would be required prior to construction.~~

~~For jurisdictions where the noise policies, ordinances, and/or CEQA guidelines stipulate only hours and/or days when construction would be allowed, there would be no violation of local noise standards because the contractors would be required to conduct rehabilitation activities only within~~

~~the allowable hours. However, some noise policies, ordinances, and guidelines specify a maximum allowable noise level.~~

- ~~Allen-McColloch Pipeline: City of Irvine (noise ordinance), City of Mission Viejo (general plan)~~
- ~~Calabasas Feeder: none~~
- ~~Rialto Pipeline: City of Rancho Cucamonga (noise ordinance)~~
- ~~Second Lower Feeder: City of Carson (noise ordinance), City of Lomita (noise ordinance)~~
- ~~Sepulveda Feeder: none~~

As discussed for Threshold NOI-D, noise levels during rehabilitation, specifically during excavation and concrete sawing, would be likely to reach very high levels, generally exceeding any noise-level restrictions set by these local jurisdictions. Therefore, if construction were to occur in these jurisdictions, it is likely that noise levels would exceed local standards.

The ~~severity and~~ location of the impacts cannot be determined until excavation sites are identified. The severity of the impacts would vary depending upon how close these locations are to sensitive receptors ~~receivers~~. However, because much of the pipeline in Rancho Cucamonga, Carson, and Lomita is located in residential neighborhoods or near other sensitive receptors ~~receivers~~, it is likely that there would be some areas where the impacts would be significant. (It should be noted that in Irvine most of the pipeline travels through unoccupied open space, so in that jurisdiction construction is not likely to result in significant impacts related to exceeding noise standards.)

As discussed in Threshold NOI-D, because of the type of construction and its location, there is no effective mitigation that would reduce this impact below a level of significance. Therefore, impacts would be significant and unavoidable, at least at some locations. At the project level, additional analysis will be required for construction in the cities of Irvine, Mission Viejo, Rancho Cucamonga, Carson, and Lomita to determine whether noise levels would exceed noise levels in local noise policies. In other jurisdictions, if construction would be necessary outside the hours stipulated in local noise policies, additional analysis will also be conducted.

Mitigation Measures

Implement Mitigation Measures MM NOI-2 through MM NOI-4, as described under Threshold NOI-D.

Residual Impacts

Impacts that would result from the proposed program may be significant, but the severity or location of the impacts cannot be determined at this time. Therefore, these impacts are assumed to be significant and unavoidable. Further environmental analysis and documentation is necessary prior to construction to determine if a significant impact would occur and if mitigation would reduce the impact to a less-than-significant level.

Threshold NOI-B: Expose Persons to or Generate Excessive Groundborne Vibration or Groundborne Noise Levels

For most locations, vibration from construction activities would not be great enough to result in impacts on vibration-sensitive receptors ~~receivers~~. However, at some locations, excavation, concrete-sawing, and other construction activities could generate vibration levels that could affect adjacent activities, such as near performing arts centers, hospitals, or where residences are close to

the excavation site. Vibration could also affect historic structures if they are located near the excavation site (see Section 4.5, *Cultural Resources*).

The effects of construction vibration cannot be determined without knowing the location of the construction sites. Therefore, it cannot be determined at this time where vibration impacts would occur or their severity. Implementation of Mitigation Measure MM NOI-1 would reduce any impacts to less-than-significant levels.

Mitigation Measures

MM NOI-1 Locate Excavation Sites Away From Vibration-Sensitive Uses

A noise and vibration consultant will be retained during excavation site planning to determine if there are vibration-sensitive land uses that could be affected by construction. Whenever possible, excavation ~~Excavation~~ sites will then be located so that vibration impacts would not affect vibration-sensitive land uses or mitigation would be included to reduce vibration levels at vibration-sensitive land uses to less-than-significant levels.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM NOI-1 would reduce these impacts so that residual impacts would be less than significant.

Threshold NOI-C: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity, Above Levels Existing without the Project

The proposed program would not result in any permanent changes in noise levels after rehabilitation is complete. After construction is complete, the noise levels would be the same as the existing conditions. Therefore, there would be no impact.

Mitigation Measures

There would be no impacts for the proposed program.

Residual Impacts

No impacts would result from the proposed program, and no mitigation is necessary. Therefore, there would be no residual impacts for the proposed program.

Threshold NOI-D: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity, Above Levels Existing without the Project

Noise Generation from Rehabilitation Activities

During rehabilitation activities, noise would be generated from construction equipment, especially at excavation sites from excavators, concrete saws, ventilation fans, power sources, and other sources. Noise is measured in units called decibels (dB). In environmental analyses, noise is often expressed in A-weighted decibels (dBA), which is a more accurate representation of how the human

ear perceives sound. (In the A-weighted system, the decibel values of sound at low frequency are reduced.)

The most constant noise would be from power generators, used to provide an energy supply for tools, construction trailers, and ventilation. These would operate nearly continuously during active construction hours, and they may be standalone or truck-mounted units. Noise levels from these generators vary greatly depending on the size and type of generators used.

An excavator would be used to dig the trench and expose the pipe. The types of excavators used for the projects in the proposed program would usually be relatively small to provide for easy access in narrow areas (such as within city streets), and because large track-mounted models may damage existing roadways. Noise from these types of excavators was measured at previous pipeline rehabilitation projects at average levels of 66 to 74 dBA at a distance of 42 feet.

Likely the noisiest operation at the rehabilitation sites would be concrete sawing. Although these saws would operate within the excavated pit, which would partially attenuate the noise, the concrete saws have been recorded producing average noise levels of 92 to 96 dBA at a distance of 18 feet from the pit and 72 to 83 dBA at a distance of 42 feet.

Pipe ventilation fans would be necessary for work in the pipe to provide fresh air for workers underground. During subterranean work, pipeline segments are usually ventilated in two locations, one intake and one exhaust. These fans must operate as long as there are workers in the pipe. Noise levels would vary depending on equipment used. When electric fans powered by "quiet" Whisperwatt diesel generators are used, the noise levels were measured at 75 dBA at 30 feet for the generator and fan combined (60 dBA for the generator on its own). If more traditional fans and/or generators are used, noise levels would be dramatically greater.

Substantial amounts of the rehabilitation work would occur underground. Underground construction activities would not usually generate substantial noise, but ventilation and power generation would be required for underground work. Other noise sources would include traffic noise associated with trucks delivering materials and workers commuting to the site, back-up alarms on trucks and equipment, cranes and other equipment for positioning pipes, and other typical construction noise. At the end of construction there would be additional noise generated from backhoes used to fill in the work area and roadway repaving with slurry.

Noise would also occur at staging locations, primarily from traffic.

Potential Noise Impacts

The effects of construction noise cannot be determined without knowing the location of the construction sites. Determining noise impacts requires an analysis of the ambient condition (the existing noise level), the location of receptors ~~receivers~~ (how far the receptors ~~receivers~~ would be from where the noise is generated), and attenuation of the noise (if there are any intervening structures, landscaping, etc.). Therefore, it cannot be determined at this time where noise impacts would occur or their severity. ~~It is likely, however, that noise~~ Noise levels in some locations would result in substantial temporary increases in ambient noise levels in the vicinity of construction, above existing levels. This would be a significant impact. Mitigation may be available to reduce noise levels somewhat, but would ~~likely~~ not reduce all impacts to less-than-significant levels due to the high levels of noise generated and the close proximity of sensitive receptors, especially residents on relatively narrow streets. Therefore, impacts would be significant and unavoidable, at least as some

locations. At the project level, additional analysis will be conducted to determine whether sensitive receptors are present, if construction would increase noise levels substantially at sensitive receptors, and whether mitigation could reduce any significant impacts to less-than-significant levels.

Mitigation Measures

MM NOI-2 Locate Excavation Sites Away From Noise-Sensitive Receptors ~~Receivers~~ Where Feasible.

A noise consultant will be retained during excavation site planning to determine if there are sensitive receptors ~~receivers~~ that could be affected by construction. Whenever possible, the excavation sites will be located in areas that would not affect sensitive receptors ~~receivers~~ or where receptors ~~receivers~~ can be shielded from construction noise.

MM NOI-3 Conduct Project-Level Noise Studies at Each Excavation Site Where Noise-Sensitive Receptors ~~Receivers~~ Are Present.

Project-level noise studies will be required at all excavation sites where sensitive receptors ~~receivers~~ are present, as required in the planning stage by MM NOI-2. Such noise studies will identify the ambient noise levels, the receptors ~~number of receivers~~ that would be affected, the noise levels the receptors ~~receivers~~ will experience during construction, and any measures that can be used to reduce noise levels. All feasible mitigation measures identified in this noise study will be implemented. ~~and the amount of noise reduction that would occur with implementation of these measures.~~

MM NOI-4 Locate Staging Areas Away from Noise-Sensitive Receptors ~~Receivers~~ or Provide Noise Attenuation.

Whenever feasible ~~possible~~, staging areas will be located in areas that would not affect sensitive receptors ~~receivers~~ or where receptors ~~receivers~~ can be shielded from staging-area noise. Where possible, noise ~~Noise~~ screening will include temporary noise barriers with openings in the barriers kept to the minimum necessary for access.

Residual Impacts

Impacts that would result from the proposed program may be significant, but the severity or location of the impacts cannot be determined at this time. MM NOI-2 through MM NOI-4 may reduce these impacts; however, whether these measures would reduce all noise impacts to less-than-significant levels is not known. Therefore, these impacts are assumed to be significant and unavoidable. ~~Further environmental analysis and documentation is necessary prior to construction to determine if a significant impact would occur and if mitigation would reduce the impact to a less-than-significant level.~~

Threshold NOI-E: For a Project Located within an Airport Land Use Plan or, Where Such a Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Expose People Residing or Working in the Project Area to Excessive Noise Levels

Some portions of the existing pipelines are within airport land use plan areas or near airports (see Section 4.8, *Hazards and Hazardous Materials*). Airport land use plans establish allowable land uses within areas that are subject to high noise levels. However, because the program would not change land uses, and construction workers would be wearing noise safety gear as required by the federal Occupational Safety and Health Administration, noise impacts related to nearby airports would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold NOI-F: For a Project within the Vicinity of a Private Airstrip, Expose People Residing or Working in the Project Area to Excessive Noise Levels

There are no private airstrips in the vicinity of the existing pipelines (see Section 4.8, *Hazards and Hazardous Materials*). Therefore, there would be no impacts associated with noise from private airstrips.

Mitigation Measures

There would be no impacts for the proposed program.

Residual Impacts

No impacts would result from the proposed program, and no mitigation is necessary. Therefore, there would be no residual impacts for the proposed program.

4.11.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

Construction noise and vibration are localized and site specific. Only when noise from multiple projects affect the same receptors ~~receiver~~ would noise result in cumulative impacts. This would be unlikely to occur with the proposed program. Therefore, the projects in the proposed program would not contribute to a cumulative noise impact.

Section 4.12
Recreation

4.12.1 Introduction

This section describes the existing conditions for recreation, the regulatory framework associated with recreation, the impacts on recreation that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant recreation impacts.

4.12.2 Existing Conditions

The study area for recreation is the pipeline easements or rights-of-way and immediately adjacent properties. The term *recreation* is used to refer to land uses used primarily for recreation, including publicly owned parks and trails, school recreational areas, and privately owned outdoor facilities, including golf courses and tennis facilities.

4.12.2.1 Allen-McColloch Pipeline

Table 4.12-1 lists the recreational facilities in the Allen-McColloch Pipeline study area.

Table 4.12-1. Recreational Facilities in Allen-McColloch Pipeline Study Area

Parks	Trails	Other Recreational Facilities (including recreational facilities at schools)
Fairmont Knolls Park	Equestrian trail west of Paso Fino Way	Black Hills Golf Club
Kingsbriar Park	Bike/horse trail along Fairmount Connector and Fairmount Boulevard	La Entrada High School
Imperial Park	Santa Ana River Trail/Bikeway	Fairmont Elementary School
	Trail along East Santiago Canyon Road	Bernardo Yorba Middle School
	Peters Canyon Regional Trail and Bikeway	Ivy Crest Montessori School
		Canyon High School
		Imperial Elementary School
		Riding Academy of Orange County (equestrian facility)

4.12.2.2 Calabasas Feeder

Table 4.12-2 lists the recreational facilities in the Calabasas Feeder study area.

Table 4.12-2. Recreational Facilities in Calabasas Feeder Study Area

Parks	Trails	Other Recreational Facilities (including recreational facilities at schools)
None	None	Nevada Avenue Elementary School
		Capistrano Avenue Elementary School

4.12.2.3 Rialto Pipeline

Table 4.12-3 lists the recreational facilities in the Rialto Pipeline study area.

Table 4.12-3. Recreational Facilities in Rialto Pipeline Study Area

Parks	Trails	Other Recreational Facilities (including recreational facilities at schools)
Hunter's Ridge Park	Hunter's Ridge Trails	Los Osos High School
Mini Park at southeast corner of Bluegrass Avenue and 24th Street	Trail along Crescenta Way	Banyan Elementary School
Day Creek Park	Trail along Bluegrass Avenue	Pioneer Junior High School
Grigsby Park	Trail along Banyan Street	Pepper Tree Elementary School
Beryl Park	Thomson Creek Trail	Sierra La Verne Golf Course
Pioneer Park		San Dimas Canyon Golf Course
La Puerta Sports Park		
Higginbotham Park		
Live Oak Park		
Mills Park		
San Dimas Canyon Park		

4.12.2.4 Second Lower Feeder

Table 4.12-4 lists the recreational facilities in the Second Lower Feeder study area.

Table 4.12-4. Recreational Facilities in Second Lower Feeder Study Area

Parks	Trails	Other Recreational Facilities (including recreational facilities at schools)
Pioneer Park	San Gabriel River Mid Trail	Black Hills Golf Club

Parks	Trails	Other Recreational Facilities (including recreational facilities at schools)
Boysen Park	Bridlewood Trail	Heritage Oak School
Walnut Grove Park	June's Trail	Brookhaven Elementary School
Larwin Park	Sorrel Trail	El Dorado High School
Darrell Essex Park	Bridle Trail (southeast corner of Palos Verdes Drive East and Palos Verdes Drive North)	Theodore Roosevelt Elementary School
Veterans Park	Carriage Trail (western terminus of Second Lower Feeder)	Gilbert High School
Cypress Nature Park	Miller's Trail	Elizabeth Dickerson Elementary School
Stansbury Park	Stein Hale Nature Trail (Georgette Trail)	Juliet Morris Elementary School
El Dorado Regional Park		Skylinks at Long Beach Golf Course
Rosie the Riveter Park and Interpretive Center		Charles Evans Hughes Middle School
Los Cerritos Park		Longfellow Elementary School
Calas Park		Los Cerritos Elementary School
Dapplegray Park		Rancho Dominguez Preparatory School
		Carnegie Middle School
		Bonita Street Elementary School
		George S. Patton Continuation School
		Nathaniel Narbonne High School
		The Pines Christian School
		Rolling Hills Country Club

4.12.2.5 Sepulveda Feeder

Table 4.12-5 lists the recreational facilities in the Sepulveda Feeder study area.

Table 4.12-5. Recreational Facilities in Sepulveda Feeder Study Area

Parks	Trails	Other Recreational Facilities
Castle Park Monterey	None	Granada Hills Youth Recreational Center
Getty View Park		Golf Course (west of Gerald Avenue)
Westwood Park and		Jewish Educational Trade School

Parks	Trails	Other Recreational Facilities
Recreation Center		
Circle Park		Holy Martyrs Armenian School
Holly Park		Van Nuys Golf Course
Rowley Park		Tennis Courts (northwest corner of Sepulveda Boulevard and Valley Meadow Road)
		Steven S. Wise High School
		Berkeley Hall School
		Milken Community Middle School
		Charnock Road Elementary School
		Tennis courts (east of Charnock Road)
		Culver-Palms Family YMCA
		Frank D. Parent Elementary School
		Warren Lane Elementary School
		St. Eugene School
		Chester Washington Golf Course
		Crescendo Charter School
		Maria Regina School
		Junipero Serra High School

4.12.3 Regulatory Framework

This section describes the plans, policies, and regulations related to recreation that are applicable to the proposed program.

4.12.3.1 Federal

There are no federal regulations related to recreation applicable to the program.

4.12.3.2 State

California Public Park Preservation Act (Cal. Public Res. Code §§ 5400–5409)

The California Public Park Preservation Act provides that a public agency that acquires public parkland for non-park use must either pay compensation that is sufficient to acquire substantially equivalent substitute parkland or provide substitute parkland of comparable characteristics.

4.12.3.3 Local

Local policies related to recreation address providing adequate parks and other recreational facilities within their jurisdictions to serve their populations. Generally, such policies do not address temporary construction-related activities at existing recreational facilities.

4.12.4 Thresholds and Methodology

4.12.4.1 Thresholds of Significance

Table 4.12-6 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to recreation. These thresholds are addressed in the PEIR.

Table 4.12-6. CEQA Thresholds for Recreation

Threshold *Would the proposed program:*
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?
b. Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

4.12.4.2 Methodology

As documented in Section 4.12.2, this PEIR identifies known recreational facilities within the study area of the pipeline alignments. The proposed program would generally not have long-term effects on recreation, because only minor permanent changes would potentially occur as a result of projects within the program, such as the addition of access manholes, small above-ground valve boxes, and electrical panels. All other permanent changes would be underground, and once rehabilitation is complete, there would be no permanent changes to recreational facilities.

During rehabilitation, construction may have adverse effects on these recreational facilities. Under CEQA, these effects would only result in significant impacts if they were to result in physical deterioration of the facilities, increase the use of a recreational facility, or require construction or expansion of recreational facilities. Permanent physical deterioration would only occur if the permanent elements interfered with use of the recreational use of the facility (such as an access manhole in the middle of a trail or play field) or if damage occurred during construction (such as locating construction staging areas in natural habitat areas without thorough clean-up and revegetation).

During construction, temporary effects on recreational uses could be significant if two conditions occurred: (1) the construction interfered with the use of the recreational facility to the extent that the recreational uses at that facility would be precluded; and (2) there are insufficient similar recreational facilities available nearby where the activities could be relocated. An example would be if construction interfered with play fields so that scheduled league sports could not be played, and that there were not enough similar fields available to handle relocated games.

4.12.5 Impacts Analysis

4.12.5.1 Program Analysis

Threshold REC-A: Increase the Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities Such That Substantial Physical Deterioration of the Facilities Would Occur or Be Accelerated

Portions of the PCCP pipelines are located in rights-of-way or easements within recreational facilities, such as through parks, golf courses, or school yards. For these portions of the pipelines, excavation sites may be located within the recreational facility. In these locations, excavation sites and work areas could result in part or all of the facility being unavailable during construction, for a maximum of approximately 6 months.[1] Also, construction staging areas may be located in parks, school yards, golf courses, or other recreational facilities for months or longer, depending on how many excavation sites the staging area is serving.

Metropolitan would work with the local jurisdictions and schools to ensure that rehabilitation would not result in significant temporary impacts on recreational activities or permanent physical deterioration of recreational facilities. Generally, excavation or staging areas would not be placed in active play areas (e.g., baseball/ softball, soccer, football, tennis) where recreational activities are scheduled (such as sports league games and school activities). If rehabilitation activities were located within trails or bike routes, safe detours would be provided during construction and the trail or bikeway would be restored when construction is complete. Excavations and staging within recreational facilities intended for natural areas would be avoided, if possible, and any required biological mitigation would be implemented (see Section 4.4, *Biological Resources.*)

Because rehabilitation activities would not permanently preclude recreational uses, requiring them to be relocated elsewhere, rehabilitation could lead to increased deterioration of recreational facilities. Impacts would be less than significant.

Because contractors would be required to return the site to preconstruction conditions once rehabilitation is complete, the PCCP program would not result in permanent physical deterioration of recreational facilities. Permanent aboveground elements (manholes, valve boxes, or electrical panels) would be placed in such a way as to not interfere with the use of the facility. Permanent impacts would be less than significant.

When there are recreation facilities located adjacent to or near excavation sites, construction activities could affect the use of the recreational facilities. These effects would include localized air quality effects, excessive noise, and limitations on access. These effects are discussed in Sections 4.3, *Air Quality*, 4.11, *Noise*, and 4.13, *Transportation*, respectively.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

[1] Work areas may include access areas, staging areas, parking areas, safety areas, etc.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold REC-B: Include Recreational Facilities or Require the Construction or Expansion of Recreational Facilities, Which Might Have an Adverse Physical Effect on the Environment

The proposed program does not include construction of recreational facilities. It would not result in increased population that would require the construction or expansion of recreational facilities. Therefore, the proposed program would not result in adverse physical effects on the environment related to construction of recreational facilities.

Mitigation Measures

There would be no impacts for the proposed program.

Residual Impacts

No impacts would result from the proposed program, and no mitigation is necessary. Therefore, there would be no residual impacts for the proposed program.

4.12.5.2 Cumulative Analysis

Program Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

The proposed program would result in less-than-significant effects on recreational facilities. These impacts would be temporary and/or localized, and would not combine with impacts on recreational facilities from other projects to result in a considerable contribution to cumulative impacts.

Section 4.13
Transportation and Traffic

4.13.1 Introduction

This section describes the existing conditions for transportation and traffic, the regulatory framework associated with transportation and traffic, the impacts on transportation and traffic that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant transportation and traffic impacts. Figures 4.13-1 through 4.13-5 show the major transportation facilities in the transportation study area, including major highways, off-road trails and bicycle routes, and airports.

4.13.2 Existing Conditions

The study area for vehicular, transit, bicycle, and pedestrian traffic includes the streets in which the pipelines are located or cross. For air transportation, the study area includes the airport land use plan areas in which the pipelines are located.

The narratives provided in this section summarize the general roadway information characterizing the streets and highways through which the five pipelines are aligned, and/or where construction is anticipated. Each of the pipelines traverses multiple local jurisdictions, with overlying roadways of various size and functionality, ranging from 24-foot-wide, two-lane residential streets to 100-foot-wide, eight-lane regional corridors. The inventoried information provided in Tables 4.13-1 to 4.13-5 includes the following.

- Name of agency (or agencies) having jurisdiction over the roadway
- Street name
- Street width (curb-to-curb)
- Functional classification, per the jurisdictions' general plans
- Number of through travel lanes (total for both directions)
- Type of center median divider (if any)
- Presence of on-street parking lanes (if any)
- Type of adjacent driveway access
- Multimodal facilities provided within and/or along the roadway (e.g., fixed bus routes, rail service, bicycle lanes, pedestrian sidewalks, equestrian trail access)
- Additional information about the pipeline alignment such as direction, length of the segment, major street crossings (perpendicular to the alignment), shared jurisdictional boundaries of the roadway, and nearby freeway interchanges

4.13.2.1 Allen-McColloch Pipeline

The Allen-McColloch Pipeline begins at Metropolitan's Robert Diemer Water Treatment Plant in Yorba Linda and ends 25 miles to the south at the El Toro Water District reservoir in Mission Viejo. The pipeline extends southeast from the Diemer Plant through the Black Gold Golf Club, circumventing several residential neighborhoods before turning southward through Yorba Linda. It crosses Bastanchury Road and turns eastward along a short, 1,000-foot centerline length of Yorba Linda Boulevard before turning south along the centerline of Fairmont Boulevard. The Allen-McColloch Pipeline follows Fairmont Boulevard for nearly 2 miles, crossing Paseo De Las Palmas and Village Center Drive before angling southwest and downhill along the Fairmont Connector onto Esperanza Road. The pipeline follows Esperanza Road west for 0.5 mile and then turns south to travel underneath the adjacent railroad tracks and southward under Chrisden Street in Anaheim. The alignment continues south for another 0.5 mile, crossing La Palma Avenue, the Santa Ana River, State Route 91 (SR-91), and Via Cortez along the east side of Canyon Plaza before turning west on Santa Ana Canyon Road. Just east of Imperial Highway, the Allen-McColloch Pipeline angles southwesterly across the athletic fields and turns south under the northbound lanes of Imperial Highway. It then continues south for nearly 3 miles into the city of Orange, crossing Nohl Ranch Road, Cannon Street, and Serrano Avenue, before turning east along Santiago Canyon Road. The pipeline follows Santiago Canyon Road southeast for 2 miles, then turns south along the west side of Jamboree Road (mostly off-street) for 2.5 miles. The Allen-McColloch Pipeline alignment then turns southeast and traverses a 5.5-mile distance across State Route 261 (SR-261), State Route 241 (SR-241), and State Route 133 (SR-133) in Irvine before crossing Portola Parkway. The pipeline continues south for 4 miles into Lake Forest, crossing Alton Parkway, Bake Parkway, and Lake Forest Drive before turning southeast under the northbound lanes of Trabuco Road. At a point approximately 200 feet south of the Lake Forest/Mission Viejo boundary line, the Allen-McColloch Pipeline turns south through a multi-family residential community before turning east onto Los Alisos Boulevard for a distance of 900 feet, then again to the southeast for a distance of 1,500 feet until its terminus at the El Toro Reservoir.

Vehicular Transportation

Table 4.13-1 provides an inventory of the types of streets in which the existing Allen-McColloch Pipeline is located.

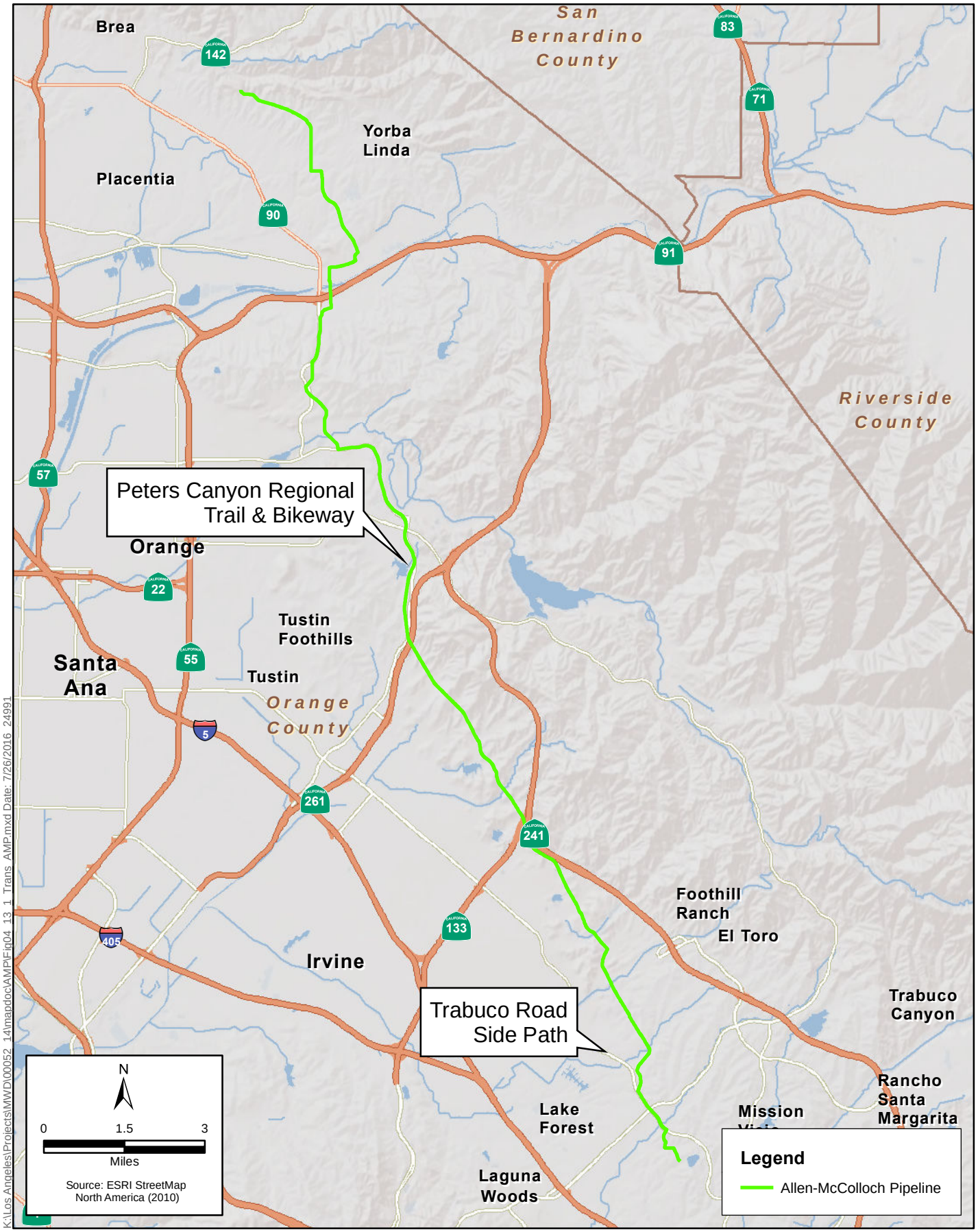


Figure 4.13-1
Major Transportation Facilities – Allen-McColloch Pipeline
Metropolitan PCCP Program

Figure 4.13-2
Major Transportation Facilities – Calabasas Feeder
Metropolitan PCCP Program

Figure 4.13-3
Major Transportation Facilities – Rialto Pipeline
Metropolitan PCCP Program

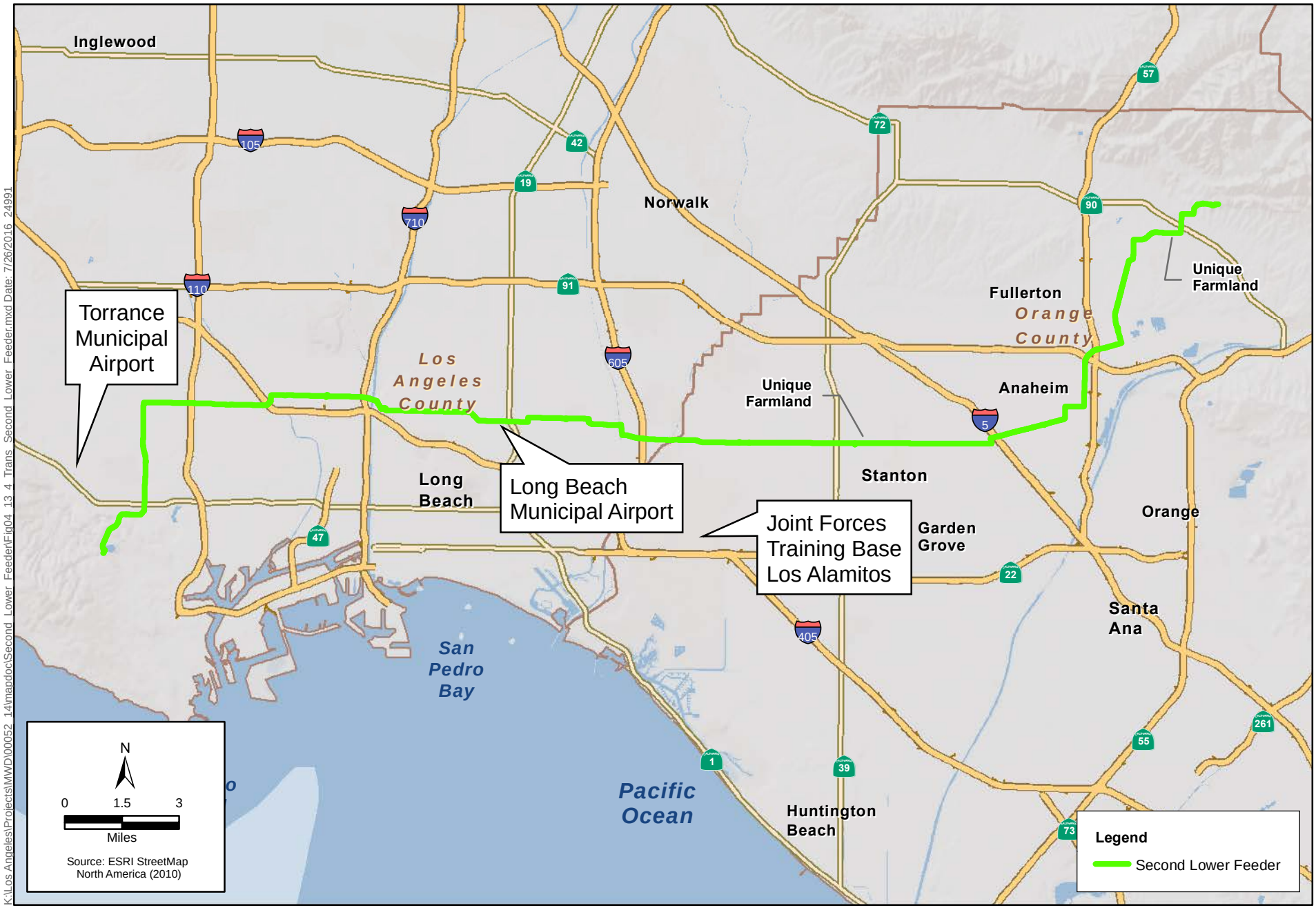


Figure 4.13-4
Major Transportation Facilities – Second Lower Feeder
Metropolitan PCCP Program

Figure 4.13-5
Major Transportation Facilities – Sepulveda Feeder
Metropolitan PCCP Program

Table 4.13-1. Inventory of Streets in Allen-McColloch Pipeline Study Area

	Roadway Information							Modal Facilities			Pipeline Alignment Information		
Agency	**Street**	**Width (feet)**	**Type (per General Plan)**	**Lanes**	**Median**	**Parking Lanes**	**Driveway Access**	**Transit Routes**	**Bicycle Routes**	**Pedestrian Facilities**	**Direction**	**Length (feet)**	**Notes**
Yorba Linda	Bastanchury Road	64	Modified Primary Arterial	4	Raised	---	Limited	---	Class II	Sidewalks	South	64	Crosses roadway briefly
Yorba Linda	Yorba Linda Boulevard	84	Primary Arterial	6	Raised	---	Commercial	OCTA 26	---	Sidewalks	East	1,000	
Yorba Linda	Fairmount Boulevard	64-78	Primary Arterial	4	Raised/2-way left-turn lanes	---	School	OCTA 26	Class II	Sidewalks	Southeast	9,950	
Anaheim	North Chrisden Street	40	Local Street	2	---	2 sides	Commercial Alley	OCTA 30 OCTA 38	---	Sidewalks	South	750	
Anaheim	East La Palma Avenue	80	Primary Arterial	6	Raised/2-way left-turn lanes	---	Commercial	---	---	Sidewalks	South	82	Crosses roadway briefly
Anaheim	Via Cortez	40	Local Street	2	---	1 side	None	---	---	Sidewalk (west side)	South	500	
Anaheim	Santa Ana Canyon Road	96	Primary Arterial	5	Raised	---	Limited	---	Class II (one side)	Trail (south side)	Southwest	600	Alignment adjacent to southern curb
Anaheim	Imperial Highway	90	Major/Primary Arterial	4-5	Raised	---	Commercial, School	---	Class II	Sidewalks	South	4,500	
Orange	Cannon Street	100	Major Arterial	4	Raised	---	None	---	Class II	Sidewalks	Southwest/ Southeast	100 /100	Crosses street twice
Orange	Serrano Avenue	62	Primary Arterial	4	Raised	---	None	---	---	Sidewalk (south side)	South	70	Crosses roadway briefly
Orange	Yellowstone Boulevard	50	Local Street	2	Raised	---	None	---	---	Sidewalks	South	1,250	
Orange	East Santiago Canyon Road	80	Major Arterial	4	Raised	---	Limited	---	Class II	Sidewalks Trails	East/ Southeast	11,300	
Orange	Jamboree Road	104	Major Arterial	6	Raised	---	None	---	Class II	Sidewalks Trails	South	4,000	Located mostly off-street
Tustin	Hewes Avenue	36	Private Road	2	---	---	None	---	---	Sidewalks	South	350	Entry drive into residential community; crosses Pioneer Road
Irvine	Portola Parkway	80	Major Highway	4	Raised	---	Maintenance only	---	Class II	Sidewalks Trails	South	80	Crosses roadway briefly
Irvine	Alton Parkway	100	Major Highway	6	Raised	---	Maintenance only	OCTA 188 OCTA 211 OCTA 480	Class II	Sidewalks	Southeast	102	Crosses roadway briefly
Lake Forest	Arctic Ocean Drive	42	Local Street	2	2-way left-turn lanes	---	Office Parks	---	---	Sidewalks	Southeast	42	Crosses roadway briefly
Lake Forest	Bake Parkway	82	Primary Arterial	4	Raised	---	None	OCTA 206 OCTA 480	Class II	Sidewalks	Southeast	86	Crosses roadway briefly
Lake Forest	Marin	24	Local Street	2	---	---	Multiple (residential)	OCTA 177	---	None	Southeast	350	
Lake Forest	Lake Forest Drive	86	Primary Arterial	4	Raised	---	Commercial	---	Class II	Sidewalks	Southwest	130	Crosses roadway briefly
Lake Forest	Old Trabuco Road	36	Local Street	2	---	---	Church Residential	---	---	Sidewalk (east side)	Southeast	1350	Cul-de-sac at south end
Lake Forest	Trabuco Road	100	Major Arterial	4-6	Raised	---	Private Commercial	OCTA 188	Class I Class II	Sidewalks	Southeast	4,550	South city limit of Lake Forest Crosses El Toro Road
Mission Viejo	Trabuco Road	84	Primary Arterial	4	Raised	---	Church	OCTA 188	Class II	Sidewalks	Southeast	300	North city limit of Mission Viejo
Mission Viejo	Via Pimiento	40	Private Road	2	---	Marked	Multiple (residential)	---	---	Sidewalks	South	1,400	
Mission Viejo	Los Alisos Boulevard	100	Major Arterial	6	Raised	---	None	OCTA 86	Class II	Sidewalks	East	900	
Mission Viejo	La Glorieta	34	Local Street	2	---	---	Residential	---	---	Sidewalk (west side)	Southeast	1000	

This page intentionally left blank.

Transit and Rail

The Allen-McColloch Pipeline traverses local agencies within Orange County. The Orange County Transportation Authority (OCTA) owns and operates the vast majority of transit and rail services. OCTA runs numerous fixed bus routes on streets that the Allen-McColloch Pipeline crosses or where it is aligned, including the following.

- Line 26 on Yorba Linda Boulevard (city of Yorba Linda)
- Line 30 on Esperanza Road (city of Yorba Linda)
- Line 38 on Chrisden Street (city of Anaheim)
- Line 86 (city of Mission Viejo)
- Line 177 (city of Lake Forest)
- Line 188 (cities of Irvine, Mission Viejo, and Lake Forest)
- Line 206 (city of Lake Forest)
- Line 211 (city of Irvine)
- Line 480 (city of Lake Forest)

Bicycle Facilities

There are numerous bikeway facilities found within the vicinity of the Allen-McColloch Pipeline alignment. The following streets contain designated facilities for bicyclists.

- Class I (off-street bike path) bikeways
    - Peters Canyon Regional Trail & Bikeway (cities of Orange and Tustin): The Allen-McColloch Pipeline follows a north/south alignment along the west of Jamboree Road, crossing several different points along the Peters Canyon and Ridge View Trail, a combined path for pedestrians and bicyclists.
    - Trabuco Road Side Path (city of Lake Forest)
- Class II (on-street marked bike lanes) bikeways
    - Bastanchury Road (city of Yorba Linda)
    - Fairmont Boulevard (city of Yorba Linda)
    - Esperanza Road (city of Yorba Linda)
    - Santa Ana Canyon Road (city of Anaheim, one side)
    - Imperial Highway (city of Anaheim)
    - Cannon Street (city of Orange)
    - E. Santiago Canyon Road (city of Orange)
    - Portola Parkway (city of Irvine)
    - Alton Parkway (city of Irvine)
    - Bake Parkway (city of Lake Forest)

- Lake Forest Drive (city of Lake Forest)
- Trabuco Road (city of Lake Forest)
- Los Alisos Boulevard (city of Mission Viejo)

Pedestrian Facilities

A survey of the existing roadside conditions revealed that virtually all of the streets and highways aligned over and/or crossing the Allen-McColloch Pipeline contain paved pedestrian sidewalks and/or equestrian trails along the roadside. Some streets (e.g., Esperanza Road, Serrano Avenue, Old Trabuco Road, La Glorieta) provide sidewalks along only one side of the street, due to the surrounding physical constraints. The following pedestrian facilities were found to be located along a significant length of the Allen-McColloch Pipeline alignment.

- Peters Canyon Regional Trail & Bikeway (cities of Orange and Tustin): The Allen-McColloch Pipeline follows a north/south alignment along the west of Jamboree Road, crossing several different points along the Peters Canyon and Ridge View Trail, a combined path for pedestrians and bicyclists.
- Fairmont Boulevard (city of Yorba Linda): Sidewalks on the eastern side of Fairmont Boulevard north and south of Paseo De Las Palomas are within 10 feet of the pipeline centerline.
- Santiago Canyon Road (city of Orange): South of Newport Boulevard to Jamboree Road the sidewalk on the north side of Santiago Canyon Road is near and crosses the Allen-McColloch Pipeline at several points.
- Jamboree Road (city of Orange): There is a Class I (off-street bicycle path) facility along Jamboree Road where the Allen-McColloch Pipeline is aligned off-street.

Air Transportation

There are no public airports, applicable airport land use plans, or private airstrips in the study area for the Allen-McColloch Pipeline.

Emergency Response Plans and Emergency Evacuation Plans

The following emergency response and evacuation plans have been identified in the study area for the Allen-McColloch Pipeline.

- **City of Orange:** According to the City of Orange General Plan, Public Safety Element, all arterials in the city are recognized as primary emergency response routes. (City of Orange 2010)
- **City of Tustin:** According to the Tustin General Plan, Public Safety Element, Jamboree Road is an evacuation route in the Allen-McColloch Pipeline study area. (City of Tustin 2013)
- **City of Mission Viejo:** According to the City of Mission Viejo General Plan, Public Safety Element, there are city evacuation routes along Trabuco Road and Los Alisos Boulevard within the Allen-McColloch Pipeline study area. (City of Mission Viejo 2009)

4.13.2.2 Calabasas Feeder

The Calabasas Feeder begins at the intersection of Chatsworth Street and Owensmouth Avenue in the city of Los Angeles (Chatsworth-Porter Ranch neighborhood) and ends 9.25 miles to the south in

the city of Calabasas. There are six major alignment shifts in the Calabasas Feeder, each of which generally orients the pipeline further the south or west. The northernmost portion of the Calabasas Feeder is 2.75 miles in length, travels southerly along Owensmouth Avenue through the city of Los Angeles, and traverses both residential and industrial areas of the community. Major arterial crossings include Devonshire Street, Lassen Street, Plummer Street, Nordhoff Street, and Parthenia Street. In the southern part of the neighborhood, the Calabasas Feeder turns west on Chase Street for a distance of approximately 4,000 feet before turning southward again on Shoup Avenue along the northbound lanes. This segment of the pipeline is crossed by Roscoe Boulevard, which serves as the boundary line between the Chatsworth-Porter Ranch and Canoga-Woodland Hills communities. At approximately 0.5 mile south of Chase Street, the Calabasas Feeder turns westward at Strathern Street for 0.5 mile, then southward again at Fallbrook Avenue. The alignment continues south on Fallbrook Avenue for a distance of just over 3 miles, crossing Saticoy Street, Sherman Way, Vanowen Street, Victory Boulevard, and Burbank Boulevard before turning southwest toward Mulholland Drive. West of Fallbrook Avenue, the pipeline meanders through local streets in a southwesterly direction before first crossing Valley Circle Boulevard and then U.S. Highway 101 (US-101) to its terminus within Metropolitan's Las Virgenes Municipal Water District Service Connection.

Vehicular Transportation

Table 4.13-2 provides an inventory of the types of streets in which the existing Calabasas Feeder is located.

This page intentionally left blank.

Table 4.13-2. Inventory of Streets in Calabasas Feeder Study Area

	Roadway Information							Modal Facilities			Pipeline Alignment Information		
Agency	**Street**	**Width (feet)**	**Type (per General Plan)**	**Lanes**	**Median**	**Parking Lanes**	**Driveway Access**	**Transit Routes**	**Bicycle Routes**	**Pedestrian Facilities**	**Direction**	**Length (feet)**	**Notes**
Los Angeles	Chatsworth Street	50	Secondary Arterial	2	---	---	Residential	---	---	Sidewalk (north side)	South	50	Crosses roadway briefly
Los Angeles	Owensmouth Avenue	40	Collector	2	---	2 sides	Residential Industrial	MTA 166 MTA 364	---	Sidewalks	South	14,650	Heavy on-street parking; industrial access
Los Angeles	Chase Street	36	Collector	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	West	4,000	
Los Angeles	Shoup Street	36	Secondary Arterial	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	South	2,600	
Los Angeles	Strathern Street	40	Collector	2	---	2 sides	Multiple (Residential)	MTA 152 MTA 353	---	Sidewalks	West	2,650	
Los Angeles	Fallbrook Avenue	80	Major Highway Class II	4	2-way left-turn lanes	2 sides	Multiple (residential)	MTA 152 MTA 165 MTA 169 MTA 353	Class II	Sidewalks	South	17,650	
Los Angeles	Leonora Drive	34	Local Street	2	---	6 p.m.–8 a.m.	Multiple (residential)	---	---	---	Southwest	1,250	
Los Angeles	Royer Avenue	40	Local Street	2	---	2 sides	None	---	---	Sidewalks	Southeast	350	
Los Angeles	Ventura Boulevard	90	Major Highway CL2	4	2-way left-turn lanes	2 sides	Commercial Retail	---	---	Sidewalks	Southwest	2,750	
Los Angeles	Leonora Drive	40	Local Street	2	---	1 side	Residential	---	---	---	West	650	Cul-de-sac at eastern end
Los Angeles	Valley Circle Boulevard	94	Major Highway CL2	4	---	---	Limited	---	---	Sidewalks	West	116	Crosses roadway briefly near US-101 interchange
Los Angeles	Long Valley Road	40	Local Street	3	---	---	None	---	---	---	Southwest	1,300	Located off-street. Travels south under US-101

This page intentionally left blank.

Transit and Rail

The Calabasas Feeder travels mostly through the city of Los Angeles, with its southerly terminus very briefly crossing the boundary lines of the cities of Hidden Hills and Calabasas. The Los Angeles County Metropolitan Transportation Authority (MTA) owns and operates commuter rail service throughout the city of Los Angeles, as well as large majority of fixed-route local transit. The following three bus routes are located on the Calabasas Feeder alignment.

- MTA Line 152/353 (Fallbrook Avenue)
- MTA Line 165 (Vanowen Street crossing Fallbrook Avenue)
- MTA Line 166/364 (Owensmouth Avenue)

Bicycle Facilities

The only designated bikeway facility in the Calabasas Feeder project area is on Fallbrook Avenue. Along the entirety of its length, Fallbrook Avenue provides both a marked on-street parking lane and a Class II bikeway (on-street marked bike lanes). The Calabasas Feeder meanders between the northbound and southbound lanes.

Pedestrian Facilities

Paved concrete sidewalks are provided on both sides of all streets within the project area, except for Leonora Drive and Long Valley Road. In some cases the pipeline alignment is near the existing curb, near the pedestrian facilities, such as in the following locations.

- The eastern sidewalk on Owensmouth Avenue from Lassen Street to Prairie Street
- The eastern sidewalk on Owensmouth Avenue south of Osbourne Street to Chase Street
- Shoup Avenue north of Roscoe Boulevard

Air Transportation

There are no public airports, airport land use plans, or private airstrips within 2 miles of the Calabasas Feeder alignment.

Emergency Response Plans and Emergency Evacuation Plans

The following emergency response and evacuation plans have been identified in the study area for the Calabasas Feeder.

- **City of Los Angeles:** According to the City of Los Angeles General Plan, Safety Element, there is a city disaster route on State Route 27 (SR-27) (Topanga Canyon Boulevard) in the Calabasas Feeder study area. (City of Los Angeles 1996)
- **City of Hidden Hills:** According to the Hidden Hills General Plan, Safety Element, there is an evacuation route on Long Valley Road in the Calabasas Feeder study area. (City of Hidden Hills 1995)

4.13.2.3 Rialto Pipeline

The Rialto Pipeline begins at the California Department of Water Resources facility in the city of San Bernardino and ends 30 miles to the west at the San Dimas Power Plant in the city of San Dimas. The Rialto Pipeline begins by extending southwest from the California Department of Water Resources facility and along the east side of Pine Avenue through a nearby residential community. The pipeline crosses under Kendall Drive, Interstate 215 (I-215), and Cajon Boulevard and traverses a 2-mile stretch of vacant area in San Bernardino County before crossing under Riverside Avenue in the city of Rialto. The pipeline continues westward along Casa Grande Drive, crossing Alder Avenue, Sierra Avenue, Citrus Avenue, Interstate 15 (I-15), and Cherry Avenue before turning southwest across a 0.25-mile stretch of vacant county land toward Crescenta Way in the neighboring city of Rancho Cucamonga. From Crescenta Way, the Rialto Pipeline alignment turns westward onto Wilson Avenue, crossing over to the eastbound lanes (west of Wardman Bullock Road), and then continues off-street and to the west along the southerly right-of-way line on Wilson Avenue. The pipeline turns south at Bluegrass Avenue, then west again at Banyan Street across the southeasterly parking lot of John Golden Elementary. The alignment then continues for 3.5 miles on Banyan Street, crossing Day Creek Boulevard, Milliken Avenue, and Haven Avenue before turning south at Archibald Avenue. From Archibald Avenue, the pipeline turns to the west and south onto Amethyst Avenue and along several utility easements, crossing Carnelian Street, Sapphire Street, and the Cucamonga Creek storm channel at the boundary line between the cities of Rancho Cucamonga and Upland. The pipeline then crosses under Interstate 210 (I-210) to the south into the city of Upland, travels along Campus Avenue through the Crossroads Colonies shopping center, and then turns west along 18th Street. The Rialto Pipeline alignment continues along 18th Street until its terminus, crossing Euclid Avenue, San Antonio Avenue, Mountain Avenue, and Benson Avenue. From the end of 18th Street, the pipeline continues west beyond I-210, and into the neighboring city of Claremont for 1.25 miles following the east/west alignment of Miramar Avenue. At the westerly terminus of Miramar Avenue at Forbes Avenue the alignment continues west along the Thompson Creek Trail through an unincorporated portion of Los Angeles County, northwest into the city of La Verne where it joins to the Live Oak Reservoir, then westward again, crossing Esperanza Drive toward the adjacent residential community. The alignment proceeds west for 5,000 feet past Esperanza Drive, where it turns south at Wheeler Avenue, then west again at the T-intersection of Wheeler Avenue and Via Arroyo. The westernmost 0.75-mile portion of the pipeline travels southwest into the city of San Dimas along San Dimas Canyon Road, then to Sycamore Canyon Road where it turns west and terminates at the city's Power Plant facility.

Vehicular Transportation

Table 4.13-3 provides an inventory of the types of streets in which the existing Rialto Pipeline is located.

Table 4.13-3. Inventory of Streets in Rialto Pipeline Study Area

	Roadway Information							Modal Facilities			Pipeline Alignment Information		
Agency	**Street**	**Width (feet)**	**Type (per General Plan)**	**Lanes**	**Median**	**Parking Lanes**	**Driveway Access**	**Transit Routes**	**Bicycle Routes**	**Pedestrian Facilities**	**Direction**	**Length (feet)**	**Notes**
San Bernardino	West Ohio Street	40	Collector	2	---	---	Residential	---	---	Sidewalk (southwest side)	Southwest	40	Crosses roadway briefly
San Bernardino	Pine Avenue North	40-64	Collector/Secondary	2-4	2-way left-turn lanes/Center Lane	---	Residential (northern portion)	---	---	Sidewalks	Southwest	4,900	Briefly crosses Torrey Pine Road and White Pine Avenue
San Bernardino	Kendall Drive	75	Major Arterial	4	Paved	---	None	Omnitrans 2	Class II	Sidewalks	Southwest	100	Crosses roadway briefly
San Bernardino	Industrial Parkway	64	Secondary Arterial	4	2-way left-turn lanes	---	None			Sidewalk (south side)	West	600	
San Bernardino	Cajon Boulevard	50	Major Arterial	2	---	---	None	---	---	---	Southwest	50	Crosses roadway briefly Historic Route 66
Rialto	Riverside Avenue	50	Major Arterial	2	---	---	Residential	---	---	Sidewalk (southwest side)	West	100	Crosses roadway briefly
Rialto	West Casa Grande Drive	64	Secondary Arterial	3-4	---	---	None	Omnitrans 22	Class II	Sidewalks	West	6,600	
Rialto	Alder Avenue	72	Major Arterial	4	Raised	---	None	Omnitrans 22	Class II	Sidewalks	West	100	Crosses roadway briefly
Fontana	Citrus Avenue	80	Primary Highway	4	Raised	---	None	---	Class II	Sidewalks	West	100	Crosses roadway briefly
Fontana	Knox Avenue	44	Collector Street	2	---	---	None	---	---	Sidewalks	West	1,300	
Fontana	Coyote Canyon Road	70	Secondary Highway	2	Paved	---	None	---	Class II	Sidewalk (northwest side)	West	100	Crosses roadway briefly
Fontana	Cherry Avenue	72	Modified Primary Highway	4	Raised	---	None	---	Class II	Sidewalks	West	72	Crosses roadway briefly
Rancho Cucamonga	San Sevaine Road	36	Local Street	2	---	---	None	---	Class I	Sidewalks, Trails	Southwest	45	Crosses roadway briefly
Rancho Cucamonga	Crescenta Way	36	Local Street	2	---	---	Multiple (residential) (north side)	---	---	Sidewalk (south side)	Southwest	2,150	Mostly off-street Briefly crosses Crestline Place Briefly crosses Ridgeline Place
Rancho Cucamonga	Wardman Bullock Road	44	Modified Secondary + Median	2-4	2-way left-turn lanes/Center Lane	---	None	---	Class I	Sidewalks, Trails	West	75	Crosses roadway briefly
Rancho Cucamonga	Wilson Avenue	68	Modified Major + Median	2-4	Raised	---	None	---	Class I	Sidewalks, Trails	West	4,080	Mostly off-street Elbow briefly crosses at East Avenue
Rancho Cucamonga	Bluegrass Avenue	42	Local Street	2	---	---	None	---	---	Sidewalks	South	1,700	50% off-street 90-degree turn under Golden Elementary School
Rancho Cucamonga	Banyan Street	50	Collector	2	2-way left-turn lanes/Center Lane	1 side	Schools	---	Class II	Sidewalks, Trails	West	11,000	Heavy on-street parking between Milliken Avenue and Rochester
Rancho Cucamonga	Day Creek Boulevard	75	Modified Major + Median	4	Raised	---	None	---	Class II	Sidewalks	West	100	Crosses roadway briefly
Rancho Cucamonga	Milliken Avenue	94	Major Arterial	5	Raised	---	School	Omnitrans 85	Class II	Sidewalks	West	125	Crosses roadway briefly
Rancho Cucamonga	Merlot Court	36	Private Road	2	---	---	Multiple (residential)	---	---	Sidewalk (south side)	West	550	Largely off-street; cul-de-sac at western end
Rancho Cucamonga	Haven Avenue	94	Major Divided Arterial	6	Raised	---	None	Omnitrans 80 Omnitrans 81	---	Sidewalks	West	100	Crosses roadway briefly; traverses church parking lot
Rancho Cucamonga	Archibald Avenue	60	Major Arterial	4	2-way left-turn lanes	---	None	Omnitrans 67	---	Sidewalks	South	650	
Rancho Cucamonga	Klusman Avenue/ Jadieite Avenue	36	Local Street	2	---	---	Multiple (residential)	---	---	Sidewalks	West	100	Crosses 2 roadways briefly

Agency	Roadway Information							Modal Facilities			Pipeline Alignment Information		
	Street	Width (feet)	Type (per General Plan)	Lanes	Median	Parking Lanes	Driveway Access	Transit Routes	Bicycle Routes	Pedestrian Facilities	Direction	Length (feet)	Notes
Rancho Cucamonga	Amethyst Avenue	42	Collector	2	---	---	Multiple (residential)	---	---	Sidewalks	South	1,900	
Rancho Cucamonga	Highland Avenue	34	Local Street	2	---	---	Multiple (residential)	---	---	Sidewalks	West	200	Elbow turn at Highland Avenue/ Broken Star Court
Rancho Cucamonga	Camelian Street	72	Secondary Arterial	4	---	---	Limited	---	---	Sidewalks	West	100	Crosses roadway briefly
Rancho Cucamonga	Highland Avenue	44	Collector Street	2	---	---	None	---	---	Sidewalks	West	3,500	
Upland	North Campus Avenue	72	Secondary Arterial	4	Raised	---	Commercial	Omnitrans 83	Class II	Sidewalks	Southwest	1,700	Additional 90-foot crossing of intersecting 19th Street
Upland	Winston Avenue	36	Local Street	2	---	---	Multiple (residential) (east side)	---	---	Sidewalks	South	1,300	Feeder branches off to the south from mainline
Upland	18th Street	40	Local Street	2	---	1 side	School	Omnitrans 83 Omnitrans 84	---	Sidewalks	West	11,000	Heavy on-street parking near Pioneer Junior High School; crosses San Antonio Avenue, Mountain Avenue, Benson Avenue
Upland	Euclid Avenue	150	Major Arterial	4	Raised	2 sides	Limited	Omnitrans 83 Omnitrans 84	Class II	Sidewalks	West	150	Crosses roadway briefly
Claremont	East Miramar Avenue	20-50	Private Road/Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	West	6,500	Briefly crosses Padua Avenue, Grand Avenue, Mills Avenue, Bonnie Brae Avenue
La Verne	Wheeler Avenue	70	Secondary Arterial	4	2-way left-turn lanes	---	Multiple (residential)	---	---	Sidewalks	Southwest	1,050	Briefly crosses 36-foot section of Old Wheeler Road
San Dimas	San Dimas Canyon Road	46	Scenic Parkway	2	2-way left-turn lanes	---	Residential	---	---	Sidewalk (north side)	Southwest	3,800	

Transit and Rail

The Rialto Pipeline passes through eight local cities and various unincorporated areas in San Bernardino County. San Bernardino County Public Transit (Omnitrans) is the primary public transit agency in the San Bernardino Valley, providing fixed local and intercity routes from Chino Hills to Yucaipa. The following bus routes are within the vicinity of the Rialto Pipeline alignment.

- Omnitrans Line 2 (Kendall Drive—city of San Bernardino)
- Omnitrans Line 22 (West Casa Grande Drive, Alder Avenue—city of Rialto)
- Omnitrans Line 67 (Archibald Avenue—city of Rancho Cucamonga)
- Omnitrans Line 85 (Milliken Avenue—city of Rancho Cucamonga)
- Omnitrans Line 80/81 (Haven Avenue—city of Rancho Cucamonga)
- Omnitrans Line 83 (North Campus Avenue—city of Upland)
- Omnitrans Line 84 (18th Street, Euclid Avenue—city of Upland)

Bicycle Facilities

There are several bikeway facilities in the vicinity of the Rialto Pipeline. The following streets contain designated facilities for bicyclists.

- Class I (off-street bike path) bikeways
    - San Sevaine Road (city of Rancho Cucamonga)
    - Wardman Bullock Road (city of Rancho Cucamonga)
    - Wilson Avenue (city of Rancho Cucamonga)
- Class II (on-street marked bike lanes) bikeways
    - Kendall Drive (city of San Bernardino)
    - West Casa Grande Drive (city of Rialto)
    - Alder Avenue (city of Rialto)
    - Citrus Avenue (city of Fontana)
    - Coyote Canyon Road (city of Fontana)
    - Cherry Avenue (city of Fontana)
    - Banyan Street (city of Rancho Cucamonga)
    - Day Creek Boulevard (city of Rancho Cucamonga)
    - Milliken Street (city of Rancho Cucamonga)
    - North Campus Avenue (city of Upland)
    - Euclid Avenue (city of Upland)

Pedestrian Facilities

Paved concrete sidewalks for pedestrians are provided on all of the streets along which the Rialto Pipeline travels. Some streets (e.g., Ohio Avenue, Industrial Parkway, Crescenta Way, San Dimas Canyon Road) provide sidewalks along only one side of the street, due to the surrounding physical constraints. Certain portions of the pipeline alignment are at or near the existing curb, such as in the following locations.

- South sidewalk on Pine Avenue between Ohio Avenue and Irvington Avenue (city of San Bernardino)
- South sidewalk on Crescenta Way (city of Rancho Cucamonga)
- South sidewalk on Wilson Avenue west of Wardman Bullock Road for a distance of approximately 3,000 feet (city of Rancho Cucamonga)
- South sidewalk on 24th Street (city of Rancho Cucamonga)
- Bluegrass Avenue south of Chellendon Drive, north of Etiwanda Elementary (city of Rancho Cucamonga)
- South sidewalk on Banyan Street between Cantabria Avenue near Banyan Elementary to Muscat Place (city of Rancho Cucamonga)
- East sidewalk on Amethyst Avenue south of Apricot Avenue to Highland Avenue (city of Rancho Cucamonga)
- Thompson Creek Road trail between Indian Hill Avenue and Mountain Avenue (city of Claremont)

Air Transportation

The Rialto Municipal Airport is 1.7 miles to the south of the Rialto Pipeline. The Cable Airport is approximately 1 mile south of the Rialto Pipeline. There are no private airstrips in the Rialto Pipeline study area.

Airport Land Use Plan for Rialto Municipal Airport

An airport land use plan (ALUP) is adopted for a public airport to provide for the orderly growth of the airport and the area surrounding the airport. The ALUP for the Rialto Municipal Airport was adopted in 1991 and is called the *Final Comprehensive Land Use Plan: Rialto Municipal Airport* (San Bernardino County ALUC 1991).

According to Figure III-7 of the ALUP for Rialto Municipal Airport, the Rialto Pipeline is just north and outside of the airport's safety zones, which are areas in the vicinity of the airport in which land use restrictions are established to protect the safety of the public. Because the Rialto Pipeline is outside the safety zones, the Rialto Airport ALUP is not applicable to the proposed program.

Airport Land Use Plan for Cable Airport

The ALUP for the Cable Airport was adopted in 1981 and is called the *Cable Airport Comprehensive Airport Land Use Plan* (West Valley Planning Agency ALUC 1981).

According to Figure 3 of the ALUP for Cable Airport, the Rialto Pipeline does not encroach into any of the airport's planning area boundaries. Therefore, the Cable Airport ALUP is not applicable to the proposed program.

Emergency Response Plans and Emergency Evacuation Plans

The following emergency route has been identified in the study area for the Rialto Pipeline.

- **County of San Bernardino**: According to the San Bernardino County General Plan, Safety Element, there are county evacuation routes on I-210, I-15, I-215, and State Route 83 (SR-83) (Euclid Avenue). (San Bernardino County 2014)

4.13.2.4 Second Lower Feeder

The Second Lower Feeder begins at Metropolitan's Robert Diemer Water Treatment Plant in the city of Yorba Linda and ends 40 miles to the west in the city of Rolling Hills Estates. The pipeline begins by extending southwesterly through residential neighborhoods in the northwestern part of the city of Yorba Linda, crossing Valley View Avenue and Valley View Circle, then turning west to follow the length of Wabash Avenue to where the street intersects Prospect Avenue. The alignment follows Prospect Avenue south, continues past Imperial Highway, turns west onto Bastanchury Road, then proceeds along the westbound lanes of Bastanchury Road into the neighboring city of Placentia, crossing Rose Drive, McCormack Lane, and Valencia Avenue. After a 2-mile distance on Bastanchury Road, the pipeline turns south onto Brookhaven Avenue for 1 mile, briefly turns west onto Yorba Linda Boulevard for a 0.25-mile distance, then angles southwest onto Angelina Drive north of Kraemer Boulevard. The alignment proceeds beyond Morse Avenue, along Kraemer Boulevard for a 0.5-mile distance, then continues along the same bearing onto Angelina Drive, south of Kraemer Boulevard, and along the east side of Kraemer Middle School and Valencia High School campuses. Once reaching the end of Angelina Drive 1.5 miles to the south, the alignment proceeds south beyond the railroad tracks and turns slightly southeast through an industrial park and toward Metropolitan's Carbon Creek Pressure Control Structure facility in the city of Anaheim. Beginning from this facility for a distance of approximately 9 miles, the pipeline is steel lined. At approximately the 15.7-mile mark, the pipeline reverts to PCCP along Ball Road, just east of Dale Avenue. The alignment continues west on Ball Road for four cities, crossing several major north-south arterials in Anaheim, Buena Park, Cypress, and Los Alamitos before crossing Interstate 605 (I-605) in the city of Long Beach (where Ball Road becomes Wardlow Road). At the San Gabriel River, the alignment turns north for a 0.5-mile distance, turns west to follow Keynote Street, crosses Studebaker Road and Los Coyotes Diagonal, turns north again on Iroquois Avenue, and then turns west once more along Conant Street. The pipeline traverses several blocks of residential neighborhoods, following Conant Street for 3 miles before turning south onto Clark Avenue. Just north of the Fire Station driveway, the pipeline turns west and follows a utility easement along the northern boundary of the Skylinks Golf Course, crosses Lakewood Boulevard, continues through the Long Beach Airport, then angles northwest to begin a westerly alignment along Bixby Road. The Bixby Road portion of the pipeline extends just over 3.5 miles through residential neighborhoods situated between the airport and Interstate 710 (I-710). At the west end of Bixby Road, the alignment jogs to the north and west across I-710 and proceeds along Carson Street for 5.5 miles through the neighboring city of Carson. Just before reaching the undercrossing at the Carson Street/Interstate 405 (I-405) interchange, the alignment turns south through a residential block on Acarus Avenue, then angles southwest to cross I-405 and the adjacent flood control channel. Just west of I-405, the pipeline proceeds westward along 220th Street for 6.5 miles, crossing Avalon Boulevard, Dolores Street, Main Street, Figueroa

Street, and Interstate 110 (I-110). Beyond I-110 the alignment continues on 220th Street through West Carson (unincorporated Los Angeles County), crossing intersections at Vermont Avenue and Normandie Avenue before reaching Western Avenue where it joins with the Sepulveda Feeder from the north. Beginning from the intersection of Western Avenue and 220th Street, the pipeline proceeds south, where the jurisdictions of the cities of Torrance and Los Angeles are to the west and east of the roadway, respectively. The pipeline continues south along Western Avenue, crossing 223rd Street, 228th Street, Sepulveda Boulevard, and 235th Street before reaching 238th Street, where Western Avenue is located completely within the city of Los Angeles boundary. The alignment then crosses Lomita Boulevard, Pacific Coast Highway, and Anaheim Street before entering the city of Lomita just south of 261st Street. The pipeline turns west at 262nd Street for 1 mile, then turns south at Oak Street toward the neighboring city of Rolling Hills Estates. Beginning at the Oak Street PCS facility, the pipeline turns southward onto Palos Verdes Drive East for a distance of 1 mile, crossing Palos Verdes Drive North and terminating at Metropolitan's Palos Verdes Reservoir.

Vehicular Transportation

Table 4.13-4 provides an inventory of the types of streets in which the existing Second Lower Feeder is located.

Table 4.13-4. Inventory of Streets in Second Lower Feeder Study Area

	Roadway Information							Modal Facilities			Pipeline Alignment Information		
Agency	**Street**	**Width (feet)**	**Type (per General Plan)**	**Lanes**	**Median**	**Parking Lanes**	**Driveway Access**	**Transit Routes**	**Bicycle Routes**	**Pedestrian Facilities**	**Direction**	**Length (feet)**	**Notes**
Yorba Linda	Valley View Avenue	44	Primary Arterial	2	Raised	---	None	---	---	Sidewalks	West	50	
Yorba Linda	Valley View Circle	44	Local Street	2	Raised	---	Maintenance only	---	---	Sidewalks, trails	South	44	
Yorba Linda	Wabash Avenue	44	Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks, trails	West	1,300	
Yorba Linda	Prospect Avenue	40	Local Street	2	---	1 side (west)	Commercial Industrial	---	---	Sidewalks	South	2,650	Crosses Imperial Highway
Yorba Linda	Imperial Highway	100	Modified Major Arterial	6	Raised; 2-way left-turn lanes	---	Commercial	OCTA 20	---	Sidewalks	South	135	State Route 90 Crosses roadway briefly
Yorba Linda	Bastanchury Road	64	Modified Primary Arterial	4	2-way left-turn lanes	---	Limited (community, church)	---	Class II	Sidewalks	West	2,400	Western city limit
Placentia	Bastanchury Road	64	Modified Primary Arterial	4	2-way left-turn lanes	1 side	Residential (south side)	---	---	Sidewalks	West/Southwest	4,600	Crosses McCormack Lane, Valencia Avenue; turns at Brookhaven Avenue
Placentia	Brookhaven Avenue	40	Local Street	2	---	---	Multiple (residential)	---	---	Sidewalks	South	2,600	Brookhaven Elementary School, traverses back of El Dorado High School athletic fields
Placentia	Yorba Linda Boulevard	84	Modified Major Arterial	4	Raised	---	Medical-dental office	OCTA 26	---	Sidewalks	Southwest	700	Turns south just east of Palm Drive
Placentia	North Angelina Drive	32	Local Street	2	---	---	Commercial	---	---	Sidewalks	Southwest	1,000	
Placentia	North Kraemer Boulevard	84	Modified Major Arterial	4	Raised	---	Limited	OCTA 129	---	Sidewalks	Southwest	1,500	
Placentia	North Angelina Drive	40	Local Street	2	---	---	Residential, school	---	---	Sidewalks	Southwest	3,700	Crosses East Chapman Avenue Kraemer Middle School at North Angelina Drive/Alta Vista Street
Anaheim	North Community Drive	40	Local Street	2	---	2 sides	Residential alley access	---	---	Sidewalks	Southeast	1,200	
Anaheim	Ball Road	84	Major Arterial	4	2-way left-turn lanes	2 sides	Residential Commercial	OCTA 46	Class II	Sidewalks	West	14,700	Crosses Dale Avenue, Beach Boulevard, Western Avenue, Knott Avenue
Buena Park	Ball Road	72	Primary Highway	4	2-way left-turn lanes	---	None	OCTA 46	Class II	Sidewalks	West	650	
Cypress	Ball Road	84	Major Highway	4	Raised	---	Commercial	OCTA 46	Class II	Sidewalks	West	14,700	Crosses Valley View Street, Walker Street, Moody Street, Denni Street, Bloomfield Street
Los Alamitos	Ball Road	84	Principal Arterial	4	Paved	---	None	---	Class II	Sidewalks	West	1,350	50% off-street
Long Beach	Wardlow Road	70	Minor Avenue	4	Raised	---	None	LBT 102	Class II	Sidewalks	West	6,150	Briefly crosses Studebaker Road
Long Beach	East Keynote Street	36	Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	West	1,750	
Long Beach	Studebaker Road	74	Minor Avenue	4	None/Raised	---	None	LBT 173	Class II	Sidewalks	West	115	Briefly crosses Studebaker Road
Long Beach	East Keynote Street	36	Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	West	1,850	
Long Beach	Los Coyotes Diagonal	74	Boulevard	4		---	Residential (east side)	---	---	Sidewalks	West	85	

	Roadway Information							Modal Facilities			Pipeline Alignment Information		
Agency	**Street**	**Width (feet)**	**Type (per General Plan)**	**Lanes**	**Median**	**Parking Lanes**	**Driveway Access**	**Transit Routes**	**Bicycle Routes**	**Pedestrian Facilities**	**Direction**	**Length (feet)**	**Notes**
Long Beach	Iroquois Avenue	32	Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	North	650	
Long Beach	East Conant Street	36-56	Neighborhood Collector	2		2 sides	Multiple (residential)	---	---	Sidewalks	West	8,400	Crosses Palo Verde Avenue, Woodruff Avenue, Bellflower Boulevard
Long Beach	Clark Avenue (service road)	28	Local Street	2	---	1 side	Residential	---	---	Sidewalk (east side)	South	600	
Long Beach	Lakewood Boulevard	100	Regional Corridor	8	Raised	---	None	LBT 111	---	Sidewalks	West	115	State Route 19
Long Beach	Bixby Road	60	Neighborhood Collector	2	---	2 sides	Industrial Residential	---	Class II	Sidewalks	West	10,000	Crosses Cherry Avenue, Orange Avenue, Atlantic Avenue, Long Beach Boulevard
Long Beach	Country Club Drive	40	Local Street	2	---	2 sides	None	---	---	Sidewalks	North	310	
Long Beach	West San Antonio Drive	40	Minor Avenue	2	---	2 sides	None	---	---	Sidewalks	Southwest	480	
Long Beach	Del Mar Avenue	40	Local Street	2	---	2 sides	None	---	---	Sidewalks	Northwest	1,300	
Carson	West Carson Street	64	Major Highway	4	Raised; 2-way left-turn lanes/center lane	2 sides	Multiple (commercial, office, industrial)	LBT 191 LBT 192 MTA 202	---	Sidewalks	West	10,300	Crosses Alameda Street overcrossing, Wilmington Avenue
Carson	Acarus Avenue	40	Local Street	2	---	2 sides	Residential	---	---	Sidewalks	South	700	
Carson	East 220th Street	36	Collector	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	West	10,200	Crosses Avalon Boulevard, Main Street, Interstate 120/Figueroa Street interchange
Los Angeles County	East 220th Street	36	Major Collector	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	West	3,400	Harbor-UCLA Medical Center on north side
Los Angeles/Torrance	Western Avenue	84	Major Highway Class II	4	Raised	2 sides	Commercial	GTrans 2	---	Sidewalks	South	6,900	Crosses 223rd Street, Sepulveda Boulevard
Los Angeles	Western Avenue	84	Major Highway Class II	4	Raised	2 sides	Commercial Residential	GTrans 2 MTA 205	---	Sidewalks	South	8,550	Crosses 238th Street, 242nd Place, 247th Street, Lomita Boulevard, 253rd Street, Pacific Coast Highway, Anaheim Street
Lomita	Western Avenue	84	Major Highway	4	Raised	2 sides	Commercial Industrial	---	---	Sidewalks	South	400	Crosses 262nd Street
Lomita	262nd Street	40	Collector Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	West	2,500	60-foot jog in alignment at Eshelman Avenue/Appian Way
Lomita	Oak Street	40	Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	Southwest	330	
Rolling Hills Estates	Palos Verdes Drive East	32	Arterial	2	2-way left-turn lanes/center lane	---	Limited	---	---	---	South	4,600	Crosses Palos Verdes Drive North

Transit and Rail

The Second Lower Feeder traverses both Orange County and Los Angeles County. Within Orange County limits (Yorba Linda, Placentia, Anaheim, Buena Park, Cypress, Los Alamitos), OCTA owns and operates the majority of all transit and rail services. Within the limits of Los Angeles County (Long Beach, Carson, West Carson/Los Angeles County, Los Angeles, Torrance, Lomita, Rolling Hills Estates), local fixed route and intercity transit is offered by several agencies, such as MTA, Long Beach Transit (LBT), and GTrans (formerly Gardena Municipal Bus), which provides bus services through the South Bay. The following bus lines are within the vicinity of the Second Lower Feeder alignment.

- OCTA Line 20 (Imperial Highway—city of Yorba Linda)
- OCTA Line 26 (Brookhaven Avenue—city of Placentia)
- OCTA Line 46 (Ball Road—cities of Anaheim, Buena Park, and Cypress)
- OCTA Line 129 (Kraemer Boulevard—city of Placentia)
- LBT Line 102 (Wardlow Road—city of Long Beach)
- LBT Line 111 (Lakewood Boulevard—city of Long Beach)
- LBT Line 173 (Studebaker Road—city of Long Beach)
- LBT Line 191/192 and MTA 202 (Carson Street—city of Carson)
- GTrans Line 2 and MTA Line 205 (Western Avenue—cities of Los Angeles and Torrance)

Bicycle Facilities

There are several bikeway facilities in the vicinity of the Second Lower Feeder. The following streets contain designated Class II bikeways (on-street marked bicycle lanes).

- Bastanchury Road (city of Yorba Linda)
- Ball Road/Wardlow Road (cities of Anaheim, Buena Park, Cypress, Los Alamitos, and Long Beach)
- Studebaker Road (city of Long Beach)
- Los Coyotes Diagonal (city of Long Beach)
- Bixby Road (city of Long Beach)

Pedestrian Facilities

A survey of the existing roadside conditions revealed that nearly all streets and highways aligned over and/or crossing the Second Lower Feeder contain paved pedestrian sidewalks along the roadside (with equestrian trails in the city of Yorba Linda). Only Clark Avenue provides sidewalks on only one side of the street; however, Clark Avenue where the pipeline aligns functions primarily as a service road. The only two pedestrian facilities within or near the centerline of the Second Lower Feeder alignment are the eastern sidewalk on Brookhaven Avenue (city of Placentia) and the northern sidewalk on 220th Street between Main Street and Dolores Street (city of Carson)

Air Transportation

The Joint Forces Training Base Los Alamitos is 1.2 miles south of the Second Lower Feeder. The pipeline runs through the northern portion of the Long Beach Municipal Airport. The Torrance Municipal Airport is 1.2 miles west of the pipeline.

Airport Environs Land Use Plan for Joint Forces Training Base Los Alamitos

The ALUP for the Joint Forces Training Base Los Alamitos is the *Airport Environs Land Use Plan for Joint Forces Training Base Los Alamitos* adopted in 2002 (ALUC of Orange County 2015).

According to Appendix D of the ALUP for the Joint Forces Training Base Los Alamitos, the Second Lower Feeder is not within the airport's runway protection zones or clear zones, but is within a notification area. The notification areas are established to ensure that structures that may affect day-to-day airport operations are not built in their vicinities.

Los Angeles County Airport Land Use Plan

The *Los Angeles County Airport Land Use Plan* covers numerous airports in Los Angeles County, including Long Beach Municipal Airport (Los Angeles County ALUC 2004).

According to the Airport Influence Area map for the Long Beach Municipal Airport in the ALUP, the Second Lower Feeder crosses the northern portion of the airport property, within the airport's planning boundary/airport influence area and a runway protection zone. Runway protection zones are intended to provide for the unobstructed passage of landing aircraft through the above airspace. These zones are the most critical safety areas under the approach paths and should be kept free of all obstructions. No structures or congregations of people are allowed within runway protection zones.

Emergency Response Plans and Emergency Evacuation Plans

The following emergency response and evacuation plans have been identified in the study area for the Second Lower Feeder.

- **City of Lakewood:** According to the City of Lakewood General Plan, Safety Element, all city arterials are recognized as primary evacuation routes. (City of Lakewood 1995)
- **City of Carson:** According to the City of Carson, Safety Element, there are city evacuation routes on Carson Street, Santa Fe Avenue, Alameda Street, Wilmington Avenue, Avalon Boulevard, Main Street, Figueroa Street, and Broadway in the Second Lower Feeder study area. (City of Carson 2006)
- **City of Los Angeles:** According to the City of Los Angeles General Plan, Safety Element, Normandie Avenue and Vermont Avenue are city disaster routes in the Second Lower Feeder study area. (City of Los Angeles 1996)
- **City of Lomita:** According to the City of Lomita General Plan, Safety Element, city evacuation routes are located on Pacific Coast Highway, Western Avenue, Narbonne Avenue, and Lomita Boulevard in the Second Lower Feeder study area. (City of Lomita 1998)
- **City of Rolling Hills Estates:** According to the Rolling Hills Estates General Plan, Safety Element, city emergency evacuation routes are located on Palos Verdes Drive East and Palos Verdes Drive North in the Second Lower Feeder study area. (City of Rolling Hills Estates 1992)

4.13.2.5 Sepulveda Feeder

The Sepulveda Feeder begins at the Jensen Water Treatment Plan in the city of Los Angeles near the Interstate 5 (I-5)/I-210 interchange and ends 41 miles to the south at its interconnection with the Second Lower Feeder in the city of Torrance. The Sepulveda Feeder leaves the Jensen facility on a southerly alignment, traveling through residential neighborhoods in the North Granada Hills area. Its first major arterial crossing is Rinaldi Street, where it turns directly south to follow the alignment of Hayvenhurst Avenue under State Route 118 (SR-118), then crosses major streets through the North Hills and Lake Balboa areas including San Fernando Mission Boulevard, Chatsworth Street, Devonshire Street, Lassen Street, Plumer Street, Nordhoff Street, Parthenia Street, Roscoe Boulevard, and Sherman Way. The pipeline also traverses the Van Nuys Airport in a north-south direction and angles across the southern portion of the airstrip at Hart Street toward Vanowen Street. Once on Vanowen Street, the pipeline turns south for 1.5 blocks on Valjean Avenue, then 0.75 mile east on Haynes Street where it crosses under I-405, then turns southeast on Blucher Avenue. Just south of the corner of Blucher Avenue and Erwin Street the pipeline turns directly south to cross the MTA Orange Line Busway/Bike Path before following another southeast alignment on Hatteras Street and toward Sepulveda Boulevard. The pipeline turns 90 degrees at the intersection of Hatteras Street/Sepulveda Boulevard then travels south for 4 miles on West Sepulveda Boulevard, crossing several major roadways north of the Sepulveda Pass including Burbank Boulevard, Magnolia Boulevard, US-101, Ventura Boulevard, I-405, and Mulholland Drive. South of the Sepulveda Pass, the pipeline follows North Sepulveda Boulevard along the west side of I-405, crossing under to the east side of the freeway at the I-405/Sepulveda Boulevard interchange near Metropolitan's facility at 1751 Sepulveda Boulevard. The Sepulveda Feeder pipeline continues south for 1 mile before turning west to cross under I-405, continuing for 1 mile south on Church Lane, then crossing back under to the east side of I-405 onto Sepulveda Boulevard. From this point, the pipeline travels for 6 miles through west Los Angeles and the city of Culver City, crossing major arterials and highways such as Wilshire Boulevard, Santa Monica Boulevard, Olympic Boulevard, Pico Boulevard, I-10, National Boulevard, Palms Boulevard, Venice Boulevard, Washington Boulevard, Culver Boulevard, and Jefferson Boulevard before turning east through the Fox Hills Mall via Hannum Avenue toward southeast Culver City. The pipeline then travels southeast, meandering through 5.5 miles of residential neighborhoods in the cities of Los Angeles and Inglewood before aligning south along Van Ness Avenue, which serves as the boundary line between Inglewood and the city of Los Angeles and County of Los Angeles north of Interstate 105 (I-105). Major arterial crossings along this portion of the alignment include Manchester Avenue, Century Boulevard, and Imperial Highway. Once the pipeline crosses into the city of Hawthorne at Imperial Highway on Van Ness Avenue, it then crosses under I-105 and proceeds south beyond El Segundo Boulevard into the city of Gardena. The pipeline travels for 2 miles through the city of Gardena along Van Ness Avenue, crossing 135th Street, Rosecrans Avenue, and Marine Avenue before entering the city of Torrance just south of Redondo Beach Boulevard. The Sepulveda Feeder pipeline then travels for 2.7 miles south, crossing Artesia Boulevard, 182nd Street, I-405, and 190th Street, and then turns east for 0.25 mile at Del Amo Boulevard before turning south again onto Western Avenue, which serves as the boundary line between the cities of Torrance and Los Angeles. The alignment continues for 1.3 miles on Western Avenue before connecting with the Second Lower Feeder at 220th Street.

Vehicular Transportation

Table 4.13-5 provides an inventory of the types of streets in which the existing Sepulveda Feeder is located.

This page intentionally left blank.

Table 4.13-5. Inventory of Streets in Sepulveda Feeder Study Area

	Roadway Information							Modal Facilities			Pipeline Alignment Information		
Agency	**Street**	**Width (feet)**	**Type (per General Plan)**	**Lanes**	**Median**	**Parking Lanes**	**Driveway Access**	**Transit Routes**	**Bicycle Routes**	**Pedestrian Facilities**	**Direction**	**Length (feet)**	**Notes**
Los Angeles	Woodley Avenue	40	Collector	2	---	---	Residential	---	---	Sidewalks	Southeast	1,450	Briefly crosses 40-foot section of Knollwood Drive, Pineridge Drive
Los Angeles	Rinaldi Street	80	Major Highway Class II	4	2-way left-turn lanes	2 sides	Limited, school	MTA 236 MTA 237 MTA 239	Class II	---	South	80	Crosses roadway briefly
Los Angeles	Hayvenhurst Avenue	70	Secondary Arterial	4	---	2 sides	Residential Industrial	MTA 169	---	Sidewalks	South	30,000	Traverses through Van Nuys Airport
Los Angeles	Vanowen Street	64	Secondary Arterial	4	2-way left-turn lanes	2 sides	Multiple (residential, industrial)	MTA 165	---	Sidewalks	East	500	
Los Angeles	Valjean Avenue	44	Local Street	2	---	2 sides	Multiple (industrial)	---	---	Sidewalks	South	1,700	
Los Angeles	Haynes Street (west of I-405)	36	Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalk (south side)	East	3,300	Briefly crosses Haskell Avenue, I-405, Aqueduct Avenue
Los Angeles	Haynes Street (east of I-405)	36	Local Street	2	---	2 sides	Multiple (residential)	---	---	---	East	300	
Los Angeles	Blucher Avenue	36	Local Street	2	---	---	Multiple (residential)	---	---	---	South	1,300	Briefly crosses 90-foot section of Victory Boulevard
Los Angeles	West Sepulveda Boulevard (Hatteras Street to US-101)	88	Major Highway Class II	6	2-way left-turn lanes	2 sides	Multiple (commercial/ retail)	MTA 154 MTA 234 MTA 734 MTA 788	---	Sidewalks	South	5,900	Near I-405/Burbank interchange Near US-101/Sepulveda Boulevard interchange
Los Angeles	West Sepulveda Boulevard (US-101 to I-405)	88	Major Highway Class II	6	2-way left-turn lanes	---	Multiple (commercial/ retail)	MTA 183 MTA 233 MTA 234 MTA 734 MTA 477 LADOT CE 549	---	Sidewalks	South	4,500	Near US-101/Sepulveda Boulevard interchange Near I-405/Greenleaf Street interchange Near I-405/Ventura Boulevard interchange
Los Angeles	West Sepulveda Boulevard (I-405 to Mulholland Drive)	60	Major Highway Class II	4	2-way left-turn lanes	---	Multiple (residential) (east side)	MTA 234 MTA 734	Class II	Some sidewalks	Southwest	8,000	Bypasses curved portion between Valley Meadow Road and Dartford Way
Los Angeles	North Sepulveda Boulevard (Mulholland Drive to 1751 Plant)	50-64	Major Highway Class II	4	Paved; 2-way left-turn lanes/center lane	---	None	MTA 234 MTA 734	---	---	South	12,200	Bypasses portion between tunnel and I-405 southbound ramps south of Skirball Center Drive
Los Angeles	North Sepulveda Boulevard (1751 Plant to Moraga Drive)	50-60	Major Highway Class II	4	Paved/center lane	---	None	MTA 234 MTA 734	---	---	Southeast	6,450	Bypasses portion between tunnel and I-405 southbound ramps south of Skirball Center Drive
Los Angeles	Beverly Park Drive	24	Private road	2	---	---	Getty Center South Building	---	---	---	Southeast	400	
Los Angeles	North Church Lane	56	Collector	3	Center Lane/ Raised/ Paved	---	Limited	MTA 2 MTA 302 MTA 234 MTA 734	---	Sidewalks	Southeast	650	Near I-405 southbound off-ramps at Church Lane
Los Angeles	South Church Lane	32	Collector	2	---	1 side	None	MTA 2 MTA 302	---	Sidewalk (west side)	Southeast	4,800	

Agency	Roadway Information							Modal Facilities			Pipeline Alignment Information		
	Street	Width (feet)	Type (per General Plan)	Lanes	Median	Parking Lanes	Driveway Access	Transit Routes	Bicycle Routes	Pedestrian Facilities	Direction	Length (feet)	Notes
Los Angeles	South Sepulveda Boulevard (Los Angeles Cemetery to I-10)	60	Major Highway Class II	4	2-way left-turn lanes	Metered	Multiple (commercial, office)	MTA 2 MTA 302 MTA 6 MTA 6R Expo 806	---	Sidewalks	Southeast	13,850	Crosses Wilshire Boulevard, Ohio Avenue, Santa Monica Boulevard, Exposition Boulevard
Los Angeles	South Sepulveda Boulevard (I-10 to Metropolitan's 3816 Tuller facility)	64	Major Highway Class II	4	2-way left-turn lanes/ center lane	2:30 p.m.–12 a.m.	Multiple (commercial, office)	MTA 6 MTA 6R MTA 8	Class II	Sidewalks	Southeast	8,500	Crosses National Boulevard, Palms Boulevard, Venice Boulevard
Los Angeles	South Sepulveda Boulevard (Metropolitan's 3816 Tuller facility to Ballona Creek)	75	Major Highway Class II	4	2-way left-turn lanes	1-hour, metered	Multiple (commercial)	MTA 6 MTA 6R MTA 8 MTA 7 LADOT CE 437	---	Sidewalks	Southeast	6,150	Crosses Washington Place/ Boulevard, Culver Boulevard
Culver City	South Sepulveda Boulevard (Ballona Creek to Bush Way)	84	Major Highway	4-5	2-way left-turn lanes	Metered	Multiple (commercial)	MTA 3 MTA 4 MTA 6 MTA 6R	---	Sidewalks	Southeast/ south	2,950	Crosses Jefferson Boulevard, Sawtelle Boulevard
Culver City	Bush Way	40	Local Street	2	---	2 sides	Alleys	---	---	Sidewalks	East	300	
Culver City	Hannum Avenue	40-75	Local Street	2-4	Paved, 2-way left-turn lanes/center lane	2 sides (north segment)	Multiple (residential)	MTA 3 MTA 110	---	Sidewalk (north side)	South/ southeast/ east	5,150	Residential street north of Playa Street; Westfield Mall South of Playa; Crosses Slauson Avenue
Culver City	Cambridge Way	48	Local Street	2	---	2 sides	Residential access	---	---	Sidewalks	Southeast	350	
Los Angeles County	61st Street	36	Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	Southeast	1,500	
Los Angeles County	South Halm Avenue	36	Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	Southeast	700	
Los Angeles County/Los Angeles	64th Street	50	Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	Southeast/ east	1,600	Los Angeles city limits east of Flight Avenue (350 feet west of La Cienega Boulevard)
Los Angeles	South La Cienega Boulevard	100	Major Highway Class II	6	Raised	---	None	---	---	Sidewalks	South	850	Located mostly off-street; crosses roadway at Fairview Boulevard
Inglewood	West/East Fairview Boulevard	50	Collector	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	East	8,750	Traverses large residential neighborhood; crosses La Brea Avenue
Inglewood	North Gay Street/North Long Street	30	Local Street	2	---	1 side	Residential	---	---	Sidewalks	Southeast	2,600	130-foot jog in alignment at East 68th Street; Los Angeles County Department of Public Social Services building at south end
Inglewood/Los Angeles	West Florence Avenue	60	Major Arterial	4-6	2-way left-turn lanes	9 a.m.–4 p.m. 7 p.m.–7 a.m.	Commercial	MTA 40 MTA 111 MTA 311	---	Sidewalks	East	1,200	West of West Boulevard—Inglewood East of West Boulevard—Los Angeles
Inglewood/Los Angeles	South Victoria Avenue	32	Local Street	2	---	2 sides (no parking Tuesday 12–2 p.m.	Multiple (residential)	---	---	Sidewalks	South	1,350	North of 74th Street—Los Angeles South of 74th Street—Inglewood (west side) and Los Angeles (east side)
Los Angeles	West 76th Street	36-40	Local Street	2	---	2 sides	Multiple (residential)	MTA 210	---	Sidewalks	East	3,300	Traverses 5 blocks of residential neighborhoods; turns at 5th Avenue roundabout

Agency	Roadway Information							Modal Facilities			Pipeline Alignment Information		
	Street	Width (feet)	Type (per General Plan)	Lanes	Median	Parking Lanes	Driveway Access	Transit Routes	Bicycle Routes	Pedestrian Facilities	Direction	Length (feet)	Notes
Inglewood	South 5th Avenue	40	Collector	2	---	2 sides	Residential	---	---	Sidewalks	South	2,400	Warren Lane Elementary School; 8 blocks of residential neighborhood; turns at park/roundabout
Inglewood/Los Angeles	Byrd Avenue South	56	Local Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	Southeast	1,600	Crosses roadway briefly at signalized intersection @ Van Ness Avenue
Inglewood/Los Angeles	West Manchester Avenue	76	Major Arterial	4-5	Raised	2-hour (9 a.m.–6 p.m.)	Commercial	MTA 115 MTA 442	---	Sidewalks	Southeast	85	
Inglewood/Los Angeles	South Van Ness Avenue	48	Major Arterial	2	2-way left-turn lanes	2 sides	Multiple (residential)	MTA 209	---	Sidewalks	South	5,200	7 residential blocks; west side—Inglewood; east side—Los Angeles
Inglewood/Los Angeles County	Century Boulevard	75	Major Arterial	6	2-way left-turn lanes	1 side (north)	Multiple (residential)	MTA 117 MTA 209	---	Sidewalks	South	75	Crosses roadway briefly
Inglewood/Los Angeles County	South Van Ness Avenue	54	Major Arterial	4	---	2 sides	Multiple (residential)	MTA 209	---	Sidewalks	South	5,200	7 residential blocks; west side—Inglewood; east side—Los Angeles County
Inglewood/Los Angeles County	Imperial Highway	75	Major Arterial	6	Raised	---	None	MTA 5 MTA 120 MTA 209	---	Sidewalks	South	100	Crosses roadway briefly
Hawthorne	South Van Ness Avenue	54-75	Major Arterial	4	---	2 sides	Limited	MTA 5 MTA 209	---	Sidewalks	South	5,200	Near Cimarron Elementary School, Chester Washington Golf Course, I-105 overcrossing
Gardena	El Segundo Boulevard	80	Arterial	6	2-way left-turn lanes/ paved	---	Commercial	MTA 5 MTA 209 TT 2	---	Sidewalks	South	100	Crosses roadway briefly
Gardena	South Van Ness Avenue	60	Major Collector	4	---	2 sides	Residential Commercial	MTA 5	---	Sidewalks	South	11,100	Crosses 132nd Street, 135th Street, 139th Street, Rosecrans Avenue, 147th Street, Marine Avenue, 154th Street, 156th Street, Manhattan Beach Boulevard
Gardena	Rosecrans Avenue	80	Arterial	6	Raised	---	Commercial Industrial	MTA 125	---	Sidewalks	South	100	Crosses roadway briefly
Gardena	Marine Avenue	64	Major Collector	4	---	2 sides	Residential Commercial	---	---	Sidewalks	South	70	Crosses roadway briefly
Gardena	Redondo Beach Boulevard	80	Arterial	4	Paved	2 sides	Commercial	MTA 5	---	Sidewalks	South	100	Crosses roadway briefly
Torrance	South Van Ness Avenue	54	Minor Arterial	4	Center lane/2-way left-turn lanes	2 sides	Residential School Commercial Industrial	MTA 5 MTA 130 MTA 344	---	Sidewalks	South	14,100	Crosses 166th Street, Artesia Boulevard, 182nd Street, I-405 undercrossing, 190th Street; turns at Del Amo Boulevard
Torrance	West Artesia Boulevard	90	Major Arterial	6	Raised	2 sides	Residential Commercial	MTA 130 MTA 344	---	Sidewalks	South	110	Crosses roadway briefly
Torrance	Del Amo Boulevard	64	Major Arterial	4	2-way left-turn lanes	2 sides	Multiple (industrial)	---	---	Sidewalks	East	2,500	
Torrance	Western Avenue	84	Major Arterial	4-5	Raised	1 side	Commercial Residential	GTrans 2	---	Sidewalks	South	6,850	Crosses Torrance Boulevard, Carson Street; ends at West 220th Street
Torrance	Torrance Boulevard	120	Major Arterial	4	Raised	---	Residential Industrial	TT 1 TT 4	---	Sidewalks	South	140	Crosses roadway briefly
Torrance	Carson Street	70	Major Arterial	4	2-way left-turn lanes	1 side	Commercial Industrial	TT 3 TT R3	---	Sidewalks	South	90	Crosses roadway briefly
Torrance	West 220th Street	32	Street	2	---	2 sides	Multiple (residential)	---	---	Sidewalks	South	25	Crosses roadway briefly; joins Second Lower Feeder

This page intentionally left blank.

Transit and Rail

The Sepulveda Feeder traverses several communities in the city of Los Angeles, within which MTA provides the majority of public transportation services. Of the five distribution systems, the Sepulveda Feeder pipeline is within the highest concentration of MTA bus lines and also includes Los Angeles Department of Transportation (LADOT) Commuter Express (CE), GTrans and Torrance Transit (TT) bus routes, and an MTA Expo rail line route (Expo). The following routes are close to the Sepulveda Feeder alignment.

- MTA 236/237/239 (Rinaldi Street—city of Los Angeles)
- MTA 169 (Hayvenhurst Avenue—city of Los Angeles)
- MTA 165 (Vanowen Street—city of Los Angeles)
- MTA 154/234/734/788 (West Sepulveda Boulevard, Hatteras Street to US-101—city of Los Angeles)
- MTA 183/233/234/734, 744/LADOT CE 549 (West Sepulveda Boulevard, US-101 to I-405—city of Los Angeles)
- MTA 234/734 (West Sepulveda Boulevard, I-405 to Moraga Drive—city of Los Angeles)
- MTA 2/302/234/734 (North Church Lane—city of Los Angeles)
- MTA 2/302 (South Church Lane—city of Los Angeles)
- MTA 2/302/6/6R/Expo 806 (South Sepulveda, Los Angeles Cemetery to I-10—city of Los Angeles)
- MTA 6/6R/8 (South Sepulveda Boulevard, I-10 to Metropolitan's 3816 Tuller Avenue facility—city of Los Angeles)
- MTA 6/6R/8/7/LADOT CE 437 (South Sepulveda, 3816 Tuller Avenue to Ballona Creek—city of Los Angeles)
- MTA 3/4/6/6R (South Sepulveda Boulevard, Ballona Creek to Bush Way—city of Culver City)
- MTA 3/110 (Hannum Avenue—city of Culver City)
- MTA 40/111/311 (West Florence Avenue—cities of Inglewood/Los Angeles)
- MTA 210 (West 76th Street—city of Los Angeles)
- MTA 115/442 (West Manchester Avenue—cities of Inglewood/Los Angeles)
- MTA 209 (South Van Ness Avenue—cities of Inglewood/Los Angeles)
- MTA 117/209 (Century Boulevard—city of Inglewood/Los Angeles County)
- MTA 209 (South Van Ness Avenue—city of Inglewood/Los Angeles County)
- MTA 5/120/209 (Imperial Highway—city of Inglewood/Los Angeles County)
- MTA 5/209 (South Van Ness Avenue—city of Hawthorne)
- MTA 5/209, TT 2 (El Segundo Boulevard—city of Gardena)
- MTA 5 (South Van Ness Avenue—city of Gardena)

- MTA 125 (Rosecrans Avenue—city of Gardena)
- MTA 5 (Redondo Beach Boulevard—city of Gardena)
- MTA 5/130/344 (South Van Ness Avenue—city of Torrance)
- MTA 130/344 (West Artesia Boulevard—city of Torrance)
- GTrans 2 (Western Avenue—city of Torrance)
- TT 1/4 (Torrance Boulevard—city of Torrance)
- TT 3/R3 (Carson Street—city of Torrance)

Bicycle Facilities

In contrast to the transit-oriented nature of the transportation system through which the Sepulveda Feeder travels, there are many fewer on-street bikeway facilities in the vicinity of the pipeline. The following streets contain designated Class II bikeways (on-street marked bicycle lanes) along the Sepulveda Feeder pipeline.

- Rinaldi Street (city of Los Angeles)
- West Sepulveda Boulevard between I-405 and the Mulholland Drive bridge (city of Los Angeles)
- South Sepulveda Boulevard between I-10 and 3816 Tuller Avenue (city of Los Angeles)

Pedestrian Facilities

Most of the streets along the pipeline and also crossing the Sepulveda Feeder contain paved sidewalks for pedestrians. Certain areas with steep grades or those that intersect complex interchange areas have limited pedestrian access or none at all. The following pedestrian facilities are within or near the Sepulveda Feeder alignment.

- Off-street trails in Knowlwood Country Club (Granada Hills community in city of Los Angeles)
- East sidewalk on Hayvenhurst Avenue between Parthenia Street and Chase Street (city of Los Angeles)
- North sidewalks on Hannum Avenue between Playa Street at State Route 90 (SR-90)(city of Culver City)
- East sidewalk on Van Ness Avenue north of Marine Avenue (city of Gardena)

Air Transportation

The Sepulveda Feeder runs parallel and adjacent to the western side of the Van Nuys Airport. The Santa Monica Municipal Airport is approximately 1.1 miles west of the Sepulveda Feeder. The Hawthorne Municipal Airport is 0.5 mile west of the Sepulveda Feeder. There are no private airstrips in the Sepulveda Feeder study area.

Los Angeles County Airport Land Use Plan

Van Nuys Airport, Santa Monica Municipal Airport, and Hawthorne Airport are all covered by the *Los Angeles County Airport Land Use Plan*, adopted in 1991 (Los Angeles County ALUC 2004).

According to the ALUP's Airport Influence Area map for the Van Nuys Airport, the Sepulveda Feeder is in the airport's planning boundary/airport influence area, within the northern and southern runway protection zones. As discussed in Section 4.13.2.4 for the Long Beach Airport, runway protection zones are intended to provide for the unobstructed passage of landing aircraft through the above airspace. These zones are the most critical safety areas under the approach paths and should be kept free of all obstructions. No structures or congregations of people are allowed within runway protection zones.

According to the ALUP's Airport Influence Maps for Santa Monica Municipal Airport and Hawthorne Municipal Airport, the Second Lower Feeder is not within either airport's planning boundaries. Therefore, the sections of the ALUP for these airports are not applicable to the proposed program.

Emergency Response Plans and Emergency Evacuation Plans

The following evacuation routes have been identified in the study area for the Sepulveda Feeder.

- **Inglewood:** According to the Inglewood General Plan, Safety Element, city evacuation routes are located on La Cienega Boulevard, East Florence Avenue, Crenshaw Boulevard, and South Van Ness Avenue in the Sepulveda Feeder study area. (City of Inglewood 1995)

4.13.3 Regulatory Framework

4.13.3.1 Federal

The Americans with Disabilities Act of 1991

The American with Disabilities Act of 1991 is a federal civil rights act that prohibits discrimination against those with disabilities. The act covers employment, housing, and access to all public places whether they are privately or publicly owned or operated. Federal policies and procedures require that when pedestrian access is restricted, modified, or relocated as a result of construction activities it must conform to the U.S. Access Board's American with Disabilities Act Accessibility Guidelines.

4.13.3.2 State

Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA (January 20, 2016)

CEQA serves as the standard for managing project-generated environmental impact thresholds in California. Some agencies have developed and adopted a modified version of the CEQA manual to better represent local community needs and to address recent legislative changes due to Senate Bill (SB) 743. SB 743 requires that Metropolitan Planning Organizations (MPOs) and local agencies alike revisit their transportation impact analysis procedures to consider vehicle-miles traveled (VMT) as the primary metric for evaluating transportation impacts under CEQA. In addition, the effects of SB 743 will result in agencies adopting the use of one or more standardized models for estimating VMT, as a product of project location, design, and travel choices, with a broader focus on multimodal transportation solutions rather than those suited only for automobile-centric travel. Under SB 743 lead agencies may elect to be governed by the provisions of the proposed new section of the State CEQA Guidelines (Section 15064.3) to determine the transportation impact significance of

development projects (based on VMT and/or proximity to major transit stops and existing high-quality transit corridors) or transportation projects (based on induced vehicle travel compared with the existing conditions). In the interim, project impacts will be defined in accordance with the current adopted standards by the controlling jurisdiction(s) where a project is located, and is required to conform. The California Department of Transportation's (Caltrans) Environmental Handbook, Volume I, Chapter 26 (traffic section) will be used as the default basis to identify and develop solutions to potential mobility and safety impacts due to the proposed construction activities on the surrounding street systems. Where the local or regional agency has identified alternative methodologies to analyze traffic impacts, the locally adopted model will be used.

Complete Streets Act (Assembly Bill 1358)

The California Complete Streets Act of 2008 requires circulation elements to address the transportation system from a multi-modal perspective. Assembly Bill (AB) 1358 states that streets, roads, and highways must "meet the needs of all users…in a manner suitable to the rural, suburban, or urban context of the general plan." Essentially, AB 1358 requires a circulation element to plan for all modes of transportation where appropriate including walking, biking, car travel, and transit. The Complete Streets Act also requires circulation elements to consider the multiple users of the transportation system, including children, adults, seniors, and the disabled.

4.13.3.3 Local

Regional and Local Southern California Association of Governments Regional Transportation Plan

Under federal law, MPOs and Regional Transportation Planning Agencies are required to prepare a 20-year Regional Transportation Plan (RTP), which is updated every 4 years. In this region, the Southern California Association of Governments (SCAG) is both the MPO and the Regional Transportation Planning Agency. Only projects and programs included in the RTP are eligible for federal and State funding. The focus areas of the RTP are: Active Transportation; Aviation; Environmental Mitigation; Goods Movement; Growth Forecasts; Highways and Arterials; Land Use; Passenger Rail; Transit; Transportation Demand Management (TDM); Transportation Finance; and Transportation Safety and Security. SCAG's plan takes into account operations and maintenance costs to ensure reliability, longevity, and cost effectiveness. In addition, the RTP will be supported by a combination of transportation and land use strategies that will help the region achieve State greenhouse gas emission reduction goals and federal Clean Air Act requirements, preserve open space areas, improve public health and roadway safety, support the vital goods movement industry, and utilize resources more efficiently.

The Sustainable Communities Strategy is a new element of the RTP that demonstrates the integration of land use, transportation strategies, and transportation investments within the RTP. This new requirement was put in place by the passage of SB 375, with the goal of ensuring that the SCAG region can meet its regional greenhouse gas reduction targets set by the California Air Resources Board. On April 7, 2016, SCAG's Regional Council adopted the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy.

Orange County Congestion Management Plan

In June 1990, the passage of the Proposition 111 gas tax increase required California's urbanized areas—areas with populations of 50,000 or more—to adopt a Congestion Management Program (CMP). The following year, Orange County's local governments designated OCTA as the Congestion Management Agency (CMA) for the County. As a result, OCTA is responsible for the development, monitoring, and biennial updating of Orange County's CMP. The passage of AB 2419, in July 1996, provided local agencies the option to elect out of the CMP process without the risk of losing State transportation funding. However, local jurisdictions in Orange County expressed a desire to continue the existing CMP process, because the requirements were similar to those of the Orange County Measure M Growth Management Program and because it contributes to fulfilling federal requirements for the Congestion Management Process (23 CFR 450.320), prepared by SCAG. The OCTA Board of Directors affirmed the decision to continue with the existing CMP process on January 13, 1997. Although the CMP ended with the sunset of Measure M, the CMP remains relevant as an eligibility requirement under Measure M2. The CMP contributes to federal Congestion Management Process requirements, which is a systematic and regionally accepted approach for managing congestion. The federal Congestion Management Process provides accurate, up-to-date information on transportation system performance and assesses alternative strategies for congestion management that meet state and local needs. The Congestion Management Process is also intended to serve as a systematic process that provides for consistent and effective integrated monitoring and management of the multimodal transportation system.

The goals of Orange County's CMP are to support regional mobility objectives by reducing traffic congestion, to provide a mechanism for coordinating land use and development decisions that support the regional economy, and to determine gas tax fund eligibility. To meet these goals, the CMP contains a number of policies designed to monitor and address system performance issues. OCTA developed the policies that make up Orange County's CMP in coordination with local jurisdictions, Caltrans, and the South Coast Air Quality Management District.

Traffic level of service (LOS) standards must be established for a system of highways and roadways. The highways and roadway system is designated by OCTA and includes, at minimum, all state highways and principal arterials. None of the designated facilities may be removed, and new state highways and principal arterials must be added, except if they are within an infill opportunity zone. The LOS must be measured using a 2015 CMP 7 method that is consistent with the Transportation Research Board's *Highway Capacity Manual* (HCM). The LOS standards must not be below LOS E, unless the LOS from the baseline CMP dataset were lower. If a CMP Highway System (CMPHS) segment or intersection does not meet the minimum LOS standard outside an infill opportunity zone, a deficiency plan must be adopted (subject to exclusions). The CMP contains traffic LOS standards for CMP intersections, as required by State legislation. During every odd year, OCTA collects traffic count data at all CMP intersections to demonstrate current LOS on the CMPHS.

- Local jurisdictions must maintain the LOS standard on all CMP intersections under their control.
- Local jurisdictions must review and provide any comments on the traffic count data to OCTA, in addition to submitting the LOS Monitoring Checklist.

As stated above, the Orange County CMP currently uses LOS standards for evaluating highway and roadway performance. With the passage of SB 743, OCTA will be required to revisit its transportation impact analysis procedures to consider VMT as the primary metric for evaluating traffic.

Smart Street Network

OCTA has designated all state highways and the OCTA-adopted Smart Street network as the CMPHS. The Smart Street network was adopted as part of Measure M. No designated highway or roadway may be removed, and all new state highways must be designated as part of the system, except when they occur in an infill opportunity zone (subdivision (c) of Section 65088.4). Infill opportunity zones are specific areas designated by a city or county for new compact or mixed use developments and close to transit. OCTA measures LOS at CMP intersections using the Intersection Capacity Utilization (ICU) methodology.

Level of Service Standards

ICU ranges are assigned an LOS grade from A to F to indicate decreasing performance. As required by CMP legislation, the LOS standard for CMPHS intersections is LOS E or better (i.e., an ICU of 1.00 or better). Intersections that had an LOS F in the 1992 CMP baseline are allowed to exceed the LOS E standard, but may not increase by more than 0.1 above the baseline ICU value. If an intersection is found to exceed the LOS standard and is not statutorily exempt, OCTA flags it as potentially deficient and the local jurisdiction must identify improvements necessary to meet the LOS standards.

Los Angeles County Congestion Management Program

The Los Angeles County CMP defines a network of state highways and arterials, LOS standards, and related procedures and provides technical justification for the approach. The CMP for Los Angeles County is prepared and maintained by MTA. The requirements of the Los Angeles County CMP became effective with voter approval of Proposition 111, which functions as a tool to link land use, transportation, and air quality decisions, to develop a partnership among transportation decision-makers in devising appropriate transportation solutions that include all modes of travel, and to propose transportation projects that are eligible to compete for State gas tax funds. The CMP also serves to consistently track trends during peak traffic hours at major intersections in the county and identify areas in great need of improvements where traffic congestion is worsening. The CMP requires that intersections that are designated as being officially monitored by the CMP be analyzed under the County's CMP criteria if the proposed project is expected to generate 50 or more peak hour trips on a CMP-designated facility.

The Los Angeles County CMP currently uses LOS standards for evaluating highway and roadway performance. With the passage of SB 743, MTA will be required to revisit its transportation impact analysis procedures to consider VMT as the primary metric for evaluating traffic.

San Bernardino County Congestion Management Program

The San Bernardino County CMP defines the network of state highways and arterials, LOS standards and related procedures, a process for mitigation of the impacts of new development on the transportation system, and technical justification for the approach for projects in San Bernardino County. The policies and technical information contained in the CMP document are subject to ongoing review, with updates required every 2 years, at a minimum. Opportunities for review are provided through meetings of the San Bernardino Association of Governments Transportation Technical Advisory Committee, policy committees, and Board of Directors.

Traffic Impact Analysis (TIA) reports must be prepared by local jurisdictions when local criteria and thresholds indicate they are necessary as a result of the estimated impact of project-generated

traffic (i.e., when a proposed change in land use, a development project, or, at local discretion, a group of projects are forecast to equal or exceed the CMP threshold of 250 two-way peak hour trips generated, based on trip generation rates published for the applicable use or uses in the Institute of Transportation Engineers' Trip Generation or other CMA-approved data source). All TIA reports must be copied to the CMA. If a TIA report is prepared by the local jurisdiction as stated above, and if the TIA report determines that the project would add 50 or more two-way peak hour trips to a CMP arterial within another jurisdiction or 100 two-way peak-hour trips to a freeway, that jurisdiction (and Caltrans, if a state highway) must be provided a copy of the TIA report by the permitting jurisdiction. However, these criteria are not intended to determine when a local jurisdiction prepares a TIA report.

The San Bernardino County CMP currently uses LOS standards for evaluating highway and roadway performance. With the passage of SB 743, the Technical Advisory Committee will be required to revisit its transportation impact analysis procedures to consider VMT as the primary metric for evaluating traffic.

4.13.4 Thresholds and Methodology

4.13.4.1 Thresholds of Significance

Table 4.13-6 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to transportation and traffic. It indicates which impacts must be analyzed in the PEIR for the proposed program.

Table 4.13-6. CEQA Thresholds for Transportation and Traffic

Threshold *Would the proposed program:*
a. Conflict with an applicable plan, ordinance, or policy that establishes measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, and pedestrian and bicycle paths?
b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that would result in substantial safety risks?
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
e. Result in inadequate emergency access?
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities?

4.13.4.2 Methodology

Conflicts with Transportation Policies

Because the proposed program would include rehabilitation of existing pipelines, which are underground, there would be minimal impacts related to long-term transportation plans, ordinances, or policies that establish measures of effectiveness for the performance of the transportation system.

Conflicts with Congestion Management Plan

Because the proposed program would include rehabilitation of existing pipelines, which are underground, there would be minimal impacts related to long-term congestion management plans.

Change in Air Traffic Patterns

Existing public use airports are identified in Section 4.13.2. The potential for construction to affect air traffic patterns related to public and private airports is evaluated.

Hazards Due to a Design Feature

Because the proposed program would include rehabilitation of existing pipelines, which are underground, there would be minimal impacts related to permanent designs of roadways. This analysis addresses potential impacts that may occur due to street or lane closures during construction.

Change in Emergency Access

Emergency access routes associated with existing emergency response plans and emergency evacuation plans are identified in Section 4.13.2. The potential of the projects included in the proposed program to impair the implementation of or physically interfere with these plans is evaluated.

Conflict with Public Transit, Bicycle, or Pedestrian Policies or Safety

Because the proposed program would include rehabilitation of existing pipelines, which are underground, there would be minimal long-term impacts related to public transit, bicycle facilities, or pedestrian facilities. This analysis addresses potential impacts on transit, bicycle, or pedestrian facilities or safety during construction.

4.13.5 Impacts Analysis

4.13.5.1 Program Analysis

Threshold TRA-A: Conflict with an Applicable Plan, Ordinance, or Policy that Establishes Measures of Effectiveness for the Performance of the Circulation System, Taking into Account All Modes of Transportation, Including Mass Transit and Non-Motorized Travel, and Relevant Components of the Circulation System, Including, but not Limited to, Intersections, Streets, Highways and Freeways, and Pedestrian and Bicycle Paths

Because the proposed program would include rehabilitation of existing pipelines, which are underground, there would be minimal impacts related to long-term transportation plans, ordinances, or policies that establish measures of effectiveness for the performance of the transportation system.

During the course of the pipeline rehabilitation work, work zones would be established within existing roadways, requiring lane closures, temporary signage, traffic cones and delineators, fencing, and barriers (i.e., concrete trapezoidal "K rail," or Caltrans Temporary Type K railing). Typically, a work zone would be established above the pipeline, enclosing the excavation area, which would be approximately 20 feet wide by 50 feet long. The work zone would include areas for access to the excavation site, storage of construction equipment and materials, and safety setbacks. The work zones would vary from site to site.

Where work zones are located within streets, temporary impacts on transportation would occur due to the reduction in roadway capacity. Impacts could include the following.

- Increased congestion and increased travel times due to reduction in the number or width of lanes
- Increased congestion and reduced access due to reduction of left-turn movements where work zones are within median or center lanes
- Reduced access to adjacent land uses where work zones block driveways or access roads
- Increased congestion on parallel roadways when traffic is detoured or when drivers voluntarily reroute to avoid construction areas
- Impacts on transit routes (primarily buses) when public transit is affected by construction or when transit stops are temporarily removed or relocated
- Impacts on bike routes if such facilities are detoured around work zones or forced to share the road with vehicular traffic
- Impacts on pedestrian routes if work zones require the use of sidewalks or the closure of sidewalks for safety reasons

In some cases, traffic and non-vehicular impacts would be localized. Where work zones are situated on local streets, only the immediate area would be affected by traffic, but the impacts on vehicular traffic, bike routes, pedestrians, parking, and access at each location could be significant during the 6- to 9-month construction period.

Where work zones are situated on major collectors, arterials, or highways, the impacts could affect traffic within a larger area. Local and through traffic could be affected by the disruptions in traffic patterns and the increased congestion. In some cases, a single roadway would be subjected to multiple disruptions, simultaneously or sequentially. Each work zone would typically affect traffic for approximately 6 to 9 months. Impacts of multiple excavation sites along the same roadway could occur at the locations listed in Table 4.13-7. In these circumstances, traffic impacts could result in significant disruptions for an extended period of time.

Table 4.13-7. Major Roadway Segments Requiring Multiple Excavation Sites

Roadway [1]	Jurisdiction	Roadway Classification [2]	Length (feet)	Potential Max. No. of Excavations [3]
Allen-McColloch Pipeline (none)				
Calabasas Feeder				
Owensmouth Avenue	City of Los Angeles	Collector	14,650	10
Fallbrook Avenue	City of Los Angeles	Major Highway Class II	17,650	12
Rialto Pipeline				
Banyon Street	City of Rancho Cucamonga	Collector	11,000	8
Second Lower Feeder				
Ball Road [4] Wardlow Road	City of Anaheim City of Buena Park City of Cypress City of Los Alamitos City of Long Beach	Major Arterial Primary Highway Major Highway Principal Arterial Minor Avenue	38,900	26
Bixby Road	City of Long Beach	Neighborhood Collector	10,000	7
West Carson Street	City of Carson	Major Highway	10,300	7
East 220th Street	City of Carson Los Angeles County	Collector Major Collector	13,600	9
Western Avenue	City of Los Angeles City of Torrance City of Lomita	Major Highway Class II Major Highway	15,850	11
Sepulveda Feeder				
Hayvenhurst Avenue	City of Los Angeles	Secondary Arterial	30,000	20
West Sepulveda Boulevard North Sepulveda Boulevard South Sepulveda Boulevard	City of Los Angeles City of Culver City	Major Highway Class II Major Highway	68,800	46
South Van Ness Avenue	City of Inglewood City of Los Angeles City of Hawthorne City of Gardena City of Torrance Los Angeles County	Major Arterial Major Collector Minor Arterial	40,800	28

Notes:
[1] Street name may vary but roadway is generally continuous.
[2] Roadway classification may vary with jurisdiction
[3] Based on the minimum excavation spacing (1,500 feet). The actually number of excavation sites would likely be

Roadway [1]	Jurisdiction	Roadway Classification [2]	Length (feet)	Potential Max. No. of Excavations [3]
lower due to the ability to maximize spacing and availability of off-road sites for excavation.				
[4] Much of the pipeline in Ball Road in Anaheim is steel pipe rather than PCCP, requiring fewer excavations.				

The disruption of local and regional traffic caused by capacity reduction would ~~could~~ be significant at some locations, but the level will need to be determined at the project level when rehabilitation locations are known. Analysis to determine the individual projects' impacts on VMT and/or LOS may be required. Implementation of MM TRA-1 would reduce these impacts in some locations, but would not be feasible in all circumstances. Therefore, impacts on local and regional transportation would ~~may~~ be significant and unavoidable.

Proposed construction activities would generate construction-related vehicle trips on a daily basis on regional highways and local streets, although these would result in a relatively small increase in the daily traffic volume compared with the daily traffic volumes on most major arterials. Construction-related traffic would be temporary and is not expected to degrade operations on any of the major roadways significantly or on a long-term basis. Construction vehicle access to each pipeline would require lane closures at various access points on select streets, which could temporarily decrease road capacity and potentially increase vehicle travel time. Although construction traffic impacts at some locations may be temporarily significant, this impact would be reduced to less-than-significant levels with implementation of MM TRA-2.

Work zones and staging areas could also potentially displace existing parking at various locations (e.g., school and roadways). Such impacts could be significant. Implementation of MM TRA-3 would reduce these impacts to less-than-significant levels.

Mitigation Measures

MM TRA-1 Excavation Siting to Minimize Traffic Impacts

Excavation sites would be located to avoid traffic impacts to the maximum extent feasible ~~possible~~, considering the logistical requirements for pipeline rehabilitation (e.g., adequate spacing, pipeline logistics) and other impacts such as habitat and noise. To the maximum extent feasible ~~possible~~, the following will be considered when locating excavation sites:

- Whenever feasible ~~possible~~, where an off-road excavation site is available that would not result in other significant environmental impacts (e.g., to habitat, land uses), the off-road location will be used.
- Whenever feasible ~~possible~~, excavation sites in roadways will be situated within medians where available, especially if the medians are not used for left-turn lanes and do not include large street trees or other features that would be difficult to restore after rehabilitation.
- Whenever feasible ~~possible~~, excavation sites will be situated where the existing number of travel lanes can be maintained by temporarily removing parking (where adequate parking is available in the local area), temporarily relocating bike lanes to adjacent roadways, or temporarily restriping to provide narrower lanes (where they can be safely accommodated).
- Whenever feasible ~~possible~~, excavation sites will be situated so that adequate access to adjacent properties can be maintained, including left-turn entrances.

- Whenever feasible ~~possible~~, excavation sites will be situated so that bicycle and pedestrian circulation can be safely maintained, either by use of barriers or other safety features, or by providing alternative bicycle and pedestrian routes, with appropriate signage. Where feasible, siting ~~Siting~~ excavation near heavily used pedestrian areas, such as around schools, hospitals, and transit stops, will be avoided. Where feasible, siting ~~Siting~~ excavation in areas designated as safe routes to school will be avoided, or alternative routes will be developed in coordination ~~by working~~ with the local jurisdictions and school districts and providing appropriate signage, notification, and traffic controls.

MM TRA-2 Construction Traffic Control Plans

Metropolitan and/or its contractors will coordinate with the counties of Los Angeles, Orange, and San Bernardino as well as each local jurisdiction through which the pipelines travels (see tables above) to develop construction traffic control measures and procedures prior to the start of construction on each project. Measures to reduce temporary construction traffic and transportation impacts on city streets may include, but not be limited to, the following:

- Development of traffic control plans in coordination with local jurisdictions. The traffic control plans will be implemented and revised, as necessary and applicable.
- Provision of advance written notification of construction activities to residences and businesses around each construction site.
- Identification of travel routes and establishment of optimal arrival and departure times to minimize conflicts with residents, schools, and businesses, as feasible to minimize conflicts.
- Provisions to detour pedestrians and bicyclists from ~~for~~ project activities ~~impacts~~ near or ~~/~~on the sidewalks and bike lanes.
- Implementation of safety measures, such as signs, flaggers, cones, signage, and advance notice, as appropriate.
- Covering of all open trenches when not in use or at the end of each work day, as applicable.

MM TRA-3 Maintaining Adequate Parking

Whenever feasible ~~possible~~, excavation work zones and construction staging areas will not be sited in such a way that they result in inadequate availability of parking for adjacent land uses. If work zones or staging areas are planned for parking areas, a parking study will be completed by a qualified traffic consultant prior to construction to identify if adequate parking would be available locally.

Residual Impacts

Impacts related to temporary traffic disruptions and reduced capacity that would result from the proposed program would be significant at some locations, but the severity or location of the impacts cannot be determined at this time. Implementation of MM TRA-1 would reduce these impacts; however, residual impacts would still be significant and unavoidable.

Impacts related to construction traffic and parking that would result from the proposed program would be significant, but implementation of MM TRA-2 and MM TRA-3 would reduce these impacts so that residual impacts would be less than significant.

Threshold TRA-B: Conflict with an Applicable Congestion Management Program, Including, but not Limited to, Level-of-Service Standards and Travel Demand Measures or Other Standards Established by the County Congestion Management Agency for Designated Roads or Highways

Because the proposed program would include rehabilitation of existing pipelines, which are underground, there would be minimal impacts related to long-term congestion management plans.

Various segments of the PCCP program pipelines are within CMP roadways. The CMP intersections along these streets are found in the respective CMPs of each governing MPO. Although construction-related trips would increase traffic on regional access highways and the major local streets that connect the project sites and highways, the project would generate only a small number of truck trips and employee commuter trips compared with the daily traffic volumes for these access roads, and individual projects would take place over a few months or years. Once rehabilitation is complete in the CMP roadway, the street would be restored to preconstruction conditions. There would be no long-term impacts on CMP roadways. Therefore, program-generated traffic would not be expected to affect current traffic operations substantially on highways and CMP roadways in the project vicinity. This impact would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold TRA-C: Result in a Change in Air Traffic Patterns, Including either an Increase in Traffic Levels or a Change in Location that Would Result in Substantial Safety Risks

The Second Lower Feeder is within a notification area for the ALUP for the Joint Forces Training Base Los Alamitos. Notification areas are established to ensure that structures that may affect day-to-day airport operations are not built in their vicinities. The proposed program would not include aboveground structures, except for small valve boxes and electrical panels. These structures would not affect airport operations. Therefore, the program would not result in a safety hazard for people residing or working in the vicinity of the Joint Forces Training Base Los Alamitos.

The Second Lower Feeder crosses under a portion of the Long Beach Municipal Airport and is within a runway protection zone. The Sepulveda Feeder runs parallel and adjacent to the western side of the Van Nuys Airport and is within the northern and southern runway protection zones. Runway protection zones are intended to provide for the unobstructed passage of landing aircraft through the above airspace. These zones are the most critical safety areas under the approach paths and should be kept free of all obstructions. No structures or congregations of people are allowed within runway protection zones. If any aboveground rehabilitation activities were to occur in these runway protection zones, construction equipment and/or personnel could interfere with airport operations. Also, where pipelines cross under runway or taxiway areas, there is the potential for below-ground construction activities to affect or be affected by airport operations and safety. Impacts would be

significant. Implementation of MM HAZ-5 in Section 4.8, *Hazards and Hazardous Materials*, would reduce potential impacts to less-than-significant levels.

The only permanent aboveground elements of the proposed program would be manhole covers, valve boxes, and electrical panels. If these aboveground elements were located in a runway protection zone, they could interfere with airport operations and safety. Impacts would be significant. Implementation of MM HAZ-6 in Section 4.8, *Hazards and Hazardous Materials*, would reduce potential impacts to less-than-significant levels.

Mitigation Measures

See MM HAZ-5 and MM HAZ-6 in Section 4.8, *Hazards and Hazardous Materials*.

Residual Impacts

Impacts that would result from the proposed program could be significant, but implementation of MM HAZ-5 and MM HAZ-6 in Section 4.8, *Hazards and Hazardous Materials*, would reduce these impacts so that residual impacts would be less than significant.

Threshold TRA-D: Substantially Increase Hazards Due to a Design Feature or Incompatible Uses

No obstacles that would affect sight distance are expected to result from project construction. The maneuvering of construction-related vehicles and equipment among general-purpose traffic on local streets could potentially cause safety hazards. In addition, temporary lane closures could affect non-motorized travel along affected road sections. These impacts could be significant. Implementation of MM TRA-2, described under Threshold TRA-A, would reduce these impacts to less-than-significant levels.

Mitigation Measures

See MM TRA-2 for Threshold TRA-A.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM TRA-2 would reduce these impacts so that residual impacts would be less than significant.

Threshold TRA-E: Result in Inadequate Emergency Access

As discussed in Section 4.13.2, *Existing Conditions*, in some cases the proposed program pipelines are within street rights-of-way that serve as emergency response routes and/or evacuation routes. If excavation were to take place in roadways that serve as emergency access and capacity of the affected streets was reduced during construction (such as reducing four lanes to two lanes), the ability of these streets to serve as emergency access routes may be impaired. This would be a significant impact during construction. Implementation of MM HAZ-7 in Section 4.8, *Hazards and Hazardous Materials*, would reduce these impacts to less-than-significant levels.

Once rehabilitation is complete, contractors would be required to return the street to preconstruction conditions. Therefore, there would be no long-term impacts on emergency access.

Mitigation Measures

See MM HAZ-7 in Section 4.8, *Hazards and Hazardous Materials*.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM HAZ-7 in Section 4.8, *Hazards and Hazardous Materials*, would reduce these impacts so that residual impacts would be less than significant.

Threshold TRA-F: Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities or Otherwise Decrease the Performance or Safety of Such Facilities

Rehabilitation would require temporary lane closures on certain streets. Where the pipeline directly travels under Class II bikeways (on-street marked bicycle lanes) or encroaches on existing bus stops (e.g., MTA, OCTA, Omnitrans), work zones could interfere with bus services and bicycle traffic on these streets. Lane closures would be restricted to a short distance and would be short in duration, but temporary impacts could be significant. Implementation of MM TRA-1 and MM TRA-2, described under Threshold TRA-A, would reduce these impacts to less-than-significant levels.

Mitigation Measures

See MM TRA-1 and MM TRA-2 for Threshold TRA-A.

Residual Impacts

Impacts that would result from the proposed program would be significant, but implementation of MM TRA-1 and MM TRA-2 would reduce these impacts so that residual impacts would be less than significant.

4.13.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

Because the project consists of improvements to an existing underground water conveyance pipeline and no additional maintenance activities (beyond existing maintenance of the pipeline) would occur after construction, the project would have no long-term cumulative operational impacts on public roadways. Cumulative traffic impacts could occur where surface excavation and work zones are close to major development projects within the local setting. Implementation of MM TRA-1, MM TRA-2, and MM TRA-3, described under Threshold TRA-A, would reduce the program's contribution to short-term cumulative traffic impacts, but in some cases rehabilitation in roadways may result in a considerable contribution to cumulative traffic impacts.

Section 4.14
Utilities and Service Systems

4.14.1 Introduction

This section describes the existing conditions for utilities and service systems, the regulatory framework associated with utilities and service systems, the impacts on utilities and service systems that would result from the proposed program, and the mitigation measures that would reduce these impacts. As noted in the Initial Study, the proposed program would have potentially significant utilities and service systems impacts.

4.14.2 Existing Conditions

The study area for utilities and service systems is the pipeline alignments and the roadway rights-of-way in which the pipelines are located, plus 0.25 mile on either side of the pipeline. Figures 4.14-1 through 4.14-5 show the utilities study areas for each pipeline.

Roadway rights-of-way are typically used by a variety of utility providers for locating their linear components. These include overhead and underground power lines and telecommunication lines (including telephone, cable, fiber optics, etc.), underground sewer lines and water lines (including Metropolitan's feed lines, local water lines, and recycled water), storm drains and flood control channels, and gas and oil lines. Sometimes non-linear above-ground facilities associated with utility uses are also located in the study area, such as water treatment facilities, water reservoirs, electrical power substations, solar power facilities, and tank farms for oil storage.

4.14.2.1 Allen-McColloch Pipeline

In addition to the standard utilities within rights-of-way and easements identified above, the study area for the Allen-McColloch Pipeline includes such major utilities as a water treatment facility, water reservoirs, an electrical substation, major electrical transmission lines, and flood control channels and basins.

Areas along the Allen-McColloch Pipeline are served by the following landfills.

- Frank R. Bowerman, Irvine: anticipated closure date approximately 2053 (OC Waste & Recycling 2016a)
- Olinda Alpha, Brea: anticipated closure date approximately 2021 (CalRecycle 2016a)
- Prima Deschecha, San Juan Capistrano: anticipated closure date approximately 2067 (OC Waste & Recycling 2016b)

4.14.2.2 Calabasas Feeder

In addition to the standard utilities within rights-of-way and easements identified above, the study area for the Calabasas Feeder includes major electrical transmission lines and flood control channels.

Areas along the Calabasas Feeder are served by the following landfills.

- Burbank, La Crescenta: anticipated closure date approximately 2053 (CalRecycle 2016b)
- Calabasas, Calabasas: anticipated closure date approximately 2048 (accepts waste only from the Calabasas watershed, including the Calabasas Feeder study area) (Belmond 2013)
- Chiquita Canyon, Del Valle: anticipated closure date approximately 2019 (CalRecycle 2016c)
- Sunshine Canyon, Santa Clarita: anticipated closure date approximately 2037 (CalRecycle 2016d)

4.14.2.3 Rialto Pipeline

In addition to the standard utilities within rights-of-way and easements identified above, the study area for the Rialto Pipeline includes water treatment facilities, water reservoirs, electrical substations, major electrical transmission lines, and flood control channels.

Areas along the Rialto Pipeline are served by the following landfills.

- California Street Landfill, Redlands: anticipated closure date approximately 2042 (CalRecycle 2016e)
- Mid-Valley Landfill, Rialto: anticipated closure date approximately 2033 (CalRecycle 2016f)
- Burbank, La Crescenta: anticipated closure date approximately 2053 (CalRecycle 2016b)
- Chiquita Canyon, Del Valle: anticipated closure date approximately 2019 (CalRecycle 2016c)
- Sunshine Canyon, Santa Clarita: anticipated closure date approximately 2037 (CalRecycle 2016d)

4.14.2.4 Second Lower Feeder

In addition to the standard utilities within rights-of-way and easements identified above, the study area for the Second Lower Feeder includes major water treatment facilities, water reservoirs, electrical transmission lines, solar power facilities, and flood control channels and basins.

Areas along the Second Lower Feeder are served by the following landfills.

- Frank R. Bowerman, Irvine: anticipated closure date approximately 2053 (OC Waste & Recycling 2016a)
- Olinda Alpha, Brea: anticipated closure date approximately 2021 (CalRecycle 2016a)
- Prima Deschecha, San Juan Capistrano: anticipated closure date approximately 2067 (OC Waste & Recycling 2016b)
- Burbank, La Crescenta: anticipated closure date approximately 2053 (CalRecycle 2016b)
- Chiquita Canyon, Del Valle: anticipated closure date approximately 2019 (CalRecycle 2016c)
- Sunshine Canyon, Santa Clarita: anticipated closure date approximately 2037 (CalRecycle 2016d)

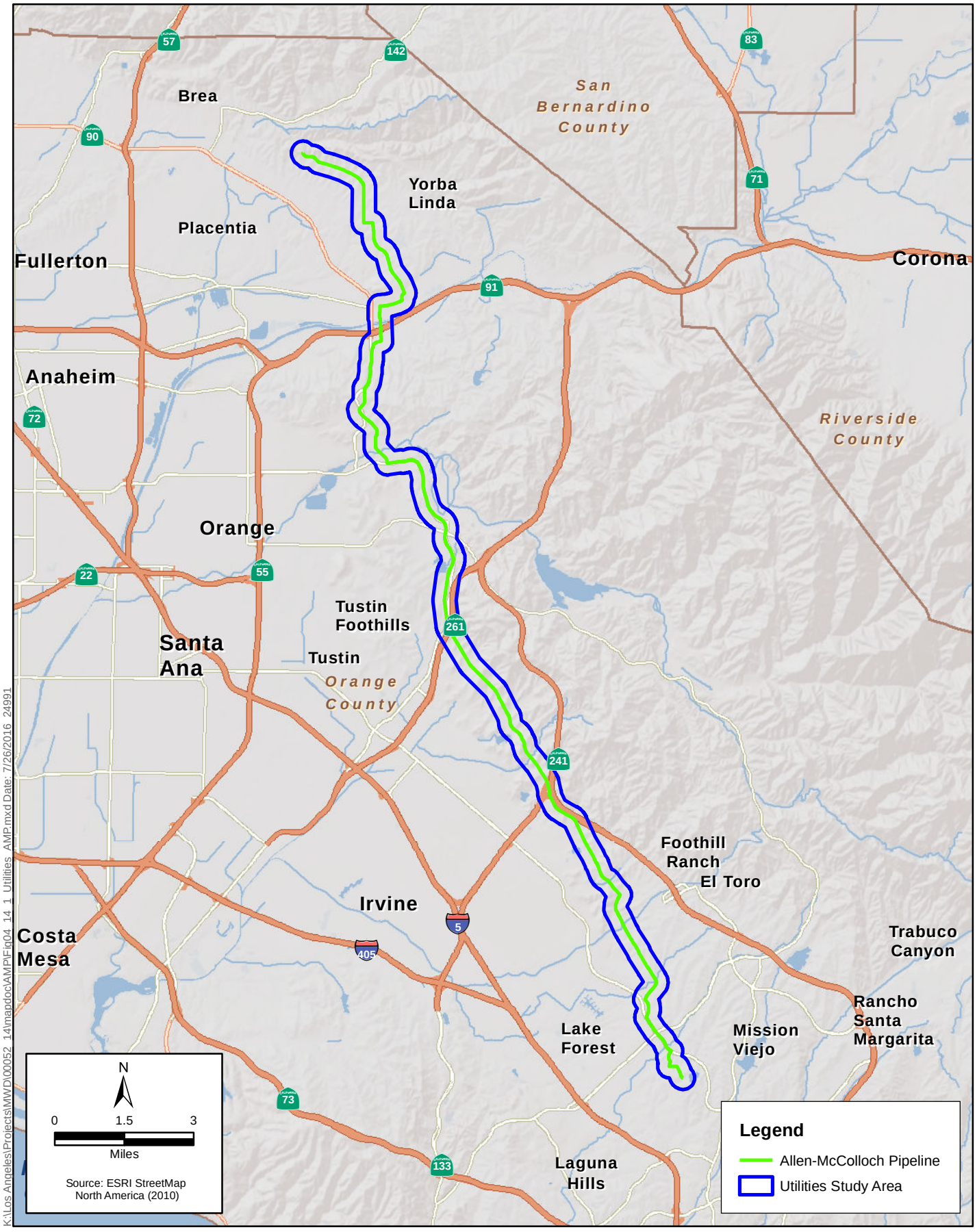


Figure 4.14-1
Allen-McColloch Pipeline Utilities Study Area
Metropolitan PCCP Program

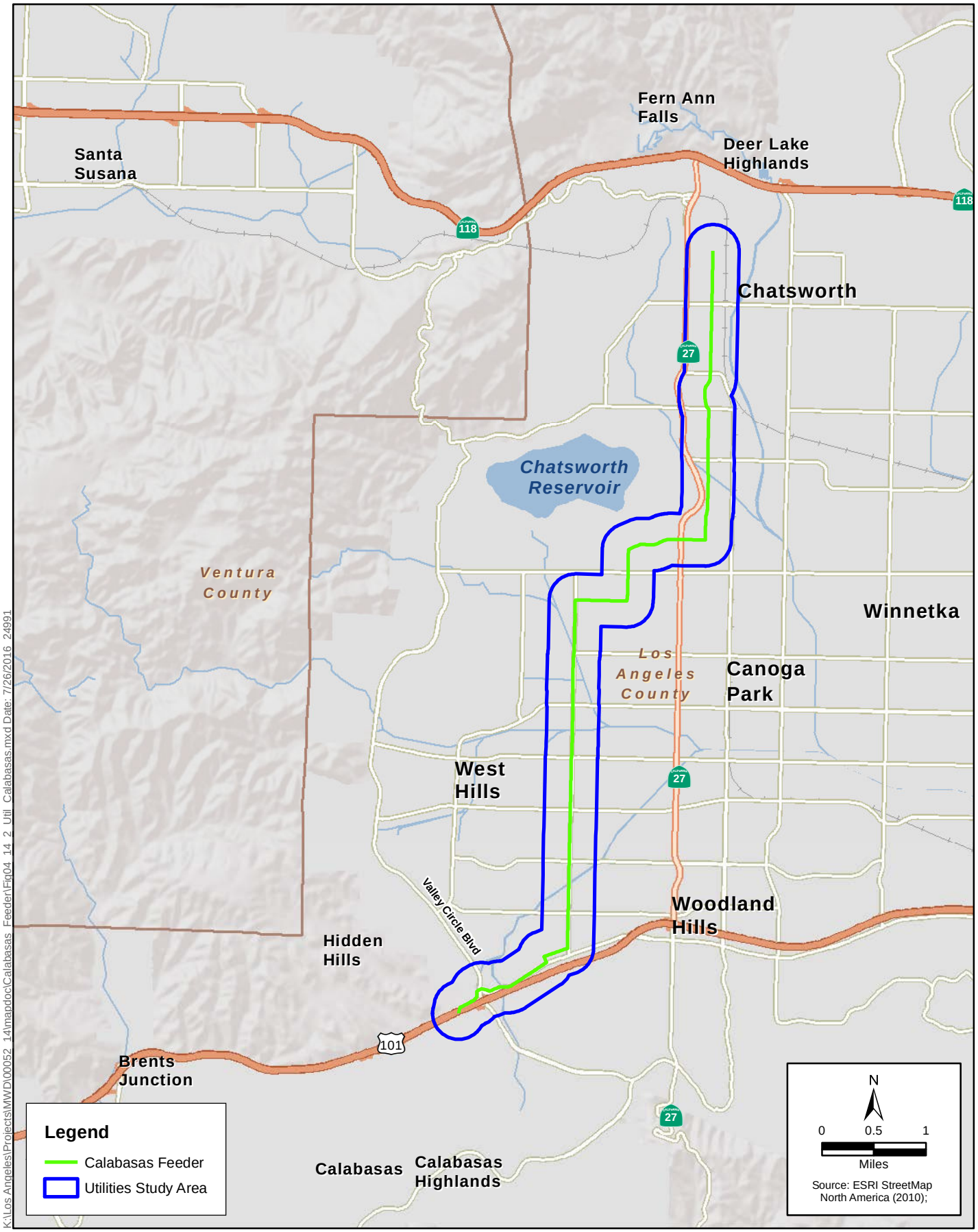


Figure 4.14-2
Calabasas Feeder Utilities Study Area
Metropolitan PCCP Program

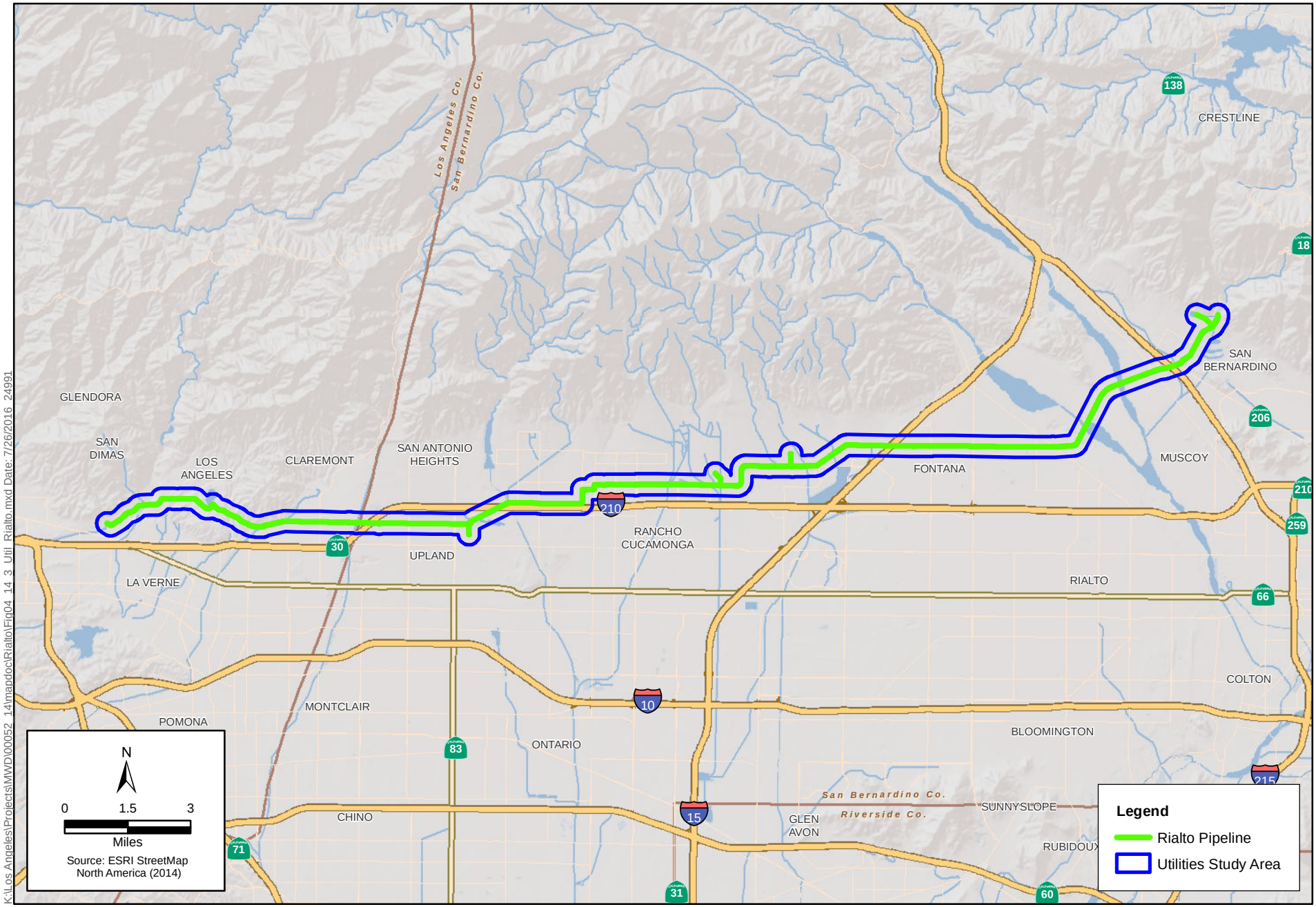


Figure 4.14-3
Rialto Pipeline Utilities Study Area
Metropolitan PCCP Program

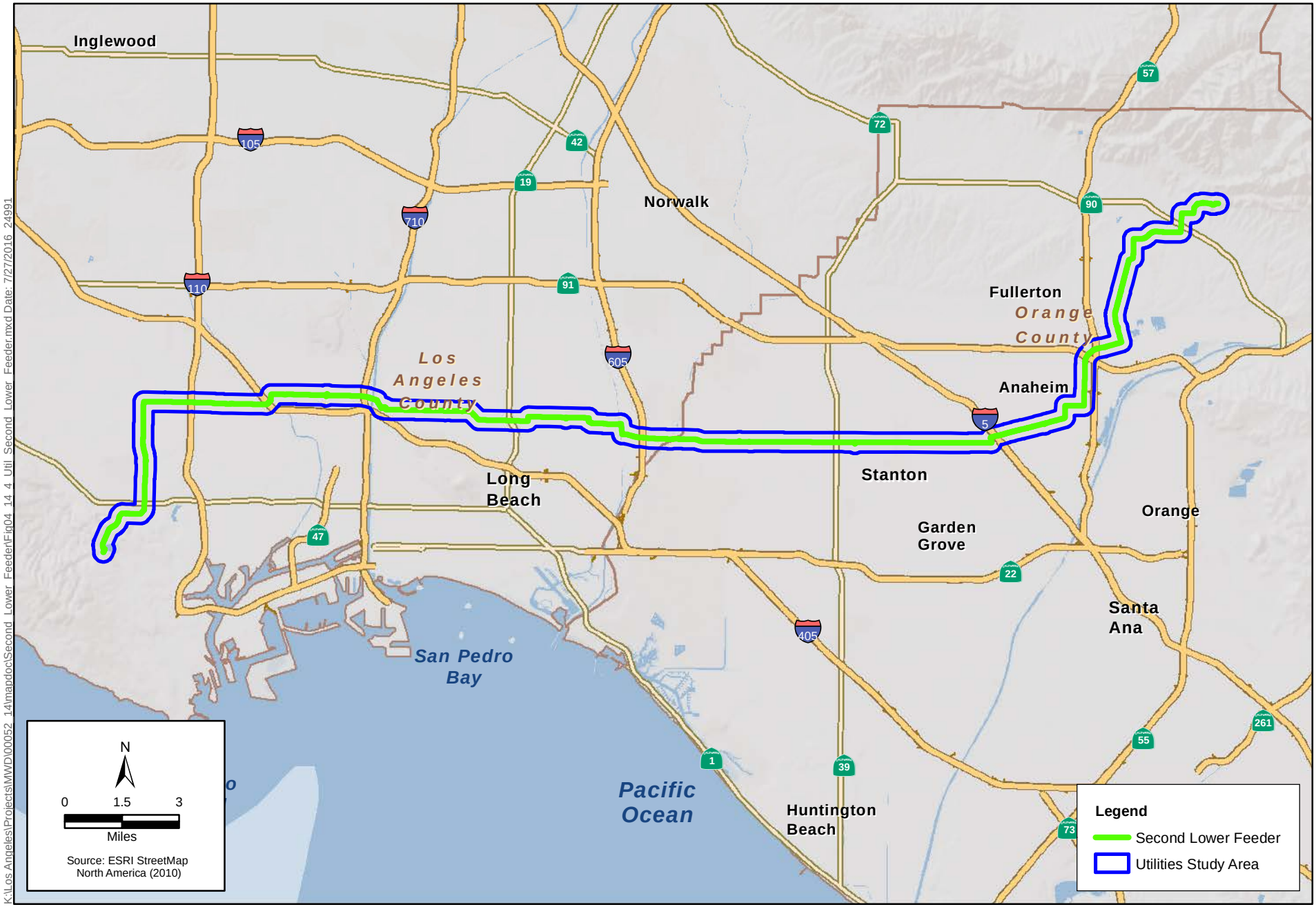


Figure 4.14-4
Second Lower Feeder Utilities Study Area
Metropolitan PCCP Program

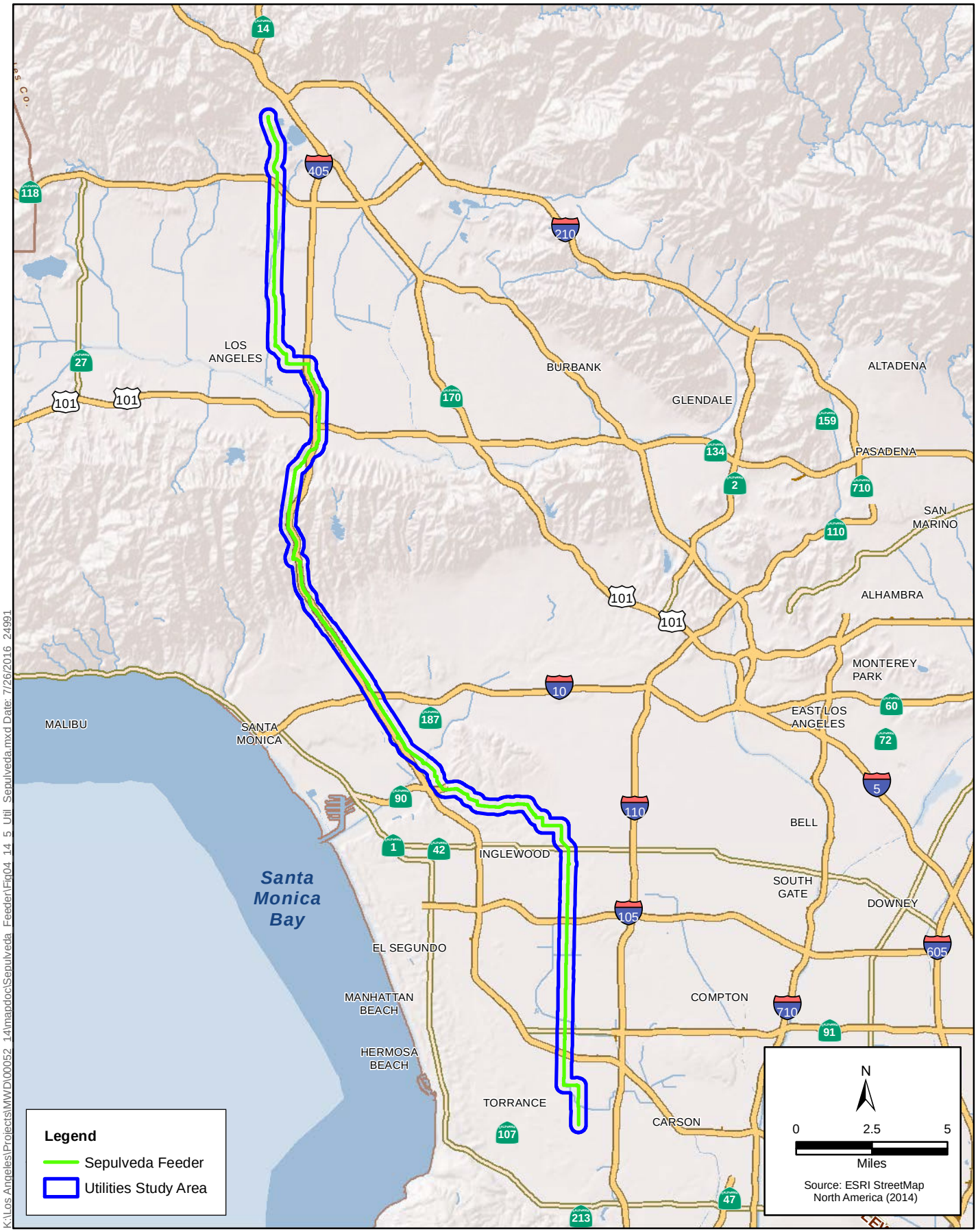


Figure 4.14-5
Sepulveda Feeder Utilities Study Area
Metropolitan PCCP Program

4.14.2.5 Sepulveda Feeder

In addition to the standard utilities within rights-of-way and easements identified above, the study area for the Sepulveda Feeder includes water reservoirs, electrical substations, major electrical transmission lines, a tank farm, and flood control channels.

Areas along the Sepulveda Feeder are served by the following landfills.

- Burbank, La Crescenta: anticipated closure date approximately 2053 (CalRecycle 2016b)
- Chiquita Canyon, Del Valle: anticipated closure date approximately 2019 (CalRecycle 2016c)
- Sunshine Canyon, Santa Clarita: anticipated closure date approximately 2037 (CalRecycle 2016d)

4.14.3 Regulatory Framework

This section describes the plans, policies, and regulations related to utilities and service systems that are applicable to the proposed program.

4.14.3.1 Federal

Resource Conservation and Recovery Act (42 U.S.C. § 6901 et seq.)

The Resource Conservation and Recovery Act was enacted in 1976 to ensure that solid and hazardous wastes are properly managed, from their generation to ultimate disposal or destruction. Implementation of the Resource Conservation and Recovery Act has largely been delegated to federally approved state waste management programs and, under Subtitle D, further promulgated to local governments for management of planning, regulation, and implementation of nonhazardous solid waste disposal (EPA 2016). The U.S. Environmental Protection Agency retains oversight of state actions under 40 Code of Federal Regulations (CFR) (Part 239–259). Where facilities are found to be inadequate, 40 CFR Part 256.42 requires that necessary facilities and practices be developed by the responsible state and local agencies or by the private sector (USGPO 2016). In California, that responsibility was created under the California Integrated Waste Management Act of 1989 (Californians Against Waste 2016).

4.14.3.2 State

Title 22, Chapter 16, Waterworks Standards

When buried water mains are close to non-potable pipelines (such as sanitary sewer mains, recycled water, or storm drains), they are vulnerable to contamination. The most effective protection against this type of drinking water contamination is adequate construction and separation of water mains and non-potable pipelines. The Waterworks Standards (Title 22, Chapter 16, Section 64572) provide separation criteria for new construction (California DHS 2003).

California Integrated Waste Management Act (AB 939)

In response to the Resource Conservation and Recovery Act, the California Integrated Waste Management Act of 1989 was enacted by Assembly Bill (AB) 939. It requires cities and counties to prepare an integrated waste management plan, including a countywide siting element, for each jurisdiction. Pursuant to Public Resources Code Sections 41700–41721.5, the countywide siting element provides an estimate of the total permitted disposal capacity needed for a 15-year period, or whenever additional capacity is necessary. Countywide siting elements in California must be updated by each operator and permitted by the Department of Resources Recycling, which is within the Natural Resources Agency, every 5 years. AB 939 mandated that local jurisdictions meet solid waste diversion goals of 50 percent by 2000. (Californians Against Waste 2016)

Protection of Underground Infrastructure (Cal. Gov. Code § 4216)

This code requires that an excavator must contact a regional notification center (i.e., underground service alert) at least 2 days before excavation of any subsurface installations. The underground service alert will then notify the utilities that may have buried lines within 1,000 feet of the excavation. Representatives of the utilities are required to mark the specific location of their facilities within the work area prior to the start of excavation. The construction contractor is required to probe and expose the underground facilities by hand prior to using power equipment. (DigAlert 2016)

4.14.3.3 Local

Local policies and regulations related to utilities and service systems generally relate to new construction and buildings. These policies and regulations are not applicable to the proposed program.

4.14.4 Thresholds and Methodology

4.14.4.1 Thresholds of Significance

Table 4.14-1 lists the thresholds from Appendix G of the State CEQA Guidelines that pertain to utilities and service systems. These thresholds are addressed in the PEIR.

Table 4.14-1. CEQA Thresholds for Utilities and Service Systems

Threshold *Would the proposed program:*
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
b. Require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects?
c. Require or result in the construction of new stormwater drainage facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects?
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new and expanded entitlements needed?

Threshold *Would the proposed program:*
e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to its existing commitments?
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?
g. Comply with federal, state, and local statutes and regulations related to solid waste?

4.14.4.2 Methodology

The analysis of impacts on utilities and service systems includes evaluation of the proposed program's effects related to wastewater treatment, water and wastewater treatment facilities, stormwater drainage facilities, water supplies, wastewater treatment facilities capacity, landfill capacity, and solid waste regulations.

4.14.5 Impacts Analysis

4.14.5.1 Program Analysis

Threshold UTIL-A: Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board

The proposed program would not generate any long-term or substantial quantities of wastewater, and it would not involve permanent structures with the potential to generate wastewater. The proposed program would require dewatering of the pipelines prior to rehabilitation. The pipelines would be flushed with chlorinated water upon completion of rehabilitation activities. The flushed water would be dechlorinated and released into local flood control channels and sewer systems. Therefore, no additional treatment of water from dewatering or flushed water would be required. No wastewater treatment requirements would be violated or exceeded as a result of the proposed program. Impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold UTIL-B: Require or Result in the Construction of New Water or Wastewater Treatment Facilities or the Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects

The proposed program would rehabilitate existing PCCP along five existing pipelines. It would not involve the construction of new water facilities, and it would not increase the capacity of the Metropolitan water distribution system. The proposed program would not result in construction of new wastewater treatment facilities. No impacts would occur.

Mitigation Measures

There would be no impacts for the proposed program.

Residual Impacts

No impacts would result from the proposed program, and no mitigation is necessary. Therefore, there would be no residual impacts for the proposed program.

Threshold UTIL-C: Require or Result in the Construction of New Stormwater Drainage Facilities or the Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects

The construction of new stormwater drainage facilities or the expansion of existing facilities is typically required to maintain or increase the facilities' capacity to accommodate an increase in stormwater runoff in an area, such as when a project involves a substantial increase in the amount of impermeable surface. The five existing pipelines that would be rehabilitated under the proposed program would not involve paving previously unpaved areas and therefore would not result in an increase in impermeable surfaces that would necessitate the construction of new or expanded stormwater facilities or the provision of additional capacity. Therefore, no impacts would occur.

Mitigation Measures

There would be no impacts for the proposed program.

Residual Impacts

No impacts would result from the proposed program, and no mitigation is necessary. Therefore, there would be no residual impacts for the proposed program.

Threshold UTIL-D: Have Sufficient Water Supplies Available to Serve the Project from Existing Entitlements and Resources, or Are New and Expanded Entitlements Needed

The proposed program would rehabilitate existing water distribution pipelines. It would not entail uses that would result in long-term water consumption. Consequently, the proposed program would not affect existing water entitlements or require new entitlements. No impact would occur.

Mitigation Measures

There would be no impacts for the proposed program.

Residual Impacts

No impacts would result from the proposed program, and no mitigation is necessary. Therefore, there would be no residual impacts for the proposed program.

Threshold UTIL-E: Result in a Determination by the Wastewater Treatment Provider that Serves or May Serve the Project that it Has Adequate Capacity to Serve the Project's Projected Demand in Addition to its Existing Commitments

The proposed program consists of rehabilitating four existing water distribution pipelines. It would not include long-term uses that would require wastewater treatment. No new wastewater would be generated from operation of the four existing pipelines after rehabilitation. Upon completion of the rehabilitation work, the pipelines would operate as they currently do. Consequently, the proposed program would not affect existing wastewater treatment capabilities of the local provider. No impacts would occur.

Mitigation Measures

There would be no impacts for the proposed program.

Residual Impacts

No impacts would result from the proposed program, and no mitigation is necessary. Therefore, there would be no residual impacts for the proposed program.

Threshold UTIL-F: Be Served by a Landfill with Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs

The proposed program would not generate substantial amounts of solid waste. Solid waste debris generated could include cutback asphalt, cut portions of PCCP, and excavated soil. This debris would be either reused on site, if feasible, or recycled off site. The selected contractor would use cost-effective means and methods to recycle or dispose of any solid waste debris generated during rehabilitation. Construction and demolition facilities accept these types of materials on a regular basis to process and dispose of them. Construction and demolition facilities used for current urgent repairs of other existing Metropolitan PCCP lines include Dan Copp Crushing, Arcadia Reclamation, and Standard Metals. The selected contractor would coordinate with these types of facilities prior to rehabilitation. Other solid waste debris that cannot be recycled and cannot go to a construction and demolition facility could be accommodated by one or more of the landfills identified in Section 4.14.2. The selected contractor could coordinate with one or more of these facilities. Given the intent to maximize the proposed program's use of excavated materials as backfill and the presence of multiple designated construction and demolition facilities and landfills with existing daily capacity to recycle or dispose of solid waste debris, impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

Threshold UTIL-G: Comply with Federal, State, and Local Statutes and Regulations Related to Solid Waste

The proposed program rehabilitation activities would generate small amounts of solid waste, including construction and demolition debris. All waste produced due to proposed program activities would be removed immediately following the activity and disposed of properly in accordance with federal, state, and local statutes and regulations. The proposed program is not anticipated to have a significant impact on solid waste disposal needs, and impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

4.14.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

As discussed in Section 4.14.5, the proposed program would have no impacts related to new or expanded water or wastewater treatment facilities; new or expanded stormwater drainage facilities; water supply availability; and wastewater treatment capacity. Therefore, it would not contribute to cumulative impacts on these resources.

The proposed program would result in less-than-significant impacts related to wastewater treatment requirements. During dewatering of the pipelines, water would be dechlorinated and released into local flood control channels and sewer systems and no additional treatment would be required. No wastewater treatment requirements would be violated or exceeded. Because of the limited scale of this dewatering and the treatment of the water as part of the projects in the program, the program would not result in a considerable contribution to a cumulative impact related to wastewater treatment.

The proposed program would result in less-than-significant impacts related to solid waste disposal. Minimal waste would be generated by the rehabilitation projects in the proposed program. Most of this waste would be reused on site or recycled. The small amount of remaining waste would not result in a considerable contribution to impacts to landfill capacity.

Section 4.15
Energy Conservation

4.15.1 Introduction

This section describes the existing conditions for energy and energy conservation, the regulatory framework associated with energy conservation, the impacts related to energy conservation that would result from the proposed program, and the mitigation measures that would reduce these impacts. This section meets the requirements of Appendix F, Energy Conservation, of the State CEQA Guidelines.

In 2009, the State CEQA Guidelines were revised to include a new Appendix F, Energy Conservation. Appendix F states that, in order to ensure that energy implications are considered in project decisions, EIRs are required to discuss the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

4.15.2 Existing Conditions

The study area for energy conservation is the South Coast Air Basin, the area in which nearly all program construction activities and related energy consumption would occur, which is consistent with the study area used for the purposes of the air quality analysis. A map of the study area is included in Section 4.3, *Air Quality*. As stated in Metropolitan's *2015 Urban Water Management Plan*, California's water sector is responsible for 6.8 percent of statewide greenhouse gas (GHG) emissions, which serves as an indicator of the amount of energy consumed. However, only 0.6 percent of statewide GHG emissions are attributable to the activities of water utilities, as most of the energy use is associated with water end uses (i.e., businesses and residents) and wastewater and agricultural uses (Metropolitan 2016). Table 4.15-1 shows the amount of energy used by Metropolitan for water conveyance, treatment, and distribution for 2013 and 2014.

Table 4.15-1. Metropolitan's Existing Energy Use

	Conveyance (kWh)	Treatment (kWh)	Distribution (kWh)	Treated Energy Intensity (kWh/acre-foot)
2013	3,627,553,292	46,914,223	-239,069,895 [a]	1,786
2014	3,448,714,628	46,695,775	-118,895,649 [a]	1,938

[a] Represents a net generation of energy.
kWh = kilowatts per hour
kWh/acre-foot = kilowatts per hour per acre-foot
Source: Metropolitan 2016.

4.15.3 Regulatory Framework

This section describes the plans, policies, and regulations related to energy conservation that are applicable to the proposed program.

4.15.3.1 Federal

The following federal laws related to energy and energy use are applicable, as the federal government has primary responsibility for the regulation of the fuel economy of vehicles, including for vehicles that would be used during the construction period for the proposed program.

Energy Policy and Conservation Act of 1975

The Energy Policy and Conservation Act of 1975 was enacted to serve the nation's energy demands and calls for energy conservation when feasible. Among other provisions, the act directed the Secretary of the Department of Transportation to set and implement fuel economy standards for passenger cars and light trucks as part of the Corporate Average Fuel Economy program.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 was signed into law by President George W. Bush on December 19, 2007, with the aim of moving the United States toward greater energy independence and security; increasing the production of clean renewable fuels; protecting consumers; increasing the efficiency of products, buildings, and vehicles; promoting GHG research; improving the energy efficiency of the federal government; and improving vehicle fuel economy. The act expanded the Corporate Average Fuel Economy program to include standard-setting for medium- and heavy-duty vehicles.

4.15.3.2 State

California Energy Commission

Created by the Legislature in 1974, the California Energy Commission is the state's primary energy policy and planning agency and is responsible for, among other things, forecasting future energy needs for the state. Senate Bill 1389 (Chapter 568, Statutes of 2002) requires the California Energy Commission to prepare a biennial Integrated Energy Policy Report. This report contains an integrated assessment of major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors, and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The commission published the *2015 Integrated Energy Policy Report* in February 2016 and the *2016 Integrated Energy Policy Report Update* is currently being developed.

Executive Order S-3-05

Executive Order S-3-05, enacted in June 2005, sets specific GHG emission reduction targets for the state and gives the Transportation and Housing Agency responsibility to help meet the targets. The Executive Order sets 2050 GHG reduction targets at 80 percent below 1990 levels and envisions reduced vehicle miles traveled and increased vehicle fuel efficiency as major factors in achieving

GHG reductions. Because of the inextricable relationship between GHG emissions and energy use, Executive Order S-3-05 has implications for energy use.

AB 32: Global Warming Solutions Act

Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32 (Global Warming Solutions Act) into law on September 27, 2006, requiring that the California Air Resources Board (ARB) reduce GHG emissions to 1990 levels by 2020 and maintain and continue reductions beyond 2020. The bill also provides the Governor the ability to invoke a safety valve and suspend the emissions caps for up to 1 year in the case of an emergency or significant economic harm. ARB prepared the AB 32 scoping plan that has been approved and contains a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation regulation to fund the program.

AB 2076, Reducing Dependence on Petroleum

The California Energy Commission and ARB are directed by AB 2076 (passed in 2000, Shelley, Chapter 936, Statutes of 2000) to develop and adopt recommendations for reducing dependence on petroleum. A performance-based goal is to reduce petroleum demand to 15 percent below 2003 demand levels by 2020.

4.15.3.3 Local

Local policies and regulations related to energy generally relate to new construction and buildings; these policies and regulations are not applicable to the proposed program. However, Metropolitan has adopted a set of Energy Management Policies.

Metropolitan Energy Management Policies

To further Metropolitan's mission to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way, the Metropolitan Board adopted a set of Energy Management Policies in August 2010. The Energy Management Policies guide the agency to (1) contain costs and reduce Metropolitan's exposure to energy price volatility; (2) increase operational reliability by implementing renewable energy projects; (3) provide a revenue stream to offset energy costs; and (4) move Metropolitan toward energy independence (i.e., maximize power production facilities and energy contracts for direct use by Metropolitan). These policies are consistent with Metropolitan's goal to balance long-term reliability with cost control, with the added benefit of reducing GHG emissions (Metropolitan 2010). Although the Energy Management Policies do not explicitly address construction-related energy consumption, the efforts to control costs on energy resources applies to the construction period as well.

4.15.4 Thresholds and Methodology

4.15.4.1 Thresholds of Significance

Table 4.15-2 lists the threshold that encompasses all of the potential impacts of the program identified in Appendix F of the State CEQA Guidelines that pertain to energy conservation. The threshold and the analysis below do not address the program's effects on electricity, as there would be negligible electricity consumption during construction and program operation would not increase energy use relative to existing conditions. The following threshold is addressed in the PEIR.

Table 4.15-2. CEQA Thresholds for Energy Conservation

Threshold *Would the proposed program:*
a. Use energy in an inefficient, wasteful, or unnecessary manner?

4.15.4.2 Methodology

The estimate of construction-related energy use was calculated by applying the conversion factors for GHG emissions per gallon of fuel to the total GHG emissions. As discussed in Section 4.7, GHG emissions were estimated using emissions factors for off-road construction equipment and on-road vehicle trips and idling derived from CalEEMod and EMFAC2011. Emissions for each of the individual sites were estimated and a full program construction scenario was developed to quantify impacts related to GHGs, which includes the following.

- An average of three relining excavation sites per mile of PCCP
- An average of one new valve/meter vault structure for every 5 miles of PCCP
- An average of one air-release/vacuum valve relocation per mile of PCCP
- 1,000 feet of parallel piping for every 10 miles of PCCP

Emissions were then converted to gallons of diesel fuel, as this would be the primary fuel source for vehicles and equipment during the construction period.

Because the proposed program would involve the rehabilitation and/or replacement of existing water distribution pipelines and would not enhance the capacity of the water distribution network, there would be no change in energy use associated with operation of the proposed program. Therefore, this analysis is limited to energy use that would occur during the construction period.

4.15.5 Impacts Analysis

4.15.5.1 Program Analysis

Threshold ENE-A: Use Energy in an Inefficient, Wasteful, or Unnecessary Manner

Under the proposed program, construction activities would require energy in the form of fuels for construction vehicles and equipment. As shown in Appendix G and Table 4.15-3, approximately 13.84 million gallons of diesel fuel would be consumed over the 25-year construction period. Although the estimated fuel use would be substantial, the construction would occur over a long time horizon. As such, the annual fuel consumption would represent a small portion of the total, a negligible increase in regional demand, and an insignificant amount relative to the greater than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014). Given the extensive network of fueling stations throughout the program region and the fact that construction would be relatively short term in any given location along the pipeline alignments, no new or expanded sources of energy or infrastructure would be required to meet the energy demand of the proposed program.

The proposed program would not involve the construction of new water facilities, and it would not increase the capacity of the Metropolitan water distribution system. In addition, all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised such that the inefficient use of fuel would result. Therefore, impacts related to energy use would be less than significant.

Table 4.15-3. Construction Energy Consumption

	Energy Consumed
Buildout GHG emissions (MT CO_2)	140,608.5
Gallons of Diesel Fuel	13,838,767
Source: Calculations by ICF International 2016. See Appendix G. MT CO_2 = million tons of carbon dioxide	

Mitigation Measures

Impacts would be less than significant for the proposed program, and no mitigation is required. Program-related energy consumption would be reduced by 0.8 percent through the use of Tier 4 off-road construction equipment, as specified by MM AIR-1 in Section 4.3, *Air Quality*.

Residual Impacts

Impacts that would result from the proposed program would be less than significant, and no mitigation is necessary. Therefore, residual impacts would be less than significant.

4.15.5.2 Cumulative Analysis

The proposed program would be implemented over a long period of time; in many cases, implementation of the projects in the proposed program would occur past the planning horizons of

local jurisdictions and agencies. Therefore, the program-level cumulative impact analyses for the various resources are limited to the identification of the types of impacts that may occur.

As discussed in Section 4.15.4, the proposed program would have no impacts related to new or expanded water service, new or expanded stormwater drainage facilities, water supply availability, and water treatment capacity. Therefore, the operation of the proposed program would not contribute to cumulative impacts related to energy resources.

During the construction period, the proposed program would require the use of energy in the form of fuels needed to operate vehicles and equipment, as discussed in Section 4.15.5.1. Given the extensive network of fueling stations found throughout the region and that the pipelines would be relined over more than 25 years, the impact on fuel supply and demand would be negligible and impacts would not be cumulatively considerable.

Chapter 5
Alternatives

5.1 Introduction

During consideration of a project or program that could have a significant effect on the environment, the California Environmental Quality Act (CEQA) requires that alternatives that could avoid or lessen the project's significant effect(s) be considered. This chapter presents potential alternatives to the proposed program and evaluates them as required by CEQA. The State CEQA Guidelines also require environmental impact reports (EIRs) to identify the environmentally superior alternative from among the alternatives (including the proposed project). The environmentally superior alternative is identified in Section 5.5.2.

5.2 Summary of Program Objectives and Significant Impacts

5.2.1 Program Objectives

In September 2011, Metropolitan Water District of Southern California's (Metropolitan) Board authorized initiation of the Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program in order to develop a comprehensive, long-term plan for repair of Metropolitan's at-risk PCCP feeders. There were several drivers for the creation of this program: (1) the increasing number of failures of PCCP lines within the water industry, along with recognition of the risks associated with these failures; (2) trends of PCCP deterioration within Metropolitan's distribution system, based on monitoring data collected over a 14-year period; and (3) Metropolitan's experience with expensive, urgent repairs on PCCP lines. Based on this experience and on a risk assessment of Metropolitan's PCCP lines, staff concluded that approximately 100 miles of PCCP will have a reduced service life and need to be rehabilitated, especially in comparison with pipelines made of other materials.

The objectives of the proposed program are to:

- Reduce the risk of unplanned outages
- Extend the service life of the pipelines
- Perform the rehabilitation work in a cost-effective manner
- Minimize the effects of rehabilitation efforts on Member Agency deliveries
- Minimize the loss of hydraulic capacity due to rehabilitation
- Improve system operational and emergency flexibility

5.2.2 Significant Environmental Impacts

The PCCP Rehabilitation Program would potentially result in the following significant impacts (or potentially significant impacts) that could not be reduced to less-than-significant levels with mitigation.

- Conflict with or obstruct implementation of the applicable air quality plan (AQ-A)
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation (AQ-B)
- Result in a cumulatively considerable net increase in any criteria pollutant for which the region is in non-attainment under an applicable federal or state ambient air quality standard (AQ-C)
- Expose sensitive receptors to substantial pollutant concentrations (AQ-D)
- Have substantial adverse effect on special-status species (BIO-A) (potentially significant, to be determined at project level)
- Have substantial adverse effect on riparian habitat or other sensitive natural community (BIO-B) (potentially significant, to be determined at project level)
- Have a substantial adverse effect on federally protected wetlands (BIO-C) (potentially significant, to be determined at project level)
- Interfere substantially with the movement of native resident or migratory fish or wildlife species or established native resident or migratory wildlife corridors or impede use of native wildlife nursery sites (BIO-D) (potentially significant, to be determined at project level)
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (BIO-F) (potentially significant, to be determined at project level)
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (GHG-A)
- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies (NOI-A) (potentially significant, to be determined at project level)
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity, above levels existing without the project (NOI-D) (potentially significant, to be determined at project level)
- Conflict with an applicable plan, ordinance, or policy that establishes measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, and pedestrian and bicycle paths (TRA-A) (potentially significant, to be determined at project level)

5.3 Alternatives Considered but Rejected

Section 15126.6(a) of the State CEQA Guidelines states that an EIR shall describe "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain

most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project," as well as provide an evaluation of "the comparative merits of the alternatives." Under Section 15126.6(a), an EIR does not need to consider alternatives that are not feasible, nor need it address every conceivable alternative to the project. The range of alternatives "is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice." The focus is on informed decision-making and public participation rather than providing a set of alternatives simply to satisfy format.

As described below, two types of alternatives to the proposed program were considered—alternative locations and alternative methods—along with a No Program Alternative. Except for the No Program Alternative, all of these potential alternatives have been rejected, as described below.

5.3.1 Alternative Locations

Potential alternative pipeline locations are program feeder improvements, including the Allen-McColloch Pipeline, the Calabasas Feeder, the Rialto Pipeline, the Second Lower Feeder, and the Sepulveda Feeder, and are substantially constrained by the need to connect the existing pipelines at their origins and terminations and to the existing service connections. Any alternative location would also be constrained by the width of the existing Metropolitan rights-of-way. Such constraints mean that there is no reasonable way to achieve the objectives of the PCCP program by replacing the pipelines in other locations. Therefore, no alternative locations for the PCCP program were developed.

5.3.2 Alternative Methods

The program description includes various methods for rehabilitation of the pipelines, including steel cylinder relining, steel pipe sliplining, and new pipe replacement. All of these methods were considered in this Programmatic ~~program-level~~ EIR (PEIR) as variations within the program. There are no other feasible methods for rehabilitating the existing pipelines. Therefore, no alternative methods for the PCCP program were developed.

5.4 No Program Alternative

Under the No Program Alternative, repairs and improvements included in the proposed program would not be planned and scheduled. Because the pipelines and feeders would continue to age, there would be a continued risk for failure. Metropolitan would need to prevent failures through localized and as-needed improvements, but these activities would not occur as part of a planned program. Much of this rehabilitation would thus occur as "urgent repairs" because of the lack of a systematic planning offered by the proposed program.

5.4.1 Comparison of the Impacts of the No Program Alternative to the Proposed Program

The No Program Alternative would eventually require the same types of repairs and rehabilitation of the five pipelines within the proposed program, but this would occur without preplanning and scheduling and often as urgent repairs. The ability to locate excavations and other rehabilitation work in a manner that avoids impacts may be lessened due to the need to respond to urgent needs

of deteriorating pipelines. Therefore, impacts under the No Program Alternative would be the same as the proposed program, or may even be greater.

Table 5.4-1. Summary Table

Environmental Resource Area	Proposed Program	No Program
Aesthetics		
Threshold AES-A: Have a Substantial Adverse Effect on a Scenic Vista	Less than significant	Similar
Threshold AES-B: Substantially Damage Scenic Resources, Including, but not Limited to, Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway	Less than significant	Similar
Threshold AES-C: Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings	Less than significant	Similar
Threshold AES-D: Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area	Less than significant with mitigation	Similar or worse, if urgent repairs required nighttime work with lighting
Agriculture & Forestry Resources		
Threshold AGR-A: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmland) to Non-Agricultural Use	Less than significant	Similar
Threshold AGR-E: Involve Other Changes in the Existing Environment that, Because of Their Location or Nature, Could Result in the Conversion of Farmland to Non-Agricultural Use	Less than significant	Similar
Air Quality		
Threshold AQ-A: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan	Significant and unavoidable	Similar
Threshold AQ-B: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation	Significant and unavoidable	Similar
Threshold AQ-C: Result in a Cumulatively Considerable Net Increase in Any Criteria Pollutant for Which the Region Is in Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard	Significant and unavoidable	Similar
Threshold AQ-D: Expose Sensitive Receptors to Substantial Pollutant Concentrations	Significant and unavoidable	Similar
Biological Resources		
Threshold BIO-A: Have a Substantial Adverse Effect, either Directly or through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-status Species in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	Potentially significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts either by location or season

Environmental Resource Area	Proposed Program	No Program
Threshold BIO-B: Have a Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	Potentially significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location
Threshold BIO-C: Have a Substantial Adverse Effect on Federally Protected Wetlands, as Defined by Section 404 of the Clean Water Act, through Direct Removal, Filling, Hydrological Interruption, or Other Means	Potentially significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location
Threshold BIO-D: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors or Impede the Use of Native Wildlife Nursery Sites	Potentially significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location
Threshold BIO-E: Conflict with Any Local Policies or Ordinances Protecting Biological Resources, Such as a Tree Preservation Policy or Ordinance	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location
Threshold BIO-F: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan	Potentially significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts either by location or season
Cultural Resources		
Threshold CUL-A: Cause a Substantial Adverse Change in the Significance of a Historical Resource	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location or to fully implement mitigation to protect resources
Threshold CUL-B: Cause a Substantial Adverse Change in the Significance of an Archaeological Resource	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location or to fully implement mitigation to protect resources

Environmental Resource Area	Proposed Program	No Program
Threshold CUL-C: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location or to fully implement mitigation to protect resources
Geology and Soils		
Threshold GEO-A.I: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Rupture of a Known Earthquake Fault	Less than significant	Similar
Threshold GEO-A.II: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Strong Seismic Groundshaking	Less than significant	Similar
Threshold GEO-A.III: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Seismically Related Ground Failure, Including Liquefaction	Less than significant	Similar
Threshold GEO-A.IV: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Landslides	Less than significant	Similar
Threshold GEO-B: Result in Substantial Soil Erosion or the Loss of Topsoil	Less than significant	Similar
Threshold GEO-C: Be Located on a Geologic Unit or Soil that Is Unstable, or that Would Become Unstable as a Result of the Project, and Potentially Result in On- or Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse	Less than significant	Similar
Threshold GEO-D: Be Located on Expansive Soil, Creating Substantial Risks to Life or Property	Less than significant	Similar
Greenhouse Gas Emissions		
Threshold GHG-A: Generate Greenhouse Gas Emissions, either Directly or Indirectly, that May Have a Significant Impact on the Environment	Significant and unavoidable	Similar
Threshold GHG-B: Conflict with Any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases	Less than significant	Similar
Hazards and Hazardous Materials		
Threshold HAZ-A: Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Less than significant	Similar

Environmental Resource Area	Proposed Program	No Program
Threshold HAZ-B: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment	Less than significant	Similar
Threshold HAZ-C: Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School	Less than significant with mitigation	Similar
Threshold HAZ-D: Be Located on a Site That Is Included on a List of Hazardous Materials Sites and, as a Result, Create a Significant Hazard to the Public or the Environment	Less than significant with mitigation	Similar
Threshold HAZ-E: For a Project Located within an Airport Land Use Plan or, Where Such Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Result in a Safety Hazard for People Residing or Working in the Project Area	Less than significant with mitigation	Similar
Threshold HAZ-F: For a Project within the Vicinity of a Private Airstrip, Result in a Safety Hazard for People Residing or Working in the Project Area	No impacts	Similar
Threshold HAZ-G: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	Less than significant with mitigation	Similar or worse if urgent repairs prevent implantation of mitigation to avoid or reroute emergency routes and make advance notifications
Threshold HAZ-H: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires, Including Areas where Wildlands Are Adjacent to Urbanized Areas or where Residences Are Intermixed with Wildlands	Less than significant	Similar
Hydrology and Water Quality		
Threshold WQ-A: Violate Any Water Quality Standards or Waste Discharge Requirements	Less than significant	Similar
Threshold WQ-C: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, in a Manner that Would Result in Substantial Erosion or Siltation On or Off Site	Less than significant	Similar
Threshold WQ-D: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Manner That Would Result in Flooding On or Off Site	Less than significant with mitigation	Similar

Environmental Resource Area	Proposed Program	No Program
Threshold WQ-E: Create or Contribute Runoff Water that Would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff	Less than significant	Similar
Threshold WQ-J: Expose People or Structures to Inundation by Seiche, Tsunami, or Mudflow	Less than significant	Similar
Land Use		
Threshold LU-A: Physically Divide an Established Community	Less than significant	Similar
Threshold LU-B: Conflict with Applicable Land Use Plan, Policy, or Regulation of an Agency with Jurisdiction over the Project Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect	Less than significant	Similar
Noise		
Threshold NOI-A: Expose Persons to or Generate Noise Levels in Excess of Standards Established in the Local General Plan or Noise Ordinance or Applicable Standards of Other Agencies	Significant ~~Potentially significant~~ and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location or require nighttime work
Threshold NOI-B: Expose Persons to or Generate Excessive Groundborne Vibration or Groundborne Noise Levels	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location
Threshold NOI-C: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity, Above Levels Existing without the Project	No impact	Similar
Threshold NOI-D: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity, Above Levels Existing without the Project	Significant ~~Potentially significant~~ and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location or require nighttime work
Threshold NOI-E: For a Project Located within an Airport Land Use Plan or, Where Such a Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Expose People Residing or Working in the Project Area to Excessive Noise Levels	Less than significant	Similar
Threshold NOI-F: For a Project within the Vicinity of a Private Airstrip, Expose People Residing or Working in the Project Area to Excessive Noise Levels	No impact	Similar
Recreation		
Threshold REC-A: Increase the Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities Such That Substantial Physical Deterioration of the Facilities Would Occur or Be Accelerated	Less than significant	Similar or worse, if urgent repairs prevent ability to avoid impacts by location

Environmental Resource Area	Proposed Program	No Program
Threshold REC-B: Include Recreational Facilities or Require the Construction or Expansion of Recreational Facilities, Which Might Have an Adverse Physical Effect on the Environment	No impact	Similar
Transportation and Traffic		
Threshold TRA-A: Conflict with an Applicable Plan, Ordinance, or Policy that Establishes Measures of Effectiveness for the Performance of the Circulation System, Taking into Account All Modes of Transportation, Including Mass Transit and Non-Motorized Travel, and Relevant Components of the Circulation System, Including, but not Limited to, Intersections, Streets, Highways and Freeways, and Pedestrian and Bicycle Paths	Significant ~~Potentially significant~~ and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location, planning and coordination with local jurisdictions, advance notifications, and provision of detours and adequate parking
Threshold TRA-B: Conflict with an Applicable Congestion Management Program, Including, but not Limited to, Level-of-Service Standards and Travel Demand Measures or Other Standards Established by the County Congestion Management Agency for Designated Roads or Highways	Less than significant	Similar
Threshold TRA-C: Result in a Change in Air Traffic Patterns, Including either an Increase in Traffic Levels or a Change in Location that Would Result in Substantial Safety Risks	Less than significant with mitigation	Similar or worse if urgent repairs occur in active runway areas
Threshold TRA-D: Substantially Increase Hazards Due to a Design Feature or Incompatible Uses	Less than significant with mitigation	Similar or worse if urgent repairs occur in locations resulting in hazardous condition
Threshold TRA-E: Result in Inadequate Emergency Access	Less than significant with mitigation	Similar or worse if urgent repairs affect emergency access
Threshold TRA-F: Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities or Otherwise Decrease the Performance or Safety of Such Facilities	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location and provision of detours
Utilities and Service Systems		
Threshold UTIL-A: Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board	Less than significant	Similar

Environmental Resource Area	Proposed Program	No Program
Threshold UTIL-B: Require or Result in the Construction of New Water or Wastewater Treatment Facilities or the Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects	No impact	Similar
Threshold UTIL-C: Require or Result in the Construction of New Stormwater Drainage Facilities or the Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects	No impact	Similar
Threshold UTIL-D: Have Sufficient Water Supplies Available to Serve the Project from Existing Entitlements and Resources, or Are New and Expanded Entitlements Needed	No impact	Similar
Threshold UTIL-E: Result in a Determination by the Wastewater Treatment Provider that Serves or May Serve the Project that it Has Adequate Capacity to Serve the Project's Projected Demand in Addition to its Existing Commitments	No impact	Similar
Threshold UTIL-F: Be Served by a Landfill with Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs	Less than significant	Similar
Threshold UTIL-G: Comply with Federal, State, and Local Statutes and Regulations Related to Solid Waste	Less than significant	Similar
Energy Conservation		
Threshold ENE-A: Use Energy in an Inefficient, Wasteful, or Unnecessary Manner	Less than significant	Similar

5.5 Summary of Alternatives Analysis and Identification of the Environmentally Superior Alternative

5.5.1 Resources with Significant and Unavoidable Impacts

The No Program Alternative would have similar or worse impacts for all significant and unavoidable impacts as described in Table 5.4-1.

Chapter 6
Other CEQA Considerations

6.1 Effects Found Not to Be Significant

The proposed program was initially evaluated through the Initial Study Checklist (Appendix A). The Initial Study Checklist identified that the following impacts would be less than significant (or there would be no impact) and would not be evaluated in the PEIR.

- Threshold AGR-B: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract
- Threshold AGR-C: Conflict with Existing Zoning for, or Cause Rezoning of, Forest Land (as Defined by Public Resources Code Section 12220(g)), Timberland (as defined by Public Resources Code Section 4526), or Timberland Zoned Timberland Production (as defined by Government Code Section 551104(g))
- Threshold AGR-D: Result in the Loss of Forest Land or Conversion of Forest Land to Non-forest Use
- Threshold GEO-E: Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems Where Sewers are not Available for the Disposal of Wastewater
- Threshold WQ-B: Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge Such that There Would be a Net Deficit in Aquifer Volume or a Lowering of the Local Groundwater Table Level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)
- Threshold WQ-G: Place Housing Within a 100-Year Flood Hazard Area, as Mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or Other Flood Hazard Delineation Map
- Threshold WQ-H: Place Within a 100-Year Flood Hazard Area Structures that Would Impede or Redirect Floodflows
- Threshold WQ-I: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Flooding, Including Flooding as a Result of the Failure of a Levee or Dam

As discussed in Chapter 4, *Environmental Analysis*, the following impacts would be less than significant (or there would be no impacts).

- Threshold AES-A: Have a Substantial Adverse Effect on a Scenic Vista
- Threshold AES-B: Substantially Damage Scenic Resources, Including, but not Limited to, Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway
- Threshold AES-C: Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings
- Threshold AGR-A: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmland) to Non-Agricultural Use

- Threshold AGR-E: Involve Other Changes in the Existing Environment that, Because of Their Location or Nature, Could Result in the Conversion of Farmland to Non-Agricultural Use
- Threshold GEO-A.I: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Rupture of a Known Earthquake Fault
- Threshold GEO-A.II: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Strong Seismic Groundshaking
- Threshold GEO-A.III: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Seismically Related Ground Failure, Including Liquefaction
- Threshold GEO-A.IV: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Landslides
- Threshold GEO-B: Result in Substantial Soil Erosion or the Loss of Topsoil
- Threshold GEO-C: Be Located on a Geologic Unit or Soil that Is Unstable, or that Would Become Unstable as a Result of the Project, and Potentially Result in On- or Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse
- Threshold GEO-D: Be Located on Expansive Soil, Creating Substantial Risks to Life or Property
- Threshold GHG-B: Conflict with Any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases
- Threshold HAZ-A: Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials
- Threshold HAZ-B: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment
- Threshold HAZ-F: For a Project within the Vicinity of a Private Airstrip, Result in a Safety Hazard for People Residing or Working in the Project Area
- Threshold HAZ-H: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires, Including Areas where Wildlands Are Adjacent to Urbanized Areas or where Residences Are Intermixed with Wildlands
- Threshold WQ-A: Violate Any Water Quality Standards or Waste Discharge Requirements
- Threshold WQ-C: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, in a Manner that Would Result in Substantial Erosion or Siltation On or Off Site
- Threshold WQ-E: Create or Contribute Runoff Water that Would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff
- Threshold WQ-J: Expose People or Structures to Inundation by Seiche, Tsunami, or Mudflow
- Threshold LU-A: Physically Divide an Established Community

- Threshold LU-B: Conflict with Applicable Land Use Plan, Policy, or Regulation of an Agency with Jurisdiction over the Project Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect
- Threshold NOI-C: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity, Above Levels Existing without the Project
- Threshold NOI-E: For a Project Located within an Airport Land Use Plan or, Where Such a Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Expose People Residing or Working in the Project Area to Excessive Noise Levels
- Threshold NOI-F: For a Project within the Vicinity of a Private Airstrip, Expose People Residing or Working in the Project Area to Excessive Noise Levels
- Threshold REC-A: Increase the Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities Such That Substantial Physical Deterioration of the Facilities Would Occur or Be Accelerated
- Threshold REC-B: Include Recreational Facilities or Require the Construction or Expansion of Recreational Facilities, Which Might Have an Adverse Physical Effect on the Environment
- Threshold TRA-B: Conflict with an Applicable Congestion Management Program, Including, but not Limited to, Level-of-Service Standards and Travel Demand Measures or Other Standards Established by the County Congestion Management Agency for Designated Roads or Highways
- Threshold UTIL-A: Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board
- Threshold UTIL-B: Require or Result in the Construction of New Water or Wastewater Treatment Facilities or the Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects
- Threshold UTIL-C: Require or Result in the Construction of New Stormwater Drainage Facilities or the Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects
- Threshold UTIL-D: Have Sufficient Water Supplies Available to Serve the Project from Existing Entitlements and Resources, or Are New and Expanded Entitlements Needed
- Threshold UTIL-E: Result in a Determination by the Wastewater Treatment Provider that Serves or May Serve the Project that it Has Adequate Capacity to Serve the Project's Projected Demand in Addition to its Existing Commitments
- Threshold UTIL-F: Be Served by a Landfill with Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs
- Threshold UTIL-G: Comply with Federal, State, and Local Statutes and Regulations Related to Solid Waste
- Threshold ENE-A: Use Energy in an Inefficient, Wasteful, or Unnecessary Manner

As discussed in Chapter 4, *Environmental Analysis*, the following impacts would be less than significant with incorporation of mitigation.

- Threshold AES-D: Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area

- Threshold BIO-E: Conflict with Any Local Policies or Ordinances Protecting Biological Resources, Such as a Tree Preservation Policy or Ordinance
- Threshold CUL-A: Cause a Substantial Adverse Change in the Significance of a Historical Resource
- Threshold CUL-B: Cause a Substantial Adverse Change in the Significance of an Archaeological Resource
- Threshold CUL-C: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature
- Threshold HAZ-C: Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School
- Threshold HAZ-D: Be Located on a Site That Is Included on a List of Hazardous Materials Sites and, as a Result, Create a Significant Hazard to the Public or the Environment
- Threshold HAZ-E: For a Project Located within an Airport Land Use Plan or, Where Such Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Result in a Safety Hazard for People Residing or Working in the Project Area
- Threshold HAZ-G: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan
- Threshold WQ-D: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Manner That Would Result in Flooding On or Off Site
- Threshold NOI-B: Expose Persons to or Generate Excessive Groundborne Vibration or Groundborne Noise Levels
- Threshold TRA-C: Result in a Change in Air Traffic Patterns, Including either an Increase in Traffic Levels or a Change in Location that Would Result in Substantial Safety Risks
- Threshold TRA-D: Substantially Increase Hazards Due to a Design Feature or Incompatible Uses
- Threshold TRA-E: Result in Inadequate Emergency Access
- Threshold TRA-F: Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities or Otherwise Decrease the Performance or Safety of Such Facilities

6.2 Unavoidable Adverse Effects

As discussed in Chapter 4, *Environmental Analysis*, the following impacts would be significant, even with the incorporation of mitigation (or potentially significant, requiring analysis at the project level).

- Threshold AQ-A: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan
- Threshold AQ-B: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

- Threshold AQ-C: Result in a Cumulatively Considerable Net Increase in Any Criteria Pollutant for Which the Region Is in Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard
- Threshold AQ-D: Expose Sensitive Receptors to Substantial Pollutant Concentrations
- Threshold BIO-A: Have a Substantial Adverse Effect, either Directly or through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-status Species in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service
- Threshold BIO-B: Have a Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service
- Threshold BIO-C: Have a Substantial Adverse Effect on Federally Protected Wetlands, as Defined by Section 404 of the Clean Water Act, through Direct Removal, Filling, Hydrological Interruption, or Other Means
- Threshold BIO-D: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors or Impede the Use of Native Wildlife Nursery Sites
- Threshold BIO-F/LU-C: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan
- Threshold GHG-A: Generate Greenhouse Gas Emissions, either Directly or Indirectly, that May Have a Significant Impact on the Environment
- Threshold NOI-A: Expose Persons to or Generate Noise Levels in Excess of Standards Established in the Local General Plan or Noise Ordinance or Applicable Standards of Other Agencies
- Threshold NOI-D: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity, Above Levels Existing without the Project
- Threshold TRA-A: Conflict with an Applicable Plan, Ordinance, or Policy that Establishes Measures of Effectiveness for the Performance of the Circulation System, Taking into Account All Modes of Transportation, Including Mass Transit and Non-Motorized Travel, and Relevant Components of the Circulation System, Including, but not Limited to, Intersections, Streets, Highways and Freeways, and Pedestrian and Bicycle Paths

6.3 CEQA Mandatory Findings of Significance

CEQA Guidelines Section 15065 requires that an EIR be prepared if there is substantial evidence, in light of the whole record, that any of the following conditions may occur:

- The project has the potential to: substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare, or threatened species; or eliminate important examples of major periods of California history or prehistory.

- The project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- The project has possible effects that are individually limited but cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
- The environmental effects of a project would cause substantial adverse effects on human beings, either directly or indirectly.

Because the proposed program has the potential to result in such significant effects, this PEIR was prepared. The following provides a summary of the conclusions in this PEIR regarding these mandatory findings of significance.

6.3.1 Substantially Degrade the Quality of the Environment

This PEIR identified significant or potentially significant environmental impacts that may not be reduced to less-than-significant levels by mitigation to air quality, biological resources, greenhouse gas emissions, noise, and traffic. Because these impacts may not be reduced to less-than-significant levels, there is the potential that projects within the proposed PCCP Rehabilitation Program could substantially degrade the environment. These impacts are as follows:

- *Conflict with or obstruct implementation of the applicable air quality plan* (see Section 4.3.5.1, Threshold AQ-A) because construction-period emissions from projects in the PCCP Rehabilitation Program would exceed regional mass emissions thresholds developed to aid the South Coast Air Basin in achieving attainment for those pollutants for which it is nonattainment.
- *Violate any air quality standard or contribute substantially to an existing or projected air quality violation* (see Section 4.3.5.1, Threshold AQ-B) because localized emissions from construction activities that would occur at a given rehabilitation site and in its immediate vicinity for projects in the PCCP Rehabilitation Program would exceed localized significance thresholds for nitrogen oxides and particulate matter 2.5 microns or less.
- *Result in cumulatively considerable net increase in any criteria pollutant for which the region is in non-attainment under an applicable federal or state ambient air quality standard* (see Section 4.3.5.1, Threshold AQ-C) because the projects in the PCCP Rehabilitation Program would exceed regional mass emissions thresholds for carbon monoxide and nitrogen oxides.
- *Expose sensitive receptors to substantial pollutant concentrations* (see Section 4.3.5.1, Threshold AQ-D) because localized emissions from construction activities that would occur at a given rehabilitation site and in its immediate vicinity for projects in the PCCP Rehabilitation Program would exceed localized significance thresholds for nitrogen oxides and particulate matter 2.5 microns or less.
- *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service* (see Section 4.4.5.1, Threshold BIO-A) because there is the potential for candidate, sensitive, or special-status species to occur in proximity to projects within the PCCP Rehabilitation Program and various rehabilitation activities could affect these species, and

because rehabilitation activities could affect bird nests or eggs protected under the Migratory Bird Treaty Act and Section 35.03 of the California Fish and Game Code.

- *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service* (see Section 4.4.5.1, Threshold BIO-B) because there is the potential for riparian habitat or other sensitive natural communities to occur in proximity to projects within the PCCP Rehabilitation Program and various rehabilitation activities could affect these communities.
- *Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act, through direct removal, filling, hydrological interruption, or other means* (see Section 4.4.5.1, Threshold BIO-C) because there is the potential for wetlands to occur in proximity to projects within the PCCP Rehabilitation Program and various rehabilitation activities could affect these wetlands.
- *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites* (see Section 4.4.5.1, Threshold BIO-D) because there is the potential for migration corridors or nursery sites to occur in proximity to projects within the PCCP Rehabilitation Program and various rehabilitation activities could affect these resources.
- *Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan* (see Section 4.4.5.1, Threshold BIO-F) because projects within the PCCP Rehabilitation Program may conflict with the adopted Shell Western Energy and Petroleum and Metropolitan Habitat Conservation Plan, the Central and Coastal Natural Community Conservation Plan/Habitat Conservation Plan, and the proposed North Fontana Multispecies Habitat Conservation Plan.
- *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment* (See Section 4.7.5.1, Threshold GHG-A) because construction of the full PCCP Rehabilitation Program would result in amortized annual emissions of greenhouse gases that would exceed the South Coast Air Quality Management threshold.
- *Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies* (see Section 4.11.5.1, Threshold NOI-A) because noise levels during rehabilitation would be likely to exceed noise-level restrictions set by some local jurisdictions at some locations.
- *Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity, above levels existing without the project* (see Section 4.11.5.1, Threshold NOI-D) because noise levels in some locations would result in substantial temporary increases in ambient noise levels in the vicinity of construction, above existing levels.
- *Conflict with an applicable plan, ordinance, or policy that establishes measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, and pedestrian and bicycle paths* (see Section 4.13.5.1, Threshold TRA-1) because the disruption of local and regional traffic caused by the capacity reduction of streets in the proximity of projects in the PCCP Rehabilitation Program could be significant.

6.3.2 Substantially Reduce the Habitat of a Fish or Wildlife Species

This PEIR identified potentially significant environmental impacts on candidate, sensitive, or special-status species that may occur in proximity to projects within the PCCP Rehabilitation Program, and various rehabilitation activities could affect these species, including the reduction of habitat (see Section 4.4.5.1, Threshold BIO-A). Impacts on riparian habitat or other sensitive natural communities may also occur, affecting fish or wildlife species using this habitat (see Section 4.4.5.1, Threshold BIO-B). Adverse effects on wetlands may also occur, affecting fish or wildlife species using this habitat (see Section 4.4.5.1, Threshold BIO-C). Rehabilitation may also affect wildlife corridors or nursery sites (see Section 4.4.5.1, Threshold D). Projects in the proposed program may also conflict with provisions in adopted habitat conservation plans or natural community conservation plans (see Section 4.4.5.1, Threshold BIO-F). The level of the impacts identified above cannot be determined at the program level, and project-level analysis will determine if the impact is substantial.

6.3.3 Cause a Fish or Wildlife Population to Drop below Self-Sustaining Levels

This PEIR identified potentially significant environmental impacts on candidate, sensitive, or special-status species that may occur in proximity to projects within the PCCP Rehabilitation Program, and various rehabilitation activities could affect these species, including the reduction of habitat (see Section 4.4.5.1, Threshold BIO-A). Projects in the proposed program may also conflict with provisions in adopted habitat conservation plans or natural community conservation plans (see Section 4.4.5.1, Threshold BIO-F). Although these impacts would be unlikely to reduce fish or wildlife populations, causing them to drop below self-sustaining levels, the impacts of the projects in the PCCP Rehabilitation Program could contribute to cumulative impacts that could affect population levels. The level of the impacts identified above cannot be determined at the program level, and project-level analysis will determine whether the projects would result in population loss either individually or cumulatively.

6.3.4 Threaten to Eliminate a Plant or Animal Community

This PEIR identified potentially significant environmental impacts on candidate, sensitive, or special-status species that may occur in proximity to projects within the PCCP Rehabilitation Program, and various rehabilitation activities could affect these species (see Section 4.4.5.1, Threshold BIO-A). Impacts on riparian habitat or other sensitive natural communities may also occur (see Section 4.4.5.1, Threshold BIO-B). Adverse effects on wetlands may also occur (see Section 4.4.5.1, Threshold BIO-C). Rehabilitation may also affect wildlife corridors or nursery sites (see Section 4.4.5.1, Threshold D). Projects in the proposed program may also conflict with provisions in adopted habitat conservation plans or natural community conservation plans (see Section 4.4.5.1, Threshold BIO-F). Although these impacts would be unlikely to eliminate a plant or animal community, the impacts of the projects in the PCCP Rehabilitation Program could contribute to cumulative impacts that could threaten to eliminate a plant or animal community. The level of the impacts identified above cannot be determined at the program level, and project-level analysis will determine whether the projects would result in the elimination of a plant or animal community either individually or cumulatively.

6.3.5 Substantially Reduce the Number or Restrict the Range of an Endangered, Rare, or Threatened Species

This PEIR identified potentially significant environmental impacts on candidate, sensitive, or special-status species that may occur in proximity to projects within the PCCP Rehabilitation Program, and various rehabilitation activities could affect these species, including the reduction of habitat (see Section 4.4.5.1, Threshold BIO-A). Projects in the proposed program may also conflict with provisions in adopted habitat conservation plans or natural community conservation plans (see Section 4.4.5.1, Threshold BIO-F). The level of the impacts identified above cannot be determined at the program level, and project-level analysis will determine if the impacts would substantially reduce the number or restrict the range of endangered, rare, or threatened species, either individually or by contributing to a cumulative impact.

6.3.6 Eliminate Important Examples of Major Periods of California History or Prehistory

This PEIR identified potentially significant impacts on historical resources (built environment) from groundborne vibration from excavation and concrete cutting (see Section 4.5.5.1, Threshold CUL-A). Mitigation would protect historical resources (MM CUL-1). The PEIR also identified a low potential to encounter known or unknown buried archaeological resources (see Section 4.5.5.1, Threshold CUL-B). Mitigation would protect archaeological resources (MM CUL-2, MM CUL-3, MM CUL-4, and MM CUL-5). With implementation of the mitigation measures, projects in the proposed program would not eliminate important examples of major periods of California history or prehistory.

6.3.7 Achieve Short-Term Environmental Goals to the Disadvantage of Long-Term Environmental Goals

The PCCP Rehabilitation Program objectives are to reduce the risk of unplanned outages, extend the service life of pipelines, perform rehabilitation work in a cost-effective manner, minimize the effects of rehabilitation efforts on Member Agency deliveries, minimize the loss of hydraulic capacity caused by rehabilitation, and improve system operational and emergency flexibility. These objectives represent short-term goals as well as long-term environmental goals. Impacts of rehabilitation would generally be limited to the construction period. No changes in land use would occur. Once rehabilitation is complete, there would be no additional impacts and the system would be less likely to be at risk for unplanned outages. Therefore, the proposed program would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.

6.3.8 Have Possible Effect That Are Individually Limited but Cumulatively Considerable

Although most of the impacts of the project in the PCCP Rehabilitation Program would be localized and short-term during the construction period, some impacts could contribute to cumulative impacts. These include the following:

- Conflict with or obstruct implementation of the applicable air quality plan (see Section 4.3.5.2)
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation (see Section 4.3.5.2)

- Result in cumulatively considerable net increase in any criteria pollutant for which the region is in non-attainment under an applicable federal or state ambient air quality standard (see Section 4.3.5.2)
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (see Section 4.4.5.2)
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (See Section 4.7.5.2)
- Conflict with an applicable plan, ordinance, or policy that establishes measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, and pedestrian and bicycle paths (see Section 4.13.5.2)

6.3.9 Cause Substantial Adverse Effects on Human Beings, Either Directly or Indirectly

This PEIR identified potentially substantial adverse effects on human beings in the following ways:

- Conflict with or obstruct implementation of the applicable air quality plan (see Section 4.3.5.1, Threshold AQ-A)
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation (see Section 4.3.5.1, Threshold AQ-B)
- Result in cumulatively considerable net increase in any criteria pollutant for which the region is in non-attainment under an applicable federal or state ambient air quality standard (see Section 4.3.5.1, Threshold AQ-C)
- Expose sensitive receptors to substantial pollutant concentrations (see Section 4.3.5.1, Threshold AQ-D)
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (See Section 4.7.5.1, Threshold GHG-A)
- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies (see Section 4.11.5.1, Threshold NOI-A)
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity, above levels existing without the project (see Section 4.11.5.1, Threshold NOI-D)
- Conflict with an applicable plan, ordinance, or policy that establishes measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, and pedestrian and bicycle paths (see Section 4.13.5.1, Threshold TRA-1)

6.4 Growth Inducement

A proposed action can result in growth inducement if it would foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Growth inducement may include actions that would remove obstacles to population growth or encourage or facilitate growth.

The PCCP Rehabilitation Program would rehabilitate existing pipelines. It would not increase the capacity of the pipelines nor add additional pipelines. Therefore, it would not foster economic or population growth or result in the construction of additional housing. It would not remove obstacles to population growth or encourage or facilitate growth.

6.5 Significant Irreversible Changes

The State CEQA Guidelines mandate that an EIR address any significant irreversible environmental changes that would occur if the proposed action were implemented (State CEQA Guidelines Section 15126.2(s)). Such effects would occur if:

- The proposed action would involve a large commitment of nonrenewable resources;
- The primary or secondary impacts of the proposed action would generally commit future generations to similar uses;
- The proposed action could result in environmental accidents; or
- The proposed action would involve consumption of resources that are not justified.

The PCCP Rehabilitation Program would use nonrenewable resources in the form of construction materials and energy resources. Use of these resources, however, would not represent a large commitment of resources because rehabilitation would occur over a 25-year period and would not negatively affect their availability.

The proposed program would not change land uses because it would include rehabilitation of existing pipelines. In addition, the pipelines are located underground, primarily in street rights-of-way, allowing other uses of the land above the pipelines. Therefore, the proposed program would not commit future generations to similar uses.

The PCCP Rehabilitation Program, with mitigation discussed in Section 4.7, *Hazards and Hazardous Materials,* would not result in significant risks of environmental accidents.

Although the proposed program would involve the consumption of resources, this consumption is justified because rehabilitation of the pipelines would reduce risks of pipeline failures that could result in loss of water resources.

Chapter 7
References

7.1 Section 4.1, Aesthetics

Anaheim, City of. 2004. *City of Anaheim General Plan.* Anaheim, CA. May 25.

Buena Park, City of. 2010. *Buena Park 2035 General Plan.* Buena Park, CA. December.

Calabasas, City of. 2015. *City of Calabasas 2030 General Plan.* Calabasas, CA. October.

California Department of Transportation (Caltrans). 2008. *Scenic Highway Guidelines*. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/guidelines/scenic_hwy_guidelines_04-12-2012.pdf. Accessed: May 3, 2016.

California Department of Transportation (Caltrans). 2016a. *Scenic Highway Program: Frequently Asked Questions.* Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/faq.htm. Accessed May 5, 2016.

California Department of Transportation (Caltrans). 2016b. *Scenic Highway Program-Scenic Highway Systems Lists*. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/scenic_hwy.htm. Accessed: May 3, 2016.

Carson, City of. 2006. *Carson City Master Plan.* Carson, CA. Adopted April 6.

Claremont, City of. 2009. *The City of Claremont General Plan.* Claremont, CA. Adopted November 14, 2006, Revised October 13, 2009.

Culver City, City of. 1996. *Culver City General Plan Circulation Element.* Culver City, CA. Approved July 22.

Cypress, City of. 2001. *Cypress General Plan.* Cypress, CA.

Fontana, City of. 2003. *City of Fontana General Plan.* Fontana, CA. Adopted October 21.

Gardena, City of. 2006. *Gardena General Plan 2006.* Gardena, CA.

Hawthorne, City of. 1989. *Circulation Element: Hawthorne General Plan.* Hawthorne, CA. March.

Hidden Hills, City of. 1995. *City of Hidden Hills General Plan.* Hidden Hills, CA. Adopted November 13.

Inglewood, City of. 1992. *The Circulation Element of the Inglewood General Plan.* Inglewood, CA. Adopted December 15.

Irvine, City of. 2012. *Year 2000 General Plan*. Supplement No. 8. Irvine, CA. June 8.

La Verne, City of. 1999. *The City of La Verne General Plan.* La Verne, CA. Adopted December 7, 1998. First printing June 1999.

Lake Forest, City of. 1994. *Lake Forest General Plan.* Lake Forest, CA. June 21.

Lakewood, City of. 1996. *The City of Lakewood Comprehensive General Plan.* Lakewood, CA. November.

Lomita, City of. 1998. *Lomita General Plan.* Lomita, CA. Adopted May 4.

Long Beach, City of. 2013. *City of Long Beach Mobility Element of the City's General Plan.* Long Beach, CA. Adopted October 15.

Los Alamitos, City of. 2015. *Los Alamitos General Plan.* Prepared by PlaceWorks. Los Alamitos, CA. March.

Los Angeles, City of. 2016. Department of City Planning. *Mobility Plan 2035: An Element of the General Plan*. Los Angeles, CA. Adopted January 20.

Los Angeles County. 2015. *Los Angeles County General Plan.* Los Angeles, CA. Adopted October 6.

Mission Viejo, City of. *2013. General Plan, City of Mission Viejo.* Land Use Element, Circulation Element, and Conservation/Open Space Element. Mission Viejo, CA August 19.

Orange, City of. 2010. *Orange General Plan.* Orange, CA. March.

Orange County. 2014. *County of Orange General Plan.* Transportation Element. Santa Ana, CA. July.

Orange County Public Works Planning and Development. 2016. *Scenic Highway Plan*. Last revised: April 2005. Available: http://ocplanning.net/civicax/filebank/blobdload.aspx?blobid=8588. Accessed: May 3, 2016.

Placentia, City of. 1982. *City of Placentia Circulation Element.* Placentia, CA. Adopted June 1.

Rancho Cucamonga, City of. 2010. *Rancho Cucamonga General Plan.* Rancho Cucamonga, CA, Adopted May 19.

Rialto, City of. 2010. *Rialto General Plan.* Rialto, CA. December.

Rolling Hills Estates. 1992. *City of Rolling Hills Estates General Plan 2020.* Rolling Hills Estates, CA.

San Bernardino, City of. 2005. *City of San Bernardino General Plan.* San Bernardino, CA. November 1.

San Bernardino County. 2014. *County of San Bernardino 2007 General Plan.* Prepared by URS. Santa Ana, CA. Adopted March 13, 2007. Amended April 24, 2014.

San Dimas, City of. 1991. *City of San Dimas General Plan.* San Dimas, CA. Adopted September.

Torrance, City of. 2010. *City of Torrance General Plan.* Torrance, CA. Adopted April 6.

Tustin, City of. 2013. *Tustin General Plan.* Tustin, CA. October 1.

Upland, City of. 2015. *City of Upland General Plan.* Upland, CA. Adopted September.

Yorba Linda, City of. 1993. *City of Yorba Linda General Plan.* Yorba Linda, CA. Prepared by The Planning Center. December 6.

7.2 Section 4.2, Agriculture and Forestry Resources

Anaheim, City of. 2004. *City of Anaheim General Plan.* Anaheim, CA. May 25.

California Department of Conservation (DOC). 2015a. *California Important Farmland Finder*. Available: http://maps.conservation.ca.gov/ciff/ciff.html. Accessed: May 4, 2016.

California Department of Conservation (DOC). 2015b. *Important Farmland Categories*. Available: http://www.conservation.ca.gov/dlrp/fmmp/mccu/Pages/map_categories.aspx. Accessed: May 4, 2016.

Hidden Hills, City of. 1995. *City of Hidden Hills General Plan.* Hidden Hills, CA. Adopted November 13.

Irvine, City of. 2012. *Year 2000 General Plan*. Supplement No. 8. Irvine, CA. June 8.

Lake Forest, City of. 2014. Figure LU-1 Land Use Map. *Lake Forest General Plan.* Lake Forest, CA. Updated April 4.

Los Angeles, City of. 2001. *Conservation Element of the City of Los Angeles General Plan*. September 26, 2001.

Orange, County of. 2014. *County of Orange General Plan*. July.

Stanton, City of. 2008. *City of Stanton General Plan*. Resolution No. 2008-36. Prepared by RBF Consulting. Stanton, CA. September 23.

Yorba Linda, City of. 1993. *City of Yorba Linda General Plan.* Yorba Linda, CA. Prepared by The Planning Center. December 6.

7.3 Section 4.3, Air Quality

California Air Pollution Control Officers Association (CAPCOA). 2013. *CalEEMod User's Guide*. Available: http://www.caleemod.com/.

California Air Resources Board (ARB). 1998. *The Report on Diesel Exhaust - As Adopted at the Panel's April 22, 1998 Meeting*. Available: http://www.arb.ca.gov/toxics/dieseltac/de-fnds.htm. Sacramento, CA.

California Air Resources Board (ARB). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.* October. Sacramento, CA.

California Air Resources Board (ARB). 2010. *California Air Toxics Program – Background.* Last Reviewed: April 22, 2010. Available: http://www.arb.ca.gov/toxics/background.htm. Accessed: June 3, 2016.

California Air Resources Board (ARB). 2011. EMFAC2011 web tool. Updated 2013. Available: http://www.arb.ca.gov/msei/modeling.htm.

California Air Resources Board (ARB). 2013a. Letter from Barry Wallerstein to James Goldstene Re: Submittal of Control Measure IND-01 in the 2012 Air Quality Management Plan. February 6. Available: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012-air-quality-management-plan/final-carb-epa-sip-dec2012/2012-aqmp-carb-epa-sip-submittal-carb-submittal-letter.pdf. Accessed: June 3, 2016.

California Air Resources Board (ARB). 2013b. Air Quality Standards and Area Designations. Available: http://www.arb.ca.gov/desig/desig.htm. Accessed: June 3, 2016.

California Air Resources Board (ARB). 2016a. Ambient Air Quality Standards. Available: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed; June 3, 2016.

California Air Resources Board (ARB). 2016b. *Top 4 Measurements and Days Above the Standard*. Available: http://www.arb.ca.gov/adam/welcome.html. Accessed: May 25, 2016.

South Coast Air Quality Management District (SCAQMD). 1993. *CEQA Air Quality Handbook*. November.

South Coast Air Quality Management District (SCAQMD). 2006. *Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology*. *Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds.* October. Available: http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html.

South Coast Air Quality Management District (SCAQMD). 2008. *Localized Significance Threshold Methodology for CEQA Evaluations*. Final. July.

South Coast Air Quality Management District (SCAQMD). 2012a. December 7. *Final 2012 Air Quality Management Plan.* Available: http://www.aqmd.gov/aqmp/2012aqmp/draft/index.html.

South Coast Air Quality Management District (SCAQMD). 2012b. *Lead State Implementation Plan for Los Angeles County*. May 4. Available: http://www.aqmd.gov/home/library/clean-air-plans/lead-state-implementation-plan.

U.S. Environmental Protection Agency (EPA). 2011. AP-42 Section 13.2.1 Paved Roads Fugitive Emissions. Available: https://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf. Accessed: June 3, 2016.

U.S. Environmental Protection Agency (EPA). 2016a. *Ozone Basics*. Last Updated: May 16, 2016. Available: https://www.epa.gov/ozone-pollution/ozone-basics#what where how. Accessed: June 3, 2016.

U.S. Environmental Protection Agency (EPA). 2016b. *Greenbook of Nonattainment Areas for Criteria Pollutants*. Available: http://www.epa.gov/oar/oaqps/greenbk.

7.4 Section 4.4, Biological Resources

Fontana, City of. 2004. *North Fontana Interim MSHCP Policy.* Prepared by Michael Brandman Associates. Fontana, CA. June.

Metropolitan Water District of Southern California (Metropolitan). 2015. *Draft Environmental Impact Report for the Robert B. Diemer Water Treatment Plant Upgrade Project.* SCH No. 2013101072. Metropolitan Report No. 1499. Volume 1. Prepared by AECOM. Los Angeles, CA. May.

U.S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report Y-87-1, Department of the Army Environmental Laboratory, U.S. Army Corps of Engineers Waterways Experiment Station, Wetlands Research Program, Vicksburg, MS.

U.S. Army Corps of Engineers (USACE). 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. Version 2.0. Wetlands Regulatory Assistance Program, Washington, D.C.

7.5 Section 4.5, Cultural Resources

American Water Works Association (AWWA). 1961. Installation of Concrete Water Pipe. *Committee Report for the American Water Works Association.* 53 (July): 877–906.

American Water Works Association (AWWA). 2008. Failure of Prestressed Concrete Cylinder Pipe. Prepared by the AWWA Research Foundation. Available: http://www.waterrf.org/PublicReportLibrary/91214.pdf. Accessed March 25, 2015.

Bean, L. J., and C. R. Smith. 1978. *Gabrielino.* In *Handbook of North American Indians, Vol. 8, California, R. F. Heizer (ed.), pp. 538-549*. Smithsonian Institution, Washington, DC.

Buena Park, City of. 2010. *Buena Park 2035 General Plan.* Buena Park, CA. December.

Calabasas, City of. 2015. *City of Calabasas 2030 General Plan.* Calabasas, CA. October.

California Geological Survey (CGS). 2002. California Geomorphic Provinces. *California Geologic Survey Note* 36. California Department of Conservation.

California Office of Historic Preservation (SHPO). 2015. California Historical Resources Inventory (MS Access Database). On file at ICF International.

Carson, City of. 2006. *Carson City Master Plan.* Carson, CA. Adopted April 6.

Cates, Walter H. 1971. History of Steel Water Pipe: Its Fabrication and Design Development. Available: https://www.steeltank.com/Portals/0/pubs/history%20of%20steel%20water%20pipe%20hi%20res.pdf. Accessed March 25, 2015.

Claremont, City of. 2009. *The City of Claremont General Plan.* Claremont, CA. Adopted November 14, 2006, Revised October 13, 2009.

Culver City. 1996. *Culver City General Plan Circulation Element.* Culver City, CA. Approved July 22.

Cypress, City of. 2001. *Cypress General Plan.* Cypress, CA.

Dibblee, T. W. Jr. 1989. *Geologic Map of the Los Angeles Quadrangle, Los Angeles County, California.* Dibblee Geology Center Map #DF-22.

Elkind, Sarah S. 1994. Industry and Water Distribution in California: The East Bay Municipal Utility District, 1920–1930. *Environmental History Review.* 18 (Winter): 63–88.

Erie, Stephen P. 2006. *Beyond Chinatown: The Metropolitan Water District, Growth, and the Environment in Southern California.* Stanford, California: Stanford University Press.

Fontana, City of. 2003. *City of Fontana General Plan.* Fontana, CA. Adopted October 21.

Gardena, City of. 2006. *Gardena General Plan 2006.* Gardena, CA.

Herbert, Ray. 1965. Water Bond Proposal Will Go on 1966 Ballot. *Los Angeles Times.* March 10:3.

Hinds, N. E. A. 1952. Evolution of the California Landscape. *California Division of Mines Bulletin* 158.

Hudson, T. and T. Blackburn. 1982. *The Material Culture of the Chumash Interaction Sphere*. Ballena Press, Los Altos, CA.

Irvine, City of. 2012. *Year 2000 General Plan*. Supplement No. 8. Irvine, CA. June 8.

Jahns, R. H. 1954. Geology of the Peninsular Ranges Province, Southern California and Baja California. Chapter 2, pages 29–52 in R. H. Jahns (ed.), *Geology of Southern California.* California Division Mines Bulletin 170.

JRP Historical Consulting (JRP). 2000. Water Conveyance Systems in California: Historic Context Development and Evaluation Procedures. December. Sacramento, California: JRP Historical Consulting and the California Department of Transportation.

Kahrl, William L. 1979. *The California Water Atlas.* Sacramento, California: Governor's Office of Planning and Research in cooperation with the California Department of Water Resources.

Kroeber, A. L. 1925. *Handbooks of the Indians of California*. California Book Company, Berkeley, CA.

La Verne, City of. 1999. *The City of La Verne General Plan.* La Verne, CA. Adopted December 7, 1998. First printing June 1999.

Lake Forest, City of. 1994. *Lake Forest General Plan.* Lake Forest, CA. June 21.

Long Beach, City of. 2010. *City of Long Beach, California 2030 General Plan – Historic Preservation Element.* Long Beach, CA. Adopted June 22.

Los Alamitos, City of. 2015. *Los Alamitos General Plan.* Prepared by PlaceWorks. Los Alamitos, CA. March.

Los Angeles County. 2015. *Los Angeles County General Plan.* Los Angeles, CA. Adopted October 6.

Los Angeles Times. 1966. Link in Water Feeder Line is 20% Complete. December 29: OC1.

Los Angeles Times. 1981. Clem M. McColloch, Water Pioneer, Dies: Pipeline Will Bear His Name in Honor of Long Efforts in County. March 2: Part II-6.

Los Angeles, City of. 1916. *Complete Report on Construction of the Los Angeles Aqueduct*. Los Angeles, California: City of Los Angeles Department of Public Service.

Los Angeles, City of. 2001. *Conservation Element of the City of Los Angeles General Plan*. September 26, 2001.

Los Angeles, City of. 2004. *Geotechnical Engineering Report, New Metro Jail Facility*. City of Los Angeles Department of Public Works, Bureau of Engineering. August 17.

McCawley, William. 1996. *The First Angelinos: The Gabrielino Indians of Los Angeles (2nd ed.).* Malki Museum/Ballona Press, Novato, CA.

McLeod, Samuel A. 2015a. Paleontological Resources for the proposed Allen-McColloch Pipeline of the Metropolitan Water District of Southern California PCCP Project. Letter Report from the Natural History Museum of Los Angeles County, 26 March 2015.

McLeod, Samuel A. 2015b. Paleontological Resources for the proposed Calabasas Feeder of the Metropolitan Water District of Southern California PCCP Project. Letter Report from the Natural History Museum of Los Angeles County, 27 March 2015.

McLeod, Samuel A. 2015c. Paleontological Resources for the proposed Rialto Pipeline of the Metropolitan Water District of Southern California PCCP Project. Letter Report from the Natural History Museum of Los Angeles County, 15 April 2015.

McLeod, Samuel A. 2015d. Paleontological Resources for the proposed Second Lower Feeder of the Metropolitan Water District of Southern California PCCP Project. Letter Report from the Natural History Museum of Los Angeles County, 8 April 2015.

McLeod, Samuel A. 2015e. Paleontological Resources for the proposed Sepulveda Feeder of the Metropolitan Water District of Southern California PCCP Project. Letter Report from the Natural History Museum of Los Angeles County, 22 April 2015.

Metropolitan Water District of Southern California (Metropolitan). 1939. *Metropolitan Water District of Southern California History and First Annual Report for the Period Ending June 30, 1938*. Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1940. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1938 to June 30, 1940.* Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1943. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1942 to June 30, 1943.* Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1966. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1965 to June 30, 1966.* Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1967. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1966 to June 30, 1967.* Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1968. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1967 to June 30, 1968.* Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1969. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1968 to June 30, 1969.* Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1970. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1969 to June 30, 1970.* Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1971. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1970 to June 30, 1971.* Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1973. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1972 to June 30, 1973.* Los Angeles, California: Metropolitan Water District of Southern California

Metropolitan Water District of Southern California (Metropolitan). 1974. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1973 to June 30, 1974.* Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1975. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1974 to June 30, 1975.* Los Angeles, California: Metropolitan Water District of Southern California.

Metropolitan Water District of Southern California (Metropolitan). 1981. *Metropolitan Water District of Southern California History and Second Annual Report for the Period July 1, 1980 to June 30, 1981.* Los Angeles, California: Metropolitan Water District of Southern California.

Miller, W. E. 1971. *Pleistocene Vertebrates of the Los Angeles Basin and Vicinity (exclusive of Rancho La Brea).* Bulletin of the Los Angeles County Museum of Natural History No. 10, 124 pp.

Mission Viejo, City of. *2013. General Plan, City of Mission Viejo.* Land Use Element, Circulation Element, and Conservation/Open Space Element. Mission Viejo, CA August 19.

Moratto, M. J. 1984. *California Archaeology*. Academic Press, Orlando.

Municipal Water District of Orange County (MWDOC). 2014. History of the Allen-McColloch Pipeline Relative to South Coast Water District. PowerPoint Presentation Prepared by MWDOC. June 14. Available: http://scwd.granicus.com/MetaViewer.php?view_id=3&clip_id=1316&meta_id=89099. Accessed April 8, 2015.

Orange, City of. 2010. *Orange General Plan.* Orange, CA. March.

Orange, County of. 2014. *County of Orange General Plan*. July.

Parker, P. L., and T. F. King. 1998. *National Register Bulletin—Guidelines for Evaluating and Documenting Traditional Cultural Properties*. Originally published 1990 (revised 1992), U.S. Department of the Interior, National Park Service, Washington, D.C.

Rancho Cucamonga, City of. 2010. *Rancho Cucamonga General Plan.* Rancho Cucamonga, CA, Adopted May 19.

Reid, Hugo. 1852. *Los Angeles County Indians. Los Angeles Star 1(41)- 2(11) 21 February-24 July.* Reprinted The Indians of Los Angeles County: Hugo Reid's Letters of 1852, edited and annotated by Robert F. Heizer. Southwest Museum, Los Angeles, 1968.

Rialto, City of. 2010. *Rialto General Plan.* Rialto, CA. December.

San Bernardino County. 2014. *County of San Bernardino 2007 General Plan.* Prepared by URS. Santa Ana, CA. Adopted March 13, 2007. Amended April 24, 2014.

San Bernardino, City of. 2005. *City of San Bernardino General Plan.* San Bernardino, CA. November 1.

San Dimas, City of. 1991. *City of San Dimas General Plan.* San Dimas, CA. Adopted September.

San Francisco Public Utilities Commission (SFPUC). 1935. *San Francisco Water and Power*. San Francisco, California: San Francisco Public Utilities Commission, City and County of San Francisco, California.

Schwartz, Joel. 1991. *A Water Odyssey: The Story of the Metropolitan Water District of Southern California.* Los Angeles, California: Metropolitan Water District of Southern California and Hiller Books and Binders.

Scott, E. and K. Springer. 2003. CEQA and Fossil Preservation in California. In *The Environmental Monitor.* Pp. 2-10. 187. Fall.

Shipley, W. F. 1978. Native Languages of California. In *Handbook of North American Indians.* Vol. 8, California. R. F. Heizer (ed.), pp. 80–90. Smithsonian Institution, Washington, DC.

Stanley, F. W., and Samuel Fortier. 1921. *The Use of Concrete Pipe in Irrigation*. U.S. Department of Agriculture Bulletin No. 906. March 23. Washington D.C.: Government Printing Office.

Starr, Kevin. 1990. *Material Dreams: Southern California through the 1920s*. New York, New York: Oxford University Press.

The Society of Vertebrate Paleontology. 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.*

Torrance, City of. 2010. *City of Torrance General Plan.* Torrance, CA. Adopted April 6.

Tustin, City of. 2013. *Tustin General Plan.* Tustin, CA. October 1.

U.S. Department of the Interior. 1999. *National Register Bulletin—Guidelines for Evaluating and Documenting Rural Historic Landscapes*. McClelland, Linda Flint and Timothy J. Keller, Genevieve F. Keller, and Robert Z. Melnick. Originally published 1989 (revised 1992), U.S. Department of the Interior, National Park Service, Washington, D.C.

Upland, City of. 2015. *City of Upland General Plan.* Upland, CA. Adopted September.

Van Boven, Alice. 1976. Mill Creek Zanja National Register Nomination Form (No. 77000329). Available: http://pdfhost.focus.nps.gov/docs/nrhp/text/77000329.PDF. Accessed April 20, 2015.

Yorba Linda, City of. 1993. *City of Yorba Linda General Plan.* Yorba Linda, CA. Prepared by The Planning Center. December 6.

7.6 Section 4.6, Geology and Soils

Anaheim, City of. 2004. *City of Anaheim General Plan.* Anaheim, CA. May 25.

Brea, City of. 2003. *The City of Brea General Plan*. Brea. CA. August.

Buena Park, City of. 2010. *Buena Park 2035 General Plan.* Buena Park, CA. December.

Calabasas, City of. 2015. *City of Calabasas 2030 General Plan.* Calabasas, CA. October.

Calabasas, City of. 2013. 2014–2021 *Housing Element Background Report*. Appendix C3 to the *City of Calabasas 2030 General Plan*. Calabasas, CA. September.

California Geological Survey. 2005. *Earthquake Zones of Required Investigation Yorba Linda Quadrangle.* Released August 11, 2005. Updated December 4, 2015. Available: http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps. Accessed: May 2, 2016.

Carson, City of. 2006. *Carson City Master Plan.* Carson, CA. Adopted April 6.

Claremont, City of. 2009. *The City of Claremont General Plan*. Adopted November 14, 2006. Revised October 13, 2009.

Culver City. 1996. *Culver City General Plan Circulation Element.* Culver City, CA. Approved July 22.

Cypress, City of. 2001. *City of Cypress General Plan*. Prepared by RBF Consulting for the City of Cypress. Cypress, CA. October.

Fontana, City of. 2003. *City of Fontana General Plan*. Fontana, CA. October.

Gardena, City of. 2006. *Gardena General Plan 2006*. Gardena, CA.

Hawaiian Gardens, City of. 2010. *City of Hawaiian Gardens General Plan.* Prepared by Hogle-Ireland. Irvine, CA. Adopted January 26.

Hawthorne, City of. 1989. *City of Hawthorne General Plan*. Hawthorne, CA. March.

Hidden Hills, City of. 1995. *City of Hidden Hills General Plan*. Hidden Hills, CA. Adopted November 13.

Inglewood, City of. 1995. *Inglewood General Plan*. Inglewood, CA. Adopted July.

Irvine, City of. 2012. *Year 2000 General Plan*. Supplement No. 8. Irvine, CA. June 8.

La Verne, City of. 1999. *The City of La Verne General Plan.* La Verne, CA. Adopted December 7, 1998. First printing June 1999.

Lake Forest, City of. 1994. *Lake Forest General Plan*. Lake Forest, CA. June 21.

Lakewood, City of. 1996. *The City of Lakewood Comprehensive General Plan.* Lakewood, CA. November.

Lomita, City of. 1998. *Lomita General Plan.* Lomita, CA. Adopted May 4.

Long Beach, City of. 1988. *City of Long Beach General Plan*, *Seismic Safety Element.* Long Beach, CA. October.

Los Alamitos, City of. 2015. *Los Alamitos General Plan.* Prepared by PlaceWorks. Los Alamitos, CA. March.

Los Angeles, City of. 1996. *Safety Element of the Los Angeles City General Plan*. Los Angeles, CA. November.

Los Angeles County. 2015. *Los Angeles County General Plan.* Los Angeles, CA. Adopted October 6.

Orange, City of. 2010. *Orange General Plan*. Orange, CA. March.

Placentia, City of. 1975. *City of Placentia General Plan Seismic Safety Element*. Placentia, CA. Adopted July 15.

Rancho Cucamonga, City of. 2010. *Rancho Cucamonga General Plan*. Rancho Cucamonga, CA, Adopted May 19.

Rancho Palos Verdes, City of. 1975. *General Plan*. Rancho Palos Verdes, CA. June.

Rialto, City of. 2010. *Rialto General Plan.* Rialto, CA. December.

Rolling Hills, City of. 1990. *City of Rolling Hills General Plan*. Rolling Hills, CA. June.

Rolling Hills Estates, City of. 1992. *City of Rolling Hills Estates General Plan 2020*. Rolling Hills Estates, CA.

San Bernardino, City of. 2005. *City of San Bernardino General Plan*. San Bernardino, CA. November 1.

San Dimas, City of. 1991. *City of San Dimas General Plan*. VII, Safety Element. San Dimas, CA. Adopted September.

Stanton, City of. 2008. *City of Stanton General Plan*. Resolution No. 2008-36. Prepared by RBF Consulting. Stanton, CA. September 23.

Torrance, City of. 2010. *City of Torrance General Plan*. Torrance, CA. Adopted April 6.

Tustin, City of. 2012. *Tustin General Plan Public Safety Element*. Tustin, CA. November.

Villa Park, City of. 2010. *City of Villa Park 2010 General Plan*. Villa Park, CA. October.

Yorba Linda, City of. 1993. *City of Yorba Linda General Plan.* Yorba Linda, CA. Prepared by The Planning Center. December 6.

San Bernardino County. 2014. *County of San Bernardino 2007 General Plan.* Prepared by URS. Santa Ana, CA. Adopted March 13, 2007. Amended April 24, 2014.

7.7 Section 4.7, Greenhouse Gas Emissions

California Air Resources Board (ARB). 2008. *Climate Change Scoping Plan*. December. Available: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf.

California Air Resources Board (ARB). 2013. *California Greenhouse Gas Inventory for 2000–2010 by Category, as Defined in the Scoping Plan.*

California Air Resources Board (ARB). 2014. *First Update to the AB 32 Scoping Plan*. Available: http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

California Air Resources Board (ARB). 2015. First Update to the AB 32 Scoping Plan. Last Reviewed: May 27, 2014. Available: http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

Blasing, T. J. 2014. Recent Greenhouse Gas Concentrations. DOI: 10.3334/CDIAC/atg.032. Updated February 2014.

California Energy Commission. 2006. *Our Changing Climate, Assessing the Risks to California, 2006 Biennial Report*. California Climate Change Center, California Energy Commission Staff Paper, Sacramento, CA. Report CEC-500-2006-077.

Intergovernmental Panel on Climate Change (IPCC). 2007. Introduction. B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer, eds., in Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007. pp. 97–115. Cambridge University Press. Cambridge, U.K. and New York, NY, USA. Available at: http://www.ipcc.ch/publications_and_data/ar4/wg3/en/contents.html.

Intergovernmental Panel on Climate Change (IPCC). 2013. *Climate Change 2013: The Physical Science Basis*. Available: http://www.ipcc.ch/report/ar5/wg1/.

Myhre, G., D. Shindell, F.-M. Bréon, W. Collins, J. Fuglestvedt, J. Huang, D. Koch, J.-F. Lamarque, D. Lee, B. Mendoza, T. Nakajima, A. Robock, G. Stephens, T. Takemura, and H. Zhang. 2013. Anthropogenic and Natural Radiative Forcing. Pages 659–740 in T. F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, and P. M. Midgley (eds.), *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.

National Oceanic and Atmospheric Administration. 2005. Greenhouse Gases: Frequently Asked Questions. Available: http://lwf.ncdc.noaa.gov/oa/climate/gases.html. Accessed: April 15, 2013.

South Coast Air Quality Management District (SCAQMD). 2008. 2008. Draft Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold. October. Southern California Association of Governments. 2012. *2012–2035 Regional Transportation Plan/ Sustainable Communities Strategy*. April.

Southern California Association of Governments (SCAG). 2012. 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy. Adopted April 4, 2012. Available: http://rtpscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf.

U.S. Environmental Protection Agency (EPA). 2015. U.S. Greenhouse Gas Inventory Report: 1990-2013. Available:http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html. April.

Williams, James H., DeBenedictis, Andrew, Ghanadan, Rebecca, Mahone, Amber, Moore, Jack, Morrow , William R III, Price, Snuller, and Margaret S. Torn. 2012. *The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity*. 2012. Science 06 Jan 2012: Vol 335, Issue 6064, pp. 53-59.

7.8 Section 4.8, Hazards and Hazardous Materials

Airport Land Use Commission (ALUC) of Orange County. 2015. *Agenda Item 1: ALUC Workshop II to Review Proposed Updates to the Airport Environs Land Use Plan (AELUP) for Joint Forces Training Base (JFTB), Los Alamitos.* Memorandum to ALUC Commissioners/Alternates from Kari A. Rigoni, Executive Officer. Costa Mesa, CA. January 16.

California Department of Forestry and Fire Protection (CAL FIRE). 2008. *Very High Fire Hazard Severity Zones in LRA, SW San Bernardino County, As Recommended by CAL FIRE.* Map. Sacramento, CA. November 13.

California Department of Forestry and Fire Protection (CAL FIRE). 2011a. *Very High Fire Hazard Severity Zones in LRA, Orange County, As Recommended by CAL FIRE.* Map. Sacramento, CA. October.

California Department of Forestry and Fire Protection (CAL FIRE). 2011b. *Very High Fire Hazard Severity Zones in LRA, Los Angeles County, As Recommended by CAL FIRE.* Map. Sacramento, CA. September.

Carson, City of. 2006. *Carson City Master Plan.* Carson, CA. Adopted April 6.

Hidden Hills, City of. 1995. *City of Hidden Hills General Plan.* Hidden Hills, CA. Adopted November 13.

Inglewood, City of. 1995. *Safety Element – Inglewood General Plan.* Inglewood, CA. Adopted July.

Lakewood, City of. 1996. *The City of Lakewood Comprehensive General Plan.* Lakewood, CA. November.

Lomita, City of. 1998. *Lomita General Plan.* Lomita, CA. Adopted May 4.

Los Angeles, City of. 1996. *Safety Element of the Los Angeles City General Plan.* Los Angeles, CA. Adopted November 26.

Los Angeles County Airport Land Use Commission (ALUC). 2004. *Los Angeles County Airport Land Use Plan.* Prepared by the Department of Regional Planning. Los Angeles, California. Adopted December 19, 1991. Revised December 1, 2004.

Mission Viejo, City of. 2009. *General Plan, City of Mission Viejo.* Public Safety Element. Mission Viejo, CA. February 2.

Orange, City of. 2010. *Orange General Plan.* Orange, CA. March.

Rolling Hills Estates, City of. 1992. *City of Rolling Hills Estates General Plan.* Rolling Hills Estates, CA.

San Bernardino County. 2014. *County of San Bernardino 2007 General Plan.* Prepared by URS. Santa Ana, CA. Adopted March 13, 2007. Amended April 24, 2014.

San Bernardino County Airport Land Use Commission (ALUC). 1991. *Final Comprehensive Land Use Plan: Rialto Municipal Airport.* San Bernardino, CA. January.

Tustin, City of. 2013. *Tustin General Plan.* Tustin, CA. October 1.

West Valley Planning Agency Airport Land Use Commission (ALUC). 1981. *Cable Airport Comprehensive Airport Land Use Plan.* San Bernardino, CA. Adopted December 9.

7.9 Section 4.9, Hydrology and Water Quality

California Department of Water Resources (DWR). 2004a. *California's Groundwater Bulletin 118, Coastal Plain of Los Angeles Groundwater Basin, Santa Monica Subbasin*. Available: http://www.water.ca.gov/groundwater/bulletin118/southcoast.cfm. Accessed: 05/23/16.

California Department of Water Resources (DWR). 2004b. *California's Groundwater Bulletin 118, Coastal Plain of Los Angeles County Groundwater Basin, West Coast Subbasin*. Available: http://www.water.ca.gov/groundwater/bulletin118/southcoast.cfm. Accessed: 05/23/16.

California Department of Water Resources (DWR). 2004c. *California's Groundwater Bulletin 118, Coastal Plain of Los Angeles County Groundwater Basin, Central Subbasin*. Available: http://www.water.ca.gov/groundwater/bulletin118/southcoast.cfm. Accessed: 05/23/16.

California Department of Water Resources (DWR). 2004d. *California's Groundwater Bulletin 118, San Fernando Valley Groundwater Basin.* Available: http://www.water.ca.gov/groundwater/bulletin118/southcoast.cfm. Accessed: 05/23/16.

California Department of Water Resources (DWR). 2004e. *California's Groundwater Bulletin 118, Coastal Plain of Orange County Groundwater Basin*. Available: http://www.water.ca.gov/groundwater/bulletin118/southcoast.cfm. Accessed: 05/23/16.

California Department of Water Resources (DWR). 2004f. *California's Groundwater Bulletin 118, Upper Santa Ana Valley Groundwater Basin, Chino Subbasin*. Available: http://www.water.ca.gov/groundwater/bulletin118/southcoast.cfm. Accessed: 05/23/16.

California Department of Water Resources (DWR). 2004g. *California's Groundwater Bulletin 118, Upper Santa Ana Valley Groundwater Basin, Cucamonga Subbasin*. Available: http://www.water.ca.gov/groundwater/bulletin118/southcoast.cfm. Accessed: 05/23/16.

California Department of Water Resources (DWR). 2004h. *California's Groundwater Bulletin 118, Upper Santa Ana Valley Groundwater Basin, Rialto-Colton Subbasin*. Available: http://www.water.ca.gov/groundwater/bulletin118/southcoast.cfm. Accessed: 05/23/16.

California Department of Water Resources (DWR). 2004i. *California's Groundwater Bulletin 118, Upper Santa Ana Valley Groundwater Basin, Bunker Hill Subbasin*. Available: http://www.water.ca.gov/groundwater/bulletin118/southcoast.cfm. Accessed: 05/23/16.

California Department of Water Resources (DWR). 2013. *Alluvial Groundwater Basins and Subbasins within the South Coast Hydrologic Region*. Available: http://www.water.ca.gov/groundwater/bulletin118/maps/SC.pdf. Accessed: 05/23/16.

Long Beach, City of. 2013. *Low Impact Development (LID) Best Management Practices (BMP) Design Manual*. Department of Development Services in collaboration with the Department of Public Works and the Office of Sustainability. Available: http://www.lbds.info/civica/filebank/blobdload.asp?BlobID=3855.

Los Angeles, City of. 2016. *Ballona Creek Watershed.* Available: http://www.lastormwater.org/about-us/about-watersheds/ballona-creek/. Accessed: 05/23/16.

Los Angeles County Department of Public Works (DPW). 2007a. *Ballona Creek and Other Urban Watersheds Map.* Available: http://ladpw.org/wmd/watershed/bc/docs/BallonaCreeketc_wtrshed.pdf. Accessed: 05/23/16.

Los Angeles County Department of Public Works (DPW). 2007b. *Dominguez Watershed Map.* Available: http://ladpw.org/wmd/watershed/dc/docs/DomingChanl&LAHarbor_wtrshed.pdf. Accessed: 05/23/16.

Los Angeles County Department of Public Works (DPW). 2007c. *Los Angeles River Map.* Available: http://ladpw.org/wmd/watershed/LA/docs/lariver_wtrshed.pdf. Accessed: 05/23/16.

Los Angeles County Department of Public Works (DPW). 2007d. *San Gabriel River Watershed Map.* Available: http://ladpw.org/wmd/watershed/sg/docs/SanGabrielRiver_wtrshed.pdf. Accessed: 05/23/16.

Los Angeles County Department of Public Works (DPW). 2016a. *Ballona Creek Watershed.* Available: http://ladpw.org/wmd/watershed/bc/index.cfm. Accessed: 05/23/16.

Los Angeles County Department of Public Works (DPW). 2016b. *Dominguez Watershed Current Conditions.* Available: http://ladpw.org/wmd/watershed/dc/current_cond.cfm. Accessed: 05/23/16.

Orange County Water District (OCWD). 2015a. *Groundwater Management Plan 2015 Update*. June 17, 2015. Available: http://www.ocwd.com/media/3503/groundwatermanagementplan2015update_20150624.pdf. Accessed: 05/23/16.

Orange County Water District (OCWD). 2015b. *Three-Layer Basin Model Extent*. November 2, 2015. Available: http://www.ocwd.com/media/3656/threelayerbasinmodelextent.pdf. Accessed: 05/23/16.

Orange County Public Works (OCPW). 2009a. *Aliso Creek Watershed Map*. September 30, 2009. Available: http://ocwatersheds.com/civicax/filebank/blobdload.aspx?BlobID=10000. Accessed: 05/23/16.

Orange County Public Works (OCPW). 2009b. *Newport Bay Watershed Map*. November 18, 2009. Available: http://ocwatersheds.com/civicax/filebank/blobdload.aspx?BlobID=10257. Accessed: 05/23/16.

Orange County Public Works (OCPW). 2009c. *San Juan Creek Watershed Map*. October 1, 2009. Available: http://ocwatersheds.com/civicax/filebank/blobdload.aspx?BlobID=10336. Accessed: 05/23/16.

Orange County Public Works (OCPW). 2009d. *Santa Ana River Watershed Map*. November 18, 2009. Available: http://ocwatersheds.com/civicax/filebank/blobdload.aspx?BlobID=10420. Accessed: 05/23/16.

Orange County Public Works (OCPW). 2011. *North Orange County Integrated Regional Watershed Management Plan*. February 2011. Available: http://ocwatersheds.com/programs/ourws/wmaareas/wmanorthoc. Accessed: 05/23/16.

San Bernardino County. 2010. *General Plan, Land Use Plan, Hazard Overlays – Dam Inundation and Flood Plain Safety, Cucamonga Peak; Mt. Baldy; Devore*.

San Bernardino County. 2015. *Areawide Stormwater Program.* Watershed Action Plan Appendix L San Bernardino County (Santa Ana Watershed Region) Subwatershed Fact Sheets, Revised January 8, 2015. Available:

http://www.waterboards.ca.gov/santaana/water_issues/programs/stormwater/docs/sbpermit/wap/WAP_Appendix_L.pdf. Accessed: 05/23/16

San Bernardino Valley Municipal Water District (SBVMWD). 2015. *Upper Santa Ana River Watershed Integrated Regional Water Management Plan*. January 2015. Available: http://www.sbvmwd.com/home/showdocument?id=1468. Accessed: 05/23/16.

Santa Ana Regional Water Quality Control Board (RWQCB). 2012. Staff Report – *Basin Plan Amendments- Revisions to Recreational Standards for Inland Fresh Surface Waters in the Santa Ana Region*. Available: http://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/docs/rec_standards/BPA_REC_Standards_Staff_Rpt_566.pdf. Accessed: 05/23/16.

State Water Resources Control Board (SWRCB). 2011. *2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report)—Statewide.* EPA approved: October 11, 2011. Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010state_ir_reports/category5_report.shtml. Accessed: 05/23/16.

State Water Resources Control Board (SWRCB). 2012. *Construction General Permit Order 2009-0009-DWQ*. Available:http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf. Accessed: 05/23/16.

7.10 Section 4.10, Land Use

Anaheim, City of. 2004. *City of Anaheim General Plan.* Anaheim, CA. May 25.

Buena Park, City of. 2010. *Buena Park 2035 General Plan*. Buena Park, CA. December.

Calabasas, City of. 2015. *City of Calabasas 2030 General Plan.* Calabasas, CA. October.

Carson, City of. 1982. *City of Carson General Plan.* Carson, CA.

Claremont, City of. 2009. *The City of Claremont General Plan.* Claremont, CA. Adopted November 14, 2006, Revised October 13, 2009.

Culver City, City of. 1995. *Culver City General Plan.* Culver City, CA. May.

Cypress, City of. 2001. *City of Cypress General Plan.* Cypress, CA.

Fontana, City of. 2003. *City of Fontana General Plan.* Fontana, CA. Adopted October 21.

Gardena, City of. 2013. *Land Use Plan: Gardena General Plan 2006.* Gardena, CA. Updated February.

Hawthorne, City of. 2016. *Land Use Element: City of Hawthorne General Plan.* Prepared by Cotton/Beland/Associates/Inc. Hawthorne, CA. Adopted April 1990. Last amended March 2016.

Hidden Hills, City of. 1995. *City of Hidden Hills General Plan.* Hidden Hills, CA. Adopted November 13.

Inglewood, City of. 2009. *Land Use Element.* Inglewood, CA. Adopted July 8.

Irvine, City of. 2012. *General Plan*. Supplement No. 8. Irvine, CA. June.

La Verne, City of. 1999. *The City of La Verne General Plan.* La Verne, CA. Adopted December 7, 1998. First printing June 1999.

Lake Forest, City of. 1994. *Lake Forest General Plan.* Lake Forest, CA. June 21.

Lakewood, City of. 1996. *Comprehensive General Plan*. Lakewood, CA. November.

Lomita, City of. 1998. *General Plan*. Lomita, CA. May 4.

Long Beach, City of. 1997. *Land Use Element of the Long Beach General Plan.* July 1, 1989. Revised and reprinted April 1997.

Los Alamitos, City of. 2015. *Los Alamitos General Plan.* Los Alamitos, CA. March

Los Angeles, City of. 2001. *The Citywide General Plan Framework: An Element of the City of Los Angeles General Plan.* Prepared for the City of Los Angeles Planning Department. Prepared by Evicom Corporation. Los Angeles, CA. Originally adopted December 11, 1996. Re-adopted August 8, 2001.

Los Angeles County. 2015. *Los Angeles County General Plan.* Los Angeles, CA. Adopted October 6.

Mission Viejo, City of. 2013. *General Plan, City of Mission Viejo.* Land Use Element, Circulation Element, and Conservation/Open Space Element. Mission Viejo, CA August 19.

Orange, City of. 2010. *Orange General Plan.* Orange, CA. March.

Orange County. 2014. *Orange County General Plan Land Use Element Map.* Land Use Element Amendment 14-01. Adopted July 22.

Placentia, City of. 1989. *Land Use Element for the City of Placentia General Plan.* Placentia, CA. May.

Rancho Cucamonga, City of. 2010. *Rancho Cucamonga General Plan.* Rancho Cucamonga, CA, Adopted May 19.

Rialto, City of. 2010. *Rialto General Plan.* Rialto, CA. December.

Rolling Hills Estates, City of. 1992. *City of Rolling Hills Estates General Plan.* Rolling Hills Estates, CA.

San Bernardino, City of. 2005. *City of San Bernardino General Plan.* San Bernardino, CA. November 1.

San Bernardino County. 2014. *County of San Bernardino 2007 General Plan.* Prepared by URS. Santa Ana, CA. Adopted March 13, 2007. Amended April 24, 2014.

San Dimas, City of. 2003. *City of San Dimas, California, General Plan Land Use Map.* San Dimas, CA. Last update August 14.

Torrance, City of. 2010. *City of Torrance General Plan.* Torrance, CA. April 6.

Tustin, City of. 2013. *Tustin General Plan.* Tustin, CA. October 1.

Upland, City of. 2015. *City of Upland General Plan.* Upland, CA. Adopted September.

Yorba Linda, City of. 1993. *City of Yorba Linda General Plan.* Yorba Linda, CA. Prepared by The Planning Center. December 6.

7.11 Section 4.11, Noise

Anaheim, City of. 2004. *City of Anaheim General Plan.* Anaheim, CA. May 25.

Buena Park, City of. 2015. *Buena Park Municipal Code.* Chapter 8.28, Noise. Available: http://qcode.us/codes/buenapark/view.php?topic=88_28&showAll=1&frames=on. Accessed January 5, 2016.

Calabasas, City of. *2015*. *Calabasas City, CA Code of Ordinances.* Section 17.20.160 – Noise. Available: https://www.municode.com/library/ca/city_of_calabasas/codes/code_of_ordinances?nodeId=TIT17LAUSDE_ARTIIISIPLPRDEST_CH17.20GEPRDEUSST_17.20.100FEWAHE#!. Accessed January 2, 2016.

Carson, City of. 2015. *City of Carson Municipal Code.* Chapter 5, Noise Control Ordinance. Available: http://www.codepublishing.com/CA/Carson/html/Carson05/Carson050500.html. Accessed January 5, 2016.

Claremont, City of. 2005. *Claremont, CA Code of Ordinances.* Chapter 16.154, Environmental Protective Standards. Claremont, CA. August.

Claremont, City of. 2009. *The City of Claremont General Plan.* Claremont, CA. Adopted November 14, 2006, Revised October 13, 2009.

Culver City. 2015. *Culver City Municipal Code.* Chapter 9.07, Noise Regulations. Available: http://www.amlegal.com/alpscripts/get-content.aspx. Accessed January 2, 2016.

Cypress, City of. 1976. *Cypress Municipal Code.* Article VII, Noise Control. Cypress, CA. February 23.

Fontana, City of. 2007. *Fontana, CA Code of Ordinances.* Article II, Noise. Fontana, CA. September 11.

Gardena, City of. 2006. *Gardena, California Municipal Code.* Chapter 8.36, Noise. Gardena, CA.

Hidden Hills, City of. 1994. *Hidden Hills Municipal Code.* Title 3, Public Health and Sanitation. Hidden Hills, CA.

Inglewood, City of. 1985. *Inglewood Municipal Code.* Article 2: Noise Regulations. Inglewood, CA. November 26.

Irvine, City of. 2012a. *Year 2000 General Plan*. Supplement No. 8. Irvine, CA. June 8.

Irvine, City of. 2012b. *City of Irvine CEQA Manual.* Volume 2: Technical Guidelines. Final. May.

Irvine, City of. 2014. *Irvine, California Code of Ordinances.* Chapter 2, Noise. Available: https://www.municode.com/library/ca/irvine/codes/code_of_ordinances?nodeId=TIT6PUWO_DIV8PO_CH2NO#!. Accessed December 30, 2015.

La Verne, City of. 1999. *The City of La Verne General Plan.* La Verne, CA. Adopted December 7, 1998. First printing June 1999.

La Verne, City of. 2015. *La Verne Municipal Code.* Chapter 8.20: Noise Control. Available: http://qcode.us/codes/laverne/view.php?topic=8-8_20&showAll=1&frames=on. Accessed January 2, 2016.

Lake Forest, City of. 1994. *Lake Forest General Plan.* Lake Forest, CA. June 21.

Lake Forest, City of. 2014. *Lake Forest Municipal Code.* Chapter 11.16: Noise Control. Available: http://qcode.us/codes/lakeforest/view.php?topic=11ii11_16&showAll=1&frames=on. Accessed December 30, 2015.

Lakewood, City of. 1999. *City of Lakewood Municipal Code.* Chapter 08.36.010, Noise Control. Lakewood, CA.

Lomita, City of. 2000. *Lomita, CA Code of Ordinances.* Article 3, Neighborhood Sound and Yard Maintenance Controls. Lomita, CA. July 10.

Long Beach, City of. 1977. *Long Beach, CA Municipal Code.* Chapter 8.80, Noise. Long Beach, CA.

Los Alamitos, City of. 2006. *Los Alamitos Municipal Code.* Chapter 17.24, Noise. Los Alamitos, CA.

Los Angeles County. 1978. *Los Angeles County, California Code of Ordinances.* Section 12.08.440, Construction Noise. Los Angeles, CA.

Los Angeles, City of. 2006. *L.A. City Thresholds Guide.* Los Angeles, CA.

Los Angeles, City of. 2015. *Los Angeles Municipal Code*. Chapter IV: Public Welfare. Available: http://www.amlegal.com/alpscripts/getcontent.aspx. Accessed January 6, 2016.

Mission Viejo, City of. 2009. *Noise Element, City of Mission Viejo.* Mission Viejo, CA. February 2.

Mission Viejo, City of. 2014. *Mission Viejo, CA Code of Ordinances.* Chapter 9.22, Noise Standards. Available: https://www.municode.com/library/ca/mission_viejo/codes/code_of_ordinances?nodeId=MUCO_TIT9LAUSZOSURE_CH9.22NOST_S9.22.005PU#!. Accessed December 29, 2015.

Orange County. 1975. *Orange County, California Code of Ordinances.* Section 4-6-7, Special Provisions. Santa Ana, CA. October 1.

Orange, City of. 2010. *Orange General Plan.* Orange, CA. March.

Orange, City of. 2014. *Orange, CA Code of Ordinances.* Chapter 8.24. Noise Control. Available: https://www.municode.com/library/ca/orange/codes/code_of_ordinances?nodeId=TIT8HESA_CH8.24NOCO#!. Accessed December 30, 2015.

Placentia, City of. 2015. *Placentia Municipal Code.* Chapter 23.76, Noise Control. Available: http://qcode.us/codes/placentia/view.php?topic=2323_76&showAll=1&frames=on. Accessed January 5, 2016.

Rancho Cucamonga, City of. 2012. *Rancho Cucamonga, CA Code of Ordinances.* Section 17.66.050. Noise Standards. August 1.

Rialto, City of. 2008. *Rialto, CA Code of Ordinances.* Chapter 9.50, Noise Control. Rialto, CA.

Rolling Hills Estates, City of. 1997. *Rolling Hills Estates, CA Code of Ordinances.* Chapter 8.32, Noise. Rolling Hills Estates, CA.

San Bernardino County. 2007. *San Bernardino County, CA Code of Ordinances.* Division 3: Countywide Development Standards. San Bernardino, CA.

San Bernardino, City of. 2009. *San Bernardino Municipal Code.* Title 8, Health and Safety. San Bernardino, CA. October 7.

San Dimas, City of. 1987. *San Dimas Municipal Code.* Chapter 8.36, Noise Ordinance. San Dimas, CA.

Torrance, City of. 2015. *Torrance, CA Municipal Code.* Chapter 6, Noise Regulation. Available: http://www.codepublishing.com/CA/Torrance/html/Torrance04/Torrance0406.html. Accessed January 2, 2016.

Tustin, City of. 2015. *Tustin, CA Code of Ordinances.* Chapter 6. Noise Control. Available: https://www.municode.com/library/ca/tustin/codes/code_of_ordinances?nodeId=ART4HESA_CH6NOCO#!. Accessed January 2, 2016.

Upland, City of. 2015. *City of Upland General Plan.* Upland, CA. Adopted September.

Yorba Linda, City of. 2015. *Yorba Linda, CA Code of Ordinances.* Article 1, Noise Standards. Available: https://www.municode.com/library/ca/yorba_linda/codes/code_of_ordinances?nodeId=TIT8HESA_CH8.32NOCO_ARTINOST_8.32.050NOZODE. Accessed January 2, 2016.

7.12 Section 4.12, Recreation

California, State of. 2016. *Public Park Preservation Act of 1971*. Public Resources Code Section 5400-5409. Available: http://www.leginfo.ca.gov/cgi-bin/displaycode?section=prc&group=05001-06000&file=5400-5409. Accessed May 19, 2016.

7.13 Section 4.13, Transportation and Traffic

Airport Land Use Commission (ALUC) of Orange County. 2015. *Agenda Item 1: ALUC Workshop II to Review Proposed Updates to the Airport Environs Land Use Plan (AELUP) for Joint Forces Training Base (JFTB), Los Alamitos.* Memorandum to ALUC Commissioners/Alternates from Kari A. Rigoni, Executive Officer. Costa Mesa, CA. January 16.

Carson, City of. 2006. *Carson City Master Plan.* Carson, CA. Adopted April 6.

Hidden Hills, City of. 1995. *City of Hidden Hills General Plan.* Hidden Hills, CA. Adopted November 13.

Inglewood, City of. 1995. *Safety Element – Inglewood General Plan.* Inglewood, CA. Adopted July.

Lakewood, City of. 1996. *The City of Lakewood Comprehensive General Plan.* Lakewood, CA. November.

Lomita, City of. 1998. *Lomita General Plan.* Lomita, CA. Adopted May 4.

Los Angeles County Airport Land Use Commission (ALUC). 2004. *Los Angeles County Airport Land Use Plan.* Prepared by the Department of Regional Planning. Los Angeles, California. Adopted December 19, 1991. Revised December 1, 2004.

Los Angeles, City of. 1996. *Safety Element of the Los Angeles City General Plan.* Los Angeles, CA. Adopted November 26.

Los Angeles, City of. 1996. *Safety Element of the Los Angeles City General Plan.* Los Angeles, CA. Adopted November 26.

Mission Viejo, City of. 2009. *Mission Viejo General Plan Public Safety Element*. Mission Viejo, CA. February 2.

Orange, City of. 2010. *Orange General Plan.* Orange, CA. March.

Rolling Hills Estates, City of. 1992. *City of Rolling Hills Estates General Plan 2020.* Rolling Hills Estates, CA.

San Bernardino County Airport Land Use Commission (ALUC). 1991. *Final Comprehensive Land Use Plan: Rialto Municipal Airport.* San Bernardino, CA. January.

San Bernardino County. 2014. *County of San Bernardino 2007 General Plan.* Prepared by URS. Santa Ana, CA. Adopted March 13, 2007. Amended April 24, 2014.

Tustin, City of. 2013. *Tustin General Plan.* Tustin, CA. October 1.

West Valley Planning Agency Airport Land Use Commission (ALUC). 1981. *Cable Airport Comprehensive Airport Land Use Plan.* San Bernardino, CA. Adopted December 9.

7.14 Section 4.14, Utilities and Service Systems

Belmond, Sylvia. 2013. Yaroslavsky steps in, halts landfill expansion. *The Acorn*. Community. P. 18. Online edition: July 18, 2013. Available: http://acorn.our-hometown.com/news/2013-07-18/Community/Yaroslavsky_steps_in_halts_landfill_expansion.html. Accessed: May 20, 2016.

California Department of Health Services (California DHS). 2003. *Guidance Memo No. 2003-02: Guidance Criteria for the Separation of Water Mains and Non-Potable Pipelines.* Memorandum from David P. Spath, Ph.D., Chief, Drinking Water and Environmental Management. Sacramento, CA. April 14, 2003. Revised Date: October 16, 2003.

California Department of Resources Recycling and Recovery (CalRecycle). 2016a. *Facility/Site Summary Details: Olinda Alpha Sanitary Landfill (30-AB-0035)*. Available: http://www.calrecycle.ca.gov/SWFacilities/Directory/30-AB-0035/Detail. Accessed: May 20, 2016.

California Department of Resources Recycling and Recovery (CalRecycle). 2016b. *Facility/Site Summary Details: Burbank Landfill Site No. 3 (19-AA-0040)*. Available: http://www.calrecycle.ca.gov/SWFacilities/Directory/19-AA-0052/Detail/. Accessed: May 20, 2016.

California Department of Resources Recycling and Recovery (CalRecycle). 2016c. *Facility/Site Summary Details: Chiquita Canyon Sanitary Landfill Site (19-AA-0052)*. Available: http://www.calrecycle.ca.gov/SWFacilities/Directory/19-AA-0040/Detail/. Accessed: May 20, 2016.

California Department of Resources Recycling and Recovery (CalRecycle). 2016d. *Facility/Site Summary Details: Sunshine Canyon City/County Landfill Site (19-AA-2000)*. Available: http://www.calrecycle.ca.gov/SWFacilities/Directory/19-AA-2000/Detail/. Accessed: May 20, 2016.

California Department of Resources Recycling and Recovery (CalRecycle). 2016e. *Facility/Site Summary Details: California Street Landfill (36-AA-0017)*. Available: http://www.calrecycle.ca.gov/SWFacilities/Directory/36-AA-0017/Detail/. Accessed: May 20, 2016.

California Department of Resources Recycling and Recovery (CalRecycle). 2016f. *Facility/Site Summary Details: Mid-Valley Sanitary Landfill (36-AA-0055)*. Available: http://www.calrecycle.ca.gov/SWFacilities/Directory/36-AA-0055/Detail/. Accessed: May 20, 2016.

Californians Against Waste. 2016. *California Recycling Laws.* Available: http://www.cawrecycle.org/facts_and_stats/california_recycling_laws. Accessed: May 20, 2016.

DigAlert. 2016. *California State Law.* Available: https://www.digalert.org/calaw07.html. Accessed: May 20, 2016.

OC Waste & Recycling. 2016a. *Frank R. Bowerman Landfill.* Available: http://oclandfills.com/landfill/active/bowerman. Accessed: May 20, 2016.

OC Waste & Recycling. 2016b. *Prima Deshecha Landfill.* Available: http://oclandfills.com/landfill/active/deshecha. Accessed: May 20, 2016.

U.S. Environmental Protection Agency (EPA). 2016. *Summary of the Resource Conservation and Recovery Act.* Available: https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act. Accessed: May 20, 2016.

U.S. Government Printing Office (USGPO). 2016. *40 Code of Federal Regulations Part 256 – Guidelines for Development and Implementation of State Solid Waste Management Plans.* Available:<https://www.gpo.gov/fdsys/pkg/CFR-2002-title40-vol21/pdf/CFR-2002-title40-vol21-part256.pdf. Accessed: May 20, 2016.

7.15 Section 4.15, Energy Conservation

California Energy Commission. 2014. 2014 Integrated Energy Policy Report. Available: http://www.energy.ca.gov/2014publications/CEC-100-2014-001/CEC-100-2014-001-CMF.pdf. Accessed: July 5, 2016.

Metropolitan Water District of Southern California. 2010. *Board Action: Adoption of Energy Management Policies.* August 17, 2010 Board Meeting. Available: < http://edmsidm.mwdh2o.com/idmweb/cache/MWD%20EDMS/003718957-1.pdf >. Accessed: August 20, 2016.

Metropolitan Water District of Southern California (Metropolitan). 2016. *2015 Urban Water Management Plan.*

Chapter 8
List of Preparers

8.1 Metropolitan Water District of Southern California

Arleen Arita

Ray DeWinter

Michelle Morrison

Hans Vandenberg

Tiffany White

8.2 ICF

Donna McCormick	Senior Project Manager
Nicole Williams	Project Manager
Rusty Whisman	Deputy Project Manager/Air Quality Specialist
Tanya Jones	Environmental Planner
Malia Bassett	Environmental Planner
Liane Chen	Environmental Planner
Andrew Johnson	Environmental Planner
Lesa Erecius	Environmental Planner
Paul Schwartz	Biologist
Kimberly Boydstun	Biologist
Zackry West	Biologist
Mark Robinson	Senior Archaeologist
Richard Starzak	Senior Architectural Historian
Timothy Yates	Architectural Historian
Jonathan Higginson	Senior Noise Specialist

Mario Barrera	Hazardous Materials Specialist
Keith Cooper	Senior Air Quality Specialist
Laura Rocha	Water Quality Specialist
David Duncan	GIS Specialist
Elizabeth Irvin	Editor
Jenelle Mountain-Castro	Editor/Publication Specialist

8.3 Minagar & Associates, Inc.

Fred Minagar	Traffic Engineer

Chapter 9
Responses to Comments

9.1 Comments Received on Draft PEIR

State Water Resources Control Board

November 7, 2016

Mr. Hans Vandenberg
The Metropolitan Water District of Southern California
Environmental Planning Team
P.O. Box 54143 Los Angeles, California 90054-0153

Dear Mr. Vandenberg

INFORMAL COMMENTS ON THE DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED PRESTRESSED CONCRETE CYLINDER PIPE REHABILITATION PROGRAM, STATE CLEARINGHOUSE NO. 2014121055

State Water Resources Control Board (State Water Board) staff received the Metropolitan Water District of Southern California (Metropolitan Water District) Draft Program Environmental Impact Report (DPEIR) for the Concrete Cylinder Pipe Rehabilitation Program (Project) on September 6, 2016. I recognize the DPEIR comment period closed but the Metropolitan Water District may find these comments useful while preparing any related WQC application materials.

The proposed Project entails rehabilitating approximately 100 miles of five existing subsurface water delivery pipelines by either relining existing pipe with steel or replacing existing pipe with new welded steel pipe. The size and scope of the DEIR does not allow a comprehensive review of all details in the time provided. Therefore, this review covers general topics of concern that need to be addressed in order for Water Board staff to evaluate project impacts to waters of the state.

1

The Water Boards expect that for any project subject to their permitting authority, every effort will be made to avoid and minimize impacts to all waters of the state to the maximum extent practicable, and to ensure no net loss of any waters or their beneficial uses. State Water Board staff will work with the project proponents and other regulatory agencies to ensure that this goal is met by ensuring project activities are protective of beneficial uses. Although we recognize the importance of this Project, it has the potential to adversely impact water quality and beneficial uses during construction as well as over the life of the Project.

California law protects all waters of the state. All surface waters and groundwater are considered waters of the state, which include, but are not limited to, aquifers, drainages, streams, washes, ponds, pools, wetlands, concrete-lined channels and flood control channels.

In order for Water Board staff to fully evaluate all potential project impacts to water quality and hydrology we request a full delineation of surface water resources be performed. Many small, ephemeral drainages that are not represented as blue-line features on topographic maps and

1 cont. lack riparian vegetation may still be considered waters of the State and thus can be subject to Water Board jurisdiction. Metropolitan Water District must clearly identify all surface water resources within the Project area and evaluate the Project's potential impacts on these resources, both on site and off site, upstream and downstream.

2 In the event that unavoidable impacts occur, mitigation for the loss of area or beneficial use function mitigation shall be provided. Project impacts may all be temporary, but it should be noted that the Water Board requires on-site in-kind mitigation for all temporary impacts. In addition, the DEIR does not discuss any compensatory mitigation options. Temporary impacts not restored to pre-project condition within a specified amount of time (most typically one-year) result in a temporal loss. Impacts resulting in a temporal loss and permanent impacts must be offset through compensatory mitigation. The Metropolitan Water District may want to prepare a description of on-site temporary impact mitigation activities, and, if anticipated, a description of mitigation for temporal loss or permanent impacts.

We encourage you describe how the project would affect beneficial uses. The Hydrology and Water Quality Section narrative description of Water Board beneficial uses is noted, but we ask the Metropolitan Water District list all beneficial uses impacted by Project activities and how those beneficial uses would be protected. Water Board Basin Plan Hydrologic Units are available online. You may also contact Water Board staff to request an ArcMap layer that geographically links beneficial uses to water features.

3 The Project falls within the jurisdiction of two Regional Water Boards, the Los Angeles Regional Water Board and the Santa Ana Regional Water Board. Since the Project spans more than one water quality control region, the State Water Board's Division of Water Quality is responsible for permitting activities that excavate or dredge in state waters or that add fill material to state waters. For those activities, the State Water Board issues a Clean Water Act 401 water quality certification, if the project proponent obtains a CWQS Section 404 permit from the United States Army Corps of Engineers; otherwise, a waste discharge requirement (WDR) would be issued. In addition, the State Water Board issues storm water construction permits for dischargers whose projects disturb more one or more acres of soil or whose projects disturbs less than one acre but are part of a larger common plan of development that in total disturbs one or more acres. Permits verify that project activities comply with water quality standards.

Efficient certification requires early coordination between all agencies and the Metropolitan Water District. We ask that the Metropolitan Water District contact us to schedule a pre-application consultation during which we will discuss project specific potential compensatory mitigation requirements and State Water Board certification procedures. Ideally, staff from the California Department of Fish and Wildlife and the United States Army Corps of Engineers will be present at this pre-application consultation.

4 Additionally, the State Water Board is proposing Procedures for Discharges of Dredged or Fill Material to Waters of the State (proposed Procedures), for inclusion in the Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The proposed Procedures consist of three major elements: 1) a statewide wetland area definition; 2) wetland delineation procedures; and 3) Procedures for the regulation of dredged or fill discharges to waters of the state. Future Project certifications or WDRs may be subject to requirements of the proposed Procedures depending on how certification application timing aligns with adoption of the proposed Procedures.

Thank you for your time. Water Board staff will work with the Metropolitan Water District to address these comments during our certification application process to ensure impacts to water quality and beneficial uses of water are avoided and minimized to the greatest practicable extent.

If you have any questions regarding this letter, please contact me at (916) 322-7789 (jean.bandura@waterboards.ca.gov) or Bill Orme, 401 Program Manager, at (916) 341-5464 (bill.orme@waterboards.ca.gov).

Sincerely,

Jean Bandura

9.2 Responses to Comments

9.2.1 Response to Comment 1

Comment noted. Metropolitan Water District of Southern California (Metropolitan) will work with State Water Board staff to avoid, minimize and/or mitigate impacts, as necessary if rehabilitation projects have the potential to adversely impact waters of the state.

The proposed Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program would include a series of rehabilitation projects, implemented incrementally over time. Construction may occur within or near impervious concrete channels, natural channels or streams, and natural land (hillsides and undeveloped areas), however most construction would generally take place in existing public rights-of-way, ensuring impacts on hydrology and water quality, including waters of the state, are minimized. Further analysis of future rehabilitation projects would include an evaluation of affected surface water resources. Additionally, as discussed in the Draft PEIR, Section 4.9.5.1, Threshold WQ-A, *Violate Any Water Quality Standards or Waste Discharge Requirements*, construction of each of the proposed projects will require individual construction discharge permits. In addition, as outlined in the hydrology and water quality analysis, Section 4.9.4.2, *Methodology,* Metropolitan would require all contractors to comply with all applicable regulations, including Municipal and Construction General Permits for all proposed projects in the PCCP Rehabilitation Program. Further, MM HYD-1, Implementation of a Grading and Drainage Plan, requires the implementation of grading and drainage plans developed in coordination with the city and/or county in which the project will be located. Because the work zone would be restored to existing conditions upon project completion, the Draft PEIR determined that impacts would be less than significant.

Water resources were also addressed in Section 4.2.5.1, Threshold BIO-C, *Have a Substantial Adverse Effect on Federally Protected Wetlands, as Defined by Section 404 of the Clean Water Act, through Direct Removal, Filling, Hydrological Interruptions, or Other Means.* The potential for the project to result in significant impacts to water resources was identified in the Draft PEIR, and mitigation was included to protect these resources (MM BIO-5, Adverse Impacts on Wetlands). This mitigation requires that pre-construction surveys be conducted at the project level, that any resource within 100 feet of ground disturbance be mapped and flagged for avoidance, and that other measures are taken to protect these surface water resources, including obtaining permits, if required. MM BIO-5, Adverse Impacts to Wetlands, has been revised to specifically include coordination with affected agencies and application for appropriate regulatory permits, if required.

9.2.2 Response to Comment 2

Comment noted. When the locations of ground-disturbing activities for future rehabilitation projects are known, Metropolitan will describe whether, and if so, how each project may affect beneficial uses and how such uses could be protected. Metropolitan will work with State Water Board staff, as necessary, if rehabilitation projects have the potential to adversely impact waters of the state to avoid, minimize and/or mitigate such impacts.

9.2.3 Response to Comment 3

Comment noted. The PCCP Rehabilitation Program falls within the jurisdiction of two Regional Water Boards, the Los Angeles Regional Water Board and the Santa Ana Regional Water Board. Where an individual rehabilitation project falls within the jurisdiction of two Regional Water Quality Control Boards and the project has the potential to adversely impact waters of the state, Metropolitan will coordinate with the State Water Board and other appropriate regulatory agencies to discuss any compensatory measures that may be applicable and necessary. It is anticipated, however, that individual projects would not span more than one Regional Water Board jurisdiction. Therefore, when a project has the potential to adversely affect waters of the state and falls within only one Regional Water Board jurisdiction, Metropolitan will work with the appropriate Regional Water Quality Board for that project.

9.2.4 Response to Comment 4

Comment noted. Metropolitan will comply with any new requirements that may be adopted during the course of implementing the PCCP Rehabilitation Program that may be applicable for individual project-level rehabilitation projects.

Appendix A
Notice of Preparation/Initial Study Checklist

Notice of Preparation/Initial Study Checklist

FOR THE

PRE-STRESSED CONCRETE CYLINDER PIPE REHABILITATION PROGRAM AND SECOND LOWER FEEDER REHABILITATION PROJECT

The Metropolitan Water District of Southern California
Environmental Planning Team
700 N. Alameda Street
Los Angeles, California 90012

MAILING ADDRESS:
P.O. Box 54153
Los Angeles, California 90054-0153

E-MAIL ADDRESS:
EPT@mwdh2o.com

Metropolitan Report No. 1481
December 2014

This page intentionally left blank.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

AMP	Allen-McColloch Pipeline
Basin	South Coast Air Basin
CEQA	California Environmental Quality Act
Cfs	cubic feet per second
CNDDB	California Natural Diversity Database
CO	carbon monoxide
EIR	environmental impact report
Farmland	Farmland of Statewide Importance
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
GHG	greenhouse gas
I-	Interstate
Metropolitan	Metropolitan Water District of Southern California
MS4	Municipal Separate Storm Sewer System
NCCP	Natural Community Conservation Plan
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
PCCP	Pre-Stressed Concrete Cylinder Pipe
PM10	particulate matter less than 10 microns in size
PM2.5	particulate matter less than 2.5 microns in size
proposed program	Pre-Stressed Concrete Cylinder Pipe Rehabilitation Program
proposed project	Second Lower Feeder Rehabilitation Project
RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SEA	Significant Ecological Area
SLF	Second Lower Feeder
SR-	State Route
SWPPP	Stormwater Pollution Prevention Plan
USFWS	U.S. Fish and Wildlife Service

This page intentionally left blank.

ENVIRONMENTAL CHECKLIST FORM

PROGRAM AND PROJECT DESCRIPTION

1. Title

Pre-Stressed Concrete Cylinder Pipe Rehabilitation Program and Second Lower Feeder Rehabilitation Project

2. Lead Agency Name and Address

The Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, California 90012

Mailing Address:
P.O. Box 54153
Los Angeles, California 90054-0153

3. Contact Person and E-mail

Diane Doesserich, Environmental Specialist
EPT@mwdh2o.com

4. Location

Allen-McColloch Pipeline (AMP), Calabasas Feeder, Rialto Pipeline, and Sepulveda Feeder (proposed program)

The proposed Pre-Stressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (proposed program) would rehabilitate subsurface water distribution pipelines (also known as feeders[1]), which are located primarily in Metropolitan Water District of Southern California (Metropolitan) owned rights-of-way and existing public roads. The pipelines that would be rehabilitated extend through the following cities and counties:

Allen-McColloch Pipeline (AMP)

- Anaheim
- Lake Forest
- Irvine
- Mission Viejo
- Orange
- Tustin
- Yorba Linda

Calabasas Feeder

- Calabasas
- Hidden Hills
- Los Angeles

[1] A feeder and a pipeline are equivalent. Unless referring to the formal name, pipeline will be used throughout this document.

Rialto Pipeline

- Claremont
- Fontana
- La Verne
- Rancho Cucamonga
- Rialto
- San Bernardino
- San Dimas
- Upland
- Unincorporated San Bernardino County

Sepulveda Feeder

- Culver City
- Gardena
- Hawthorne
- Inglewood
- Los Angeles
- Torrance

Second Lower Feeder (proposed project)

The proposed Second Lower Feeder (SLF) Rehabilitation Project (proposed project) would rehabilitate approximately 30 miles of PCCP within the existing 40 miles of the SLF. The SLF is located primarily in Metropolitan owned rights-of-way and public roads, and it extends through the following cities and counties:

Second Lower Feeder

- Anaheim
- Buena Park
- Carson
- Cypress
- Lakewood
- Lomita
- Long Beach
- Los Alamitos
- Los Angeles
- Placentia
- Rolling Hills Estates
- Torrance
- Yorba Linda
- Unincorporated Los Angeles County
- Unincorporated Orange County

Figures 1a through 1f shows the regional vicinity of the proposed program and the proposed project. Figures 2a through 2c and 3a through 3c show the local vicinity of the proposed project. Table 1 summarizes the locations of the various pipelines that would be rehabilitated under the proposed program and project.

5. Sponsor's Name and Address

The Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, California 90012

6. General Plan Land Use Designations

As noted in Section 4, the proposed program and proposed project extend through numerous cities and counties. Because these pipelines are located primarily within Metropolitan owned rights-of-way and public roads, the general plan land use designations are typically related to Public Services, Utilities, or Open Space. However, the general plan land use designations also include, but are not limited to, General Commercial, Residential, Limited Manufacturing, Business Park, Recreation, and Public Facilities. It should be noted that California Government Code Section 53091 exempts Metropolitan, as a regional public water purveyor and utility, from local zoning and building ordinances. Despite this exemption from local land use planning jurisdiction, for purposes of full disclosure of potential program and project impacts on the environment, this EIR evaluates the program and the project's compatibility with relevant general plan policies.

Table 1. Summary of Five Pipeline Characteristics and Their Locations

Feeder	Construction Year	Total Length (miles)	Length of PCCP (miles)	Starting Location	Terminus Location	Counties	Cities
Allen-McColloch Pipeline (AMP)	1970	26	9	Diemer Water Treatment Plant's Finished Water Reservoir, City of Yorba Linda	El Toro Water District's El Toro Reservoir, City of Mission Viejo	Orange	Anaheim, Irvine, Lake Forest, Mission Viejo, Orange, Tustin, and Yorba Linda
Calabasas Feeder	1975	9.3	9.3	West Valley Feeder No. 2, City of Los Angeles	Las Virgenes Municipal Water District's Service Connection, City of Calabasas	Los Angeles	Calabasas, Hidden Hills, and Los Angeles
Rialto Pipeline	1970	30	16	California Department of Water Resources' Devil Canyon Facility, City of San Bernardino	San Dimas Power Plant Control Structure, City of San Dimas	Los Angeles, San Bernardino	Claremont, Fontana, La Verne, Rancho Cucamonga, Rialto, San Bernardino, San Dimas, and Upland
Sepulveda Feeder	1970	42	37	Joseph Jensen Water Treatment Plant, City of Los Angeles	SLF Interconnection, City of Torrance	Los Angeles	Culver City, Gardena, Hawthorne, Inglewood, Los Angeles, and Torrance
Second Lower Feeder (SLF)	1966	39	30	Diemer Water Treatment Plant, City of Yorba Linda	Palos Verdes Reservoir, City of Rolling Hills Estates	Orange, Los Angeles	Anaheim, Buena Park, Carson, Cypress, Lakewood, Lomita, Long Beach, Los Alamitos, Los Angeles, Placentia, Rolling Hills Estates, Torrance, and Yorba Linda

7. Zoning

As noted in Section 4, the proposed program and project pipelines extend through numerous cities and counties. Because these pipelines are located primarily within Metropolitan owned rights-of-way and public roads, the zoning designations are typically related to Public Services, Utilities, or Open Space. However, the zoning designations also include, but are not limited to, Commercial Recreation, Residential (various densities), Light Manufacturing, Public Facilities, and Office.

8. Introduction of the Proposed Program and Project Descriptions

Metropolitan is proposing to rehabilitate the PCCP portions of the following five pipelines:

- AMP
- Calabasas Feeder
- Rialto Pipeline
- SLF
- Sepulveda Feeder

The first pipeline to be rehabilitated by Metropolitan would be the SLF under the proposed project, followed by the remaining four pipelines under the proposed program over a period of approximately 15 to 20 years. Metropolitan will prepare a joint program-level/project-level environmental impact report (EIR) for the proposed program and the proposed project to analyze environmental impacts resulting from rehabilitation activities. Section 9 describes proposed program components and rehabilitation activities applicable to all pipelines, and Section 10 provides information regarding proposed project components and rehabilitation activities for the SLF.

9. Description of Proposed Program

Proposed Program Background

Metropolitan was formed in 1928 under an enabling act of the California legislature. Metropolitan includes 26 cities and water districts (member agencies) that provide drinking water to approximately 18.4 million people in parts of Los Angeles, Orange, San Bernardino, Riverside, San Diego, and Ventura counties. Metropolitan's mission is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible manner.

Metropolitan has more than 830 miles of pipelines that distribute drinking water to its member agencies. The pipelines are made of various materials, including PCCP. Between 1962 and 1985, 163 miles of PCCP was installed throughout the service area. PCCP lines range from 42 to 201 inches in diameter; the majority of which are 78 inches in diameter or larger. Under certain subsurface conditions, PCCP lines have an elevated risk of failure compared with other types of pipe. PCCP failures can occur without warning. Such failures can be catastrophic, compromising system reliability and resulting in unplanned major repairs, significant costs from service interruptions and repair work, and potential third-party damages. In response to this risk, in 1999, Metropolitan developed a program to inspect and assess all 163 miles of PCCP within its distribution system. In 2011, Metropolitan initiated a comprehensive program of inspections to evaluate and rank PCCP lines with the highest risk of failure. The data indicate that the following five pipelines represent the

highest risk: AMP, Calabasas Feeder, Rialto Pipeline, Sepulveda Feeder, and the SLF. Under the proposed program, Metropolitan proposes to rehabilitate the PCCP portions of these five pipelines. Rehabilitation would occur along approximately 70 miles of the AMP, Calabasas Feeder, Rialto Pipeline, and Sepulveda Feeder and approximately 30 miles of the SLF (described further in Section 10, Description of Project, below). The first pipeline to be rehabilitated by Metropolitan would be the SLF, under the proposed project, followed by the remaining four pipelines (AMP, Calabasas Feeder, Rialto Pipeline, and Sepulveda Feeder), under the proposed program, over 15 to 20 years. The sequence of rehabilitation is subject change.

The characteristics and locations of the five pipelines are described above in Table 1.

Program Objectives

The proposed program is designed to maintain the reliability of Metropolitan's distribution system. The proposed program would minimize risks associated with failures by proactively rehabilitating each portion of PCCP, starting with the pipes that show the greatest risk of failure. This would help Metropolitan avoid possible unplanned system outages, thereby increasing service reliability for all customers within Metropolitan's service area.

The objectives of the proposed program are to:

- Improve system reliability by minimizing the likelihood of PCCP failure.
- Reduce the higher costs of emergency repairs.
- Reduce unplanned outages.

The following sections describe the various components, rehabilitation activities, construction equipment, and timing and phasing of the proposed program, including the proposed project, if applicable. Further details regarding the proposed project are provided in Section 10.

Program Components

The proposed program consists primarily of pipeline rehabilitation. For pipelines the term "rehabilitation" is used to describe either relining of the pipe or installation of supplemental or relocated lines. For valves and appurtenant structures, the term "rehabilitation" is used to describe either refurbishment or replacement. Rehabilitation of valves and appurtenances, such as isolation valves, blow-off valves, air-release and vacuum valves, manholes, and meters, may be required along with rehabilitation of the pipelines. All of these components, as they relate to the proposed program and the proposed project, are described below.

<u>Rehabilitation of PCCP</u>

The proposed program would consist primarily of rehabilitating the PCCP portions of the pipelines by lining them with steel. This is known as "slip line" construction. New liner segments, approximately 20 feet long, would be inserted into existing PCCP pipelines by cutting into the existing pipelines, moving the new liner segments into position to reline the PCCP sections, and welding together the new liner segments. The cut sections of the PCCP would be encased in concrete after the new liner segments are welded together.

In some cases, it may be necessary to relocate existing PCCP with welded steel pipe in lieu of using steel liners to rehabilitate the PCCP. Portions of the PCCP would be left in place and new steel

pipeline segments would be used. Relocation would involve excavating an open trench along the length of the existing pipeline or in an appropriate location in the vicinity of the existing pipeline, placing bedding for the new pipe to sit upon, and installing the new pipe. The dimensions of the open trench and the amount of soil that would be excavated would correspond to the depth and diameter of the new pipe, which would typically be between 54 and 96 inches (or approximately 6 and 8 feet), similar to the diameters of the existing pipelines. If shored, the open trench would generally be a few feet wider than the diameter of the pipe. If open-cut, the trench may be several times wider than the diameter of the pipeline, depending on the depth of the line and soil conditions. Metropolitan's lines are usually installed to a depth of at least 10 feet below existing grade. After installation the pipe trench is backfilled and the surface is restored.

Rehabilitation of Isolation Valves and Appurtenant Structures

Isolation valves are located subsurface and are used to divide the pipelines into more easily managed sections and separate one part of the pipeline from another. These valves allow Metropolitan to shut off water flow in various sections of the pipelines and drain the water from the section when needed so the pipeline can be accessed for interior work. Under the proposed program, Metropolitan would either refurbish or replace the existing isolation valves along the five pipelines. Refurbishing or replacing isolation valves would require excavation for removal and reinstallation of the valves. In some locations new isolation valves would be added to provide continued water supply to its member agencies. New valves would require construction of new subsurface vaults to house the valves.

Appurtenant structures installed along a pipeline, such as air-release and vacuum valves, blow-offs, meters, and access manholes, release pressure from the pipeline and allow the pipeline to be dewatered and accessed. Some of the appurtenant structures located along the five pipelines may need rehabilitation. Rehabilitation could occur during the slip-lining process or new pipe installation. However, when necessary, appurtenance rehabilitation could also be separate and independent in location and time from slip-line or new pipe installation.

Proposed Program Work Description

The proposed program would include planned rehabilitation of all PCCP sections and any necessary appurtenance rehabilitation along the five pipelines, including the SLF (described in Section 10, Description of Proposed Project). Rehabilitation would include site preparation and excavation, including staging; PCCP isolation, bulkhead construction (if needed), dewatering, and demolition; relining of the pipeline (in some areas, supplemental or replacement pipelines would be required) and replacement or refurbishment of isolation valves and appurtenant structures; and reactivation of the rehabilitated PCCP line and site restoration. Information regarding these activities is provided in subsections A through D below.

Most of the rehabilitation would be located in urban areas, within Metropolitan owned rights-of-way and public roads. Metropolitan would coordinate with local agencies and the surrounding communities prior to and during rehabilitation activities. As part of the proposed program, Metropolitan would also coordinate with member agencies prior to and during rehabilitation activities, thereby reducing the potential for a service interruption during rehabilitation activities. Minor protection and/or relocation work for existing utilities may be needed in some locations to provide an adequate work area for rehabilitation activities. Metropolitan would work with utility owners to coordinate such activity.

A. Site Preparation and Excavation

Site preparation and excavation would include preparing the excavation sites, work zones, and staging areas, as well as implementing traffic management plans for directing traffic during rehabilitation. Excavation sites along a pipeline would be approximately 1,500 to 2,000 feet apart. These sites would allow access to the pipeline and insertion of the new steel liner. An opening would be excavated and shored. The depth of the excavation site would be equal to the depth of the PCCP or appurtenant structure, with the top of the pipe or structure usually about 10 feet from the ground surface. Staging areas for storing and staging construction equipment and materials would be established either adjacent or close to the work zones. Traffic control measures would remain in place during the subsequent work activities until site restoration is complete.

B. PCCP Isolation and Dewatering

Each section of PCCP where work would be performed would be taken out of service through a dewatering process to provide access to the pipeline's interior and ensure safe working conditions. This process would be initiated by closing existing isolation or service connection valves. Once a pipeline section is isolated (i.e., all connection points are fully closed), dewatering would take place. If needed, temporary bulkheads may be installed within the existing pipe to allow certain portions of the line to be returned to service during the rehabilitation to allow deliveries to member agency service connections.

C. PCCP Relining

To reline an existing section of PCCP, a section of the pipe would first be cut out and removed to provide access to the remainder of the pipe where rehabilitation would occur. Next, equipment would be placed such that new collapsible steel liners could be lowered down into the excavation site and then inserted into the existing PCCP line. After all liner sections have been installed, pipe connections would be restored.

D. Pipeline Reactivation and Site Completion

Contractor materials and equipment would then be removed, and the pipe would be cleaned and disinfected. Upon confirmation that the pipe has passed pressure testing and disinfection testing, Metropolitan would restore service to customers. The excavation site would be backfilled and compacted, and the ground surface would be restored. Previously excavated materials would be used for backfill, where appropriate. Excess materials would be hauled off site. Work zones and staging areas would be restored to pre-existing conditions. Traffic control measures would be removed after site restoration activities are complete.

Proposed Program Construction Equipment

Rehabilitation would require a combination of different types and quantities of construction equipment. The expected types of construction equipment include, but are not limited to, welding trucks, water trucks, low-bed trailers, dump trucks, excavators, loaders, generators, tractors, cranes, concrete delivery trucks, graders, and construction workers' vehicles.

Proposed Program Phasing

Work on all five pipelines is anticipated to occur over a period of approximately 15 to 20 years, beginning with the SLF in 2016 and extending through the early 2030s. Construction on some sections of the five pipelines and between pipelines would most likely occur concurrently.

The phasing and duration of work at each pipeline would depend on the length of the individual PCCP line being rehabilitated. Each pipeline would be divided into sections that would be hydraulically isolated to allow for rehabilitation activities. The length of PCCP to be rehabilitated would vary and would depend on the distance between isolation valves and bulkheads along the pipeline. Actual pipeline rehabilitation sequencing would be based on factors such as system operations, water supply availability, and member agency demands. Rehabilitation of some sections may be performed concurrently. Construction work within each section would be expected to take a minimum of 2 to 3.5 months up to a maximum of 9 months.

Operation of Pipelines

There would be no change between baseline operation of the distribution system and operation of the distribution system under the proposed program. The proposed program would increase the reliability and service life of the various PCCP lines and appurtenant structures. The proposed program would not result in the installation or operation of new pipelines and thus would not expand the existing water supply distribution system.

10. Description of Proposed Project: Second Lower Feeder

All proposed program components, rehabilitation activities, equipment, and phasing described above under Section 9, Description of Proposed Program, are applicable to the proposed project. Additional information about the proposed project is provided below.

Proposed Project Background

As described in Table 1, the SLF, which was constructed in the late 1960s, is approximately 39 miles long, with approximately 30 miles of PCCP. The eastern end of SLF begins at the Diemer Water Treatment Plant in the city of Yorba Linda. The SLF traverses many local governmental jurisdictions and ends at the Palos Verdes Reservoir in the city of Rolling Hills Estates on the western end. It is located in both Los Angeles and Orange counties. The SLF crosses beneath the following major freeways and transportation corridors, from east to west: Imperial Highway, the Alameda Corridor rail lines, Burlington Northern Santa Fe Railway, Metrolink, Interstate (I-) 605, Long Beach Municipal Airport, the Los Angeles County Metropolitan Transportation Authority's Blue Line, I-710, I-405, I-110, the Union Pacific Railroad, and Western Avenue. The pipeline extends primarily through an urbanized area that includes flood control channels, numerous underground utility lines, natural gas lines, and oil lines. Figures 2a through 2c and 3a through 3c show the local vicinity of the SLF. Table 2 summarizes the general surrounding land uses and local jurisdictions through which the SLF traverses and expected locations of work areas along the pipeline.

Table 2. Summary of Proposed Project Locations

Section Number	Pipeline Station Numbers	Approximate Length (feet)	Surrounding Land Uses and Location(s)	Rehabilitation Locations[1]
1	1724+40 to 1859+80	13,540	• Predominately residential • Cities of Los Angeles and Carson	• 11 proposed work areas • 8 staging areas
2	1589+40 to 1724+40	13,500	• Predominately residential • City of Carson	• 9 proposed work areas • 3 staging areas
3	1417+27 to 1589+40	17,213	• Industrial, residential, and commercial uses • Cities of Long Beach and Carson	• 9 proposed work areas • 3 staging areas
4	1174+77 to 1269+65	10,800	• Predominately residential • Unincorporated Los Angeles County • City of Long Beach	• 7 proposed work areas • 2 staging areas
	1859+80 to 1865+41		• Predominately residential • Cities of Torrance and Los Angeles	• 2 proposed work areas • 1 staging area
5	1865+41 to 1902+95	11,378	• Predominantly residential • Cities of Los Angeles and Torrance	• 11 proposed work areas • 5 staging areas
	2040+60 to 2116+84		• Predominantly residential • Cities of Lomita and Rolling Hills Estates	
6	1902+95 to 2040+60	13,765	• Predominantly residential • Cities of Lomita, Torrance, and Los Angeles	• 11 proposed work areas • 4 staging areas

Section Number	Pipeline Station Numbers	Approximate Length (feet)	Surrounding Land Uses and Location(s)	Rehabilitation Locations[1]
7	1269+65 to 1409+45	13,980	• Predominately industrial, with some residential and commercial uses • City of Long Beach	• 8 proposed work areas • 1 staging area
8	1409+45 to 1475+25	782	• Predominately industrial, with some residential and commercial uses • Cities of Long Beach and Lakewood	• 2 proposed work areas • 1 staging area
9	824+75 to 975+19	15,044	• Residential, with some commercial uses • Cities of Anaheim, Buena Park, and Cypress	• 13 proposed work areas • 5 staging areas
10	1065+60 to 1174+77	10,917	• Predominately single-family residential, with a few commercial uses • Cities of Cypress, Los Alamitos and Long Beach	• 8 proposed work areas • 11 staging areas
11	975+19 to 1065+60	9,041	• Predominately single-family residential, with a few commercial uses • City of Cypress	• 4 proposed work areas • 3 staging areas
12	56+18 to 291+72	23,554	• Primarily residential • Unincorporated area of Orange County • Cities of Yorba Linda and Placentia	• 23 proposed work areas • 11 staging areas
13	291+72 to 342+40	5,068	• Primarily residential • Unincorporated area of Orange County • Cities of Placentia and Anaheim	• 6 proposed work areas • 4 staging areas

[1] This is a conservative estimate of the number of rehabilitation locations; some rehabilitation locations may be shared between or included in multiple sections.

The SLF pipeline has inside diameters ranging from 78 to 84 inches and operates at pressures of up to 340 pounds per square inch. The SLF, which has interconnections to six other Metropolitan pipelines, supplies water to the Central Pool portion of Metropolitan's distribution system as well as the cities of Long Beach, Los Angeles, and Torrance; the Central Basin Municipal Water District; and the Municipal Water District of Orange County. The SLF PCCP sections were identified by Metropolitan as having the highest risk of reduced service life expectancy and are therefore proposed for rehabilitation first. The objectives for the proposed project are the same as those described above for the proposed program (Section 9).

Proposed Project Rehabilitation Activities

The rehabilitation of the PCCP lines of the SLF is divided into 13 sections. Using this approach, Metropolitan would be able to ensure few and infrequent interruptions in the water supply to member agencies while it rehabilitates the pipeline. Table 2 summarizes the sections, pipeline station numbers within the sections, surrounding land uses and locations, and rehabilitation activities expected within each section. Figures 4a through 4f show the different pipeline sections and general locations of where rehabilitation activities would occur. The number of rehabilitation activities described in the table is conservative and most likely over-estimates the number of activities actually performed during rehabilitation. These activities are based on conceptual designs. The actual number of rehabilitation activities would be refined and most likely reduced during final design using the considerations described in the Proposed Project Phasing section, below. Some rehabilitation activities may be shared between sections.

In addition to rehabilitation of the PCCP and appurtenant structures along the PCCP portions of the SLF, Metropolitan would rehabilitate or replace some appurtenant equipment structures and vaults along existing steel-lined sections of the SLF.

Proposed Project Construction Equipment

The construction equipment for the proposed program described above in Section 9 would be the same as that needed for the proposed project.

Proposed Project Phasing

Phasing for the proposed project would be similar to the phasing for the proposed program (as described in Section 9). Design and rehabilitation of the SLF would generally occur first and the design and rehabilitation of the other pipelines in the proposed program occurring at later dates.

Metropolitan's phasing for the proposed project would involve numerous considerations, however, sections with significant lengths and without service connections would be prioritized over those that would require more involved efforts (i.e., installing temporary bulkheads or isolation points to maintain the water supply). Additionally, rehabilitation would be scheduled during months with low water demand (i.e., late fall, winter, early spring).

Final prioritization of phasing for rehabilitation activities would consider:

- Completing all work in an individual city or community within one section and within the shortest timeframe feasible.
- Coordinating with cities to avoid conflicts with other public improvement projects, moratoriums, community events, and seasonal events as well as local business disruptions.
- Coordinating with member agencies to determine the length of any required outage to their service connections.

Table 3 summarizes the sections of the pipeline and estimated rehabilitation start and end years. The start of rehabilitation includes procurement and prefabrication of the steel liners off site.

Table 3. Summary of Estimated Section Rehabilitation (Years)

Section(s)	Estimated Start*	Estimated End
1	2016	2017
2	2017	2018
3	2018	2019
4	2019	2020
5-12	2020	2033
*includes offsite pre-manufacturing		

Operation of Pipelines

Similar to the operation of the distribution system under the proposed program as described in Section 9 above, there would be no change between baseline operating conditions and conditions under the proposed project. The SLF would continue to provide water to member agency jurisdictions in the service area.

11. Proposed Program and Project Surrounding Land Uses and Setting

The proposed program is located in urban and rural settings within Orange, Los Angeles, and San Bernardino counties. The proposed project is located in a primarily urban setting in Orange and Los Angeles counties. The pipelines and appurtenant structures are primarily subsurface. Land uses include residential, commercial, and industrial uses (e.g., businesses, restaurants, manufacturing); institutional uses (e.g., schools, churches); public facilities and services (e.g., fire stations, police stations, airports, libraries); and recreational and open space areas (e.g., conservation areas, developed parks, undeveloped parks). A general description of the surrounding land uses relevant to the proposed project is provided in Table 2, above (Section 10).

12. Other Public Agencies Whose Approval Is Required (e.g., permits, financial approval, or participation agreement)

Permits or approvals that could be required include the following:

- California Air Resources Board portable equipment registration and/or South Coast Air Quality Management District permit to operate for construction equipment.
- California Department of Transportation, Districts 7 and 12 encroachment permits.
- California Division of Occupational Safety and Health Tunnel Safety Order compliance.

- Utility construction permits and traffic control plans from the Cities of Anaheim, Buena Park, Calabasas, Carson, Claremont, Culver City, Cypress, Fontana, Gardena, Hawthorne, Hidden Hills, Inglewood, Irvine, Lakewood, La Verne, Lomita, Long Beach, Los Alamitos, Los Angeles, Mission Viejo, Orange, Placentia, Rancho Cucamonga, Rialto, Rolling Hills Estates, San Bernardino, San Dimas, Torrance, Tustin, Upland, and Yorba Linda and the Counties of Los Angeles, Orange, and San Bernardino.
- Conformance with applicable State Water Resources Control Board National Pollutant Discharge Elimination System (NPDES) and/or Municipal Separate Storm Sewer System (MS4) requirements.
- Review and approval by Long Beach Airport and Federal Aviation Administration.
- Orange County Flood Control District and Los Angeles County Flood Control District permits.

This page intentionally left blank.

PURPOSE OF THE INITIAL STUDY

Metropolitan will prepare an EIR for the proposed program and project. Because the need for an EIR has already been determined, the purpose of this initial study checklist is to help focus the draft EIR and provide information that will allow a meaningful comment on the anticipated scope of the draft EIR. Specifically, this initial study is intended to (1) inform responsible agencies and the public of the nature of the proposed program and project, as well as the locations; (2) identify impacts that would clearly be less than significant or have "no impact" and therefore would not be discussed further in the draft EIR; and (3) provide a general description of the topics that are intended to be addressed in the draft EIR.

This initial study is separated into an evaluation of the proposed program (AMP, Calabasas, Rialto, and Sepulveda) and an evaluation of the proposed project (Second Lower Feeder). These evaluations determined that there would be "no impact" or "less than significant impact" on some of the environmental impact categories examined as a result of the rehabilitation of the proposed program and project; therefore, those impacts will not be further addressed in the draft EIR.

Proposed Program: AMP, Calabasas, Rialto, Sepulveda

Table 4 below identifies the environmental resources proposed to be addressed in the draft EIR for the proposed program. The checked box identifies which potentially significantly impacts were identified that will be addressed in the draft EIR.

Table 4. Program-Level Environmental Factors Potentially Affected

☒ Aesthetics	☒ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology and Soils
☒ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials	☒ Hydrology and Water Quality
☒ Land Use and Planning	☐ Mineral Resources	☒ Noise
☐ Population and Housing	☐ Public Services	☒ Recreation
☒ Transportation and Traffic	☒ Utilities and Service Systems	☒ Mandatory Findings of Significance

Proposed Project: Second Lower Feeder

Table 5 below identifies the environmental impacts to be addressed in the draft EIR for the proposed project. The checked boxes identify which potentially significant impacts were identified that will be addressed in the draft EIR.

Table 5. Project-Level Environmental Factors Potentially Affected

☒ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology and Soils
☒ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials	☒ Hydrology and Water Quality
☒ Land Use and Planning	☐ Mineral Resources	☒ Noise
☐ Population and Housing	☐ Public Services	☒ Recreation
☒ Transportation and Traffic	☐ Utilities and Service Systems	☒ Mandatory Findings of Significance

Organization of the Initial Study

This initial study uses a modified version of the checklist set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. It indicates whether an environmental impact category will be analyzed in the draft EIR or will not require further analysis. The “No Additional Analysis Required” box is checked for the environmental impact categories that would not have an environmental effect or would have a less-than-significant effect as a result of the proposed program. For these topics, no additional analysis beyond that provided in this initial study is warranted or required. The “Impact to be Analyzed in the EIR” box is checked for all categories that require further analysis or study.

The initial study first evaluates the proposed program and then the proposed project. For the proposed program analysis, analysis is presented for only the initial study checklist topics for which no additional analysis is required. All of the remaining topics will be analyzed in the draft EIR. For the proposed project analysis, all of the issues in the initial study checklist are analyzed and a determination is made as to whether additional analysis is required in the draft EIR.

DETERMINATION (To Be Completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed program and project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION would be prepared.

☐ I find that although the proposed program and project could have a significant effect on the environment, there would not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION would be prepared.

☒ I find that the proposed program and project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed program and project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed program and project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed program and project, nothing further is required.

	December 17, 2014
Signature	**Date**
Deirdre West, Manager, Environmental Planning Team	The Metropolitan Water District of Southern California
Printed Name	**For**

EVALUATION OF PROGRAM-RELATED ENVIRONMENTAL IMPACTS

INTRODUCTION

Under the proposed program, Metropolitan proposes to rehabilitate the PCCP portions of four pipelines. Rehabilitation would occur along approximately 70 miles of the AMP, Calabasas Feeder, Rialto Pipeline, and Sepulveda Feeder (see Section 9, Description of the Proposed Program, for additional details). This section of the initial study checklist evaluates the potential environmental impacts related to the proposed program.

Each impact category has several specific questions. This evaluation determined that the proposed program would have "no impact" or a "less-than-significant impact" on some categories or questions within the category. These categories and questions are evaluated in this section, therefore, further analysis of these topics is not required in the draft EIR. All other categories and questions will be analyzed in the draft EIR and are listed below. The categories identified below will be addressed in the draft EIR. Topics in parenthesis are the remaining impacts to be further analyzed.

I. Aesthetics

II. Agriculture (convert farmland, conflict with agricultural designations)

III. Air quality

IV. Biological resources

V. Cultural resources

VI. Geology and soils (exposure to earthquake faults, seismic ground shaking, seismically related ground failure/liquefaction, and landslides; soil erosion; unstable soils; expansive soils; landslides and mudflow)

VII. Greenhouse gas emissions

VIII. Hazards and hazardous materials

IX. Hydrology and water quality (water quality/wastewater discharge, drainage patterns and runoff,)

X. Land use and planning

XII. Noise

XV. Recreation

XVI. Transportation and traffic (including fire and police emergency response and access and parking)

XVII. Utilities and service systems

Operating conditions of the four pipelines following rehabilitation would be identical to baseline conditions. The pipelines are currently not visible or otherwise noticeable aboveground, except for some appurtenant structures. Vegetation and paving materials removed during rehabilitation would be replaced in kind prior to the completion of rehabilitation. Therefore, there would be no change between baseline conditions and conditions under operation of the four pipelines following rehabilitation. Impacts on resources resulting from operation of the pipelines would not occur and will not be further addressed in either this evaluation or the draft EIR.

II. AGRICULTURE AND FOREST RESOURCES

Would the proposed program:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☒

No Impact. According to California Department of Conservation data, no portions of the proposed program alignments are within areas under Williamson Act contract (California Department of Conservation 2013). PCCP portions of AMP within the city of Irvine occur within areas that are currently used for agricultural purposes and are zoned Preservation, which allows for agricultural uses. Given that rehabilitation activities would not change existing zoning, the proposed program would not conflict with zoning for agricultural use (City of Irvine 2013). No further analysis is required in the draft EIR.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined by Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 551104(g))?	☐	☒

Less-than-Significant Impact. The proposed program would rehabilitate existing pipelines. These existing pipelines are located primarily in Metropolitan owned rights-of-way or public roads. There are no designated forest lands along the pipeline alignment (California Department of Conservation 2010; U.S. Forest Service 2014). Therefore, the proposed uses would not conflict with zoning. No further analysis is required in the draft EIR.

d. Result in the loss of forestland or conversion of forest land to non-forest use?	☐	☒

Less-than-Significant Impact. The proposed program would rehabilitate existing pipelines that are located primarily in Metropolitan owned rights-of-way and public roads. There are no designated forest lands along the pipeline alignment. No further analysis is required in the draft EIR.

VI. GEOLOGY AND SOILS

Would the proposed program:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☒

No Impact. The proposed program would not include septic systems. No further analysis is required in the draft EIR.

IX. HYDROLOGY AND WATER QUALITY

Would the proposed program:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☒

Less-than-Significant Impact. The proposed program involves the rehabilitation of existing water conveyance pipelines. No changes to water usage or supply would occur as a result of the proposed program as demand would remain unchanged. The proposed program would not result in increased use or extraction of groundwater, and there would be no associated impacts on groundwater supplies, aquifer volumes, or groundwater tables. In the unlikely event that shallow groundwater is encountered during rehabilitation activities, temporary dewatering efforts would be minimal and short-term. Based on the temporary nature and limited extent of such potential dewatering activities, no associated impacts related to the drawdown or depletion of local groundwater resources would occur. The proposed program would entail relining the existing pipelines and would not result in the construction of substantial new impervious surfaces such as pavement. Accordingly, the proposed program would not result in impacts related to the reduction of local or regional infiltration and associated groundwater recharge capacity. Therefore, impacts would be less than significant. No further analysis is required in the draft EIR.

g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☒

No Impact. The proposed program does not include the construction of any housing, and no impacts related to the placement of housing in a floodplain would result. No further analysis is required in the draft EIR.

h. Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☒

Less-than-Significant Impact. The proposed program would rehabilitate an existing pipeline. The ground surface would be returned to its existing condition following the completion of rehabilitation. There would be no structures aboveground that would impede or redirect flood flows. No further analysis is required in the draft EIR.

i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☒

Less-than-Significant Impact. According to Figure 12.4 of the Los Angeles County Draft General Plan, the Sepulveda Feeder alignment coincides with the dam and reservoir inundation areas of the Van Norman, Encino, and Stone Canyon reservoirs (County of Los Angeles 2014a). The Rialto Pipeline coincides with the San Antonio and San Dimas dam inundation areas (County of Los

Would the proposed program:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*

Angeles 2014a). The PCCP portions of the Calabasas Feeder and the AMP do not coincide with any dam inundation areas. Although the Rialto Pipeline and Sepulveda Feeder coincide with inundation areas, pipeline rehabilitation associated with the proposed program would not increase the risks associated with dam failure because activities would be limited to the existing pipeline locations and would not come into contact with any dam infrastructure. In addition, construction activities would be temporary and short term in duration. Proposed program impacts would be less than significant. No further analysis is required in the draft EIR.

XI. MINERAL RESOURCES

Would the proposed program:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☒

Less-than-Significant Impact. According to Figure 9.6 of the Los Angeles County Draft General Plan, the alignment of the Rialto Pipeline within Los Angeles County coincides with designated mineral resource zones in the city of San Dimas (County of Los Angeles 2014a). Aggregate operations are located in the northwestern and northeastern portions of the city of Upland. The only area in which the PCCP portion of the Rialto Pipeline coincides with an active aggregate operation is in the northeastern portion of the city of Upland where the pipeline crosses a portion of the resource extraction area (City of Upland 1986). Rehabilitation work would be confined to a corner of the property adjacent to State Route (SR-) 210 where active resource extraction is not occurring. The general plans of Orange and Los Angeles counties indicate that no portion of the AMP or Calabasas and Sepulveda feeders coincide with state-designated mineral resource zones (County of Orange 2005; County of Los Angeles 2014a). No further analysis is required in the draft EIR.

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☒

Less-than-Significant Impact. As indicated in Item XIa, portions of the Rialto Pipeline coincide with resource extraction areas designated by the Los Angeles County Draft General Plan. However, pipeline rehabilitation would not result in the loss of availability of these resources delineated on this local general plan because rehabilitation would not prevent extraction. No further analysis is required in the draft EIR.

XIII. POPULATION AND HOUSING

Would the proposed program:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure)?	☐	☒

No Impact. The proposed program involves rehabilitating existing pipelines and does not include the construction of any new homes or businesses. In addition, it would not displace any existing population or housing units or businesses. Operating conditions of the four pipelines following rehabilitation would be identical to baseline conditions and would not expand the existing water distribution system. Therefore, no population growth would be induced and no further analysis is required in the draft EIR.

b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☒

No Impact. Implementation of the proposed program would not displace any existing housing units or necessitate the construction of replacement housing elsewhere. No further analysis is required in the draft EIR.

c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☒

No Impact. Implementation of the proposed program would not displace any people, necessitating the construction of replacement housing elsewhere. No further analysis is required in the draft EIR.

XIV. PUBLIC SERVICES

Would the proposed program result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
Fire protection?	☐	☒

No Impact. The proposed program would rehabilitate existing pipelines and would not require new fire protection services because the proposed program would not expand the service area or indirectly contribute to new development. It does not include the construction of new homes or businesses. The program would not add capacity to the pipeline, which could induce population growth. Therefore, direct population growth, which could result in the need for additional or expanded fire protection, would not occur with implementation of the program. The temporary

construction activities necessary to rehabilitate the existing pipelines would not have a significant effect on or result in a need for new or altered fire protection services. Metropolitan would ensure that appropriate fire safety procedures are followed during construction. The proposed program rehabilitation would not result in the provision of new or physically altered governmental facilities to maintain acceptable service ratios or other performance objectives for fire protection. Impacts would not occur, and no further analysis is required in the draft EIR.

Police protection? ☐ ☒

No Impact. The proposed program would rehabilitate existing water distribution pipelines and would not require new police protection services because the proposed program would not expand the service area or indirectly contribute to new development. It does not include the construction of new homes or businesses. The program would not add capacity to the pipeline, which could induce population growth. Therefore, direct population growth, which could result in the need for additional or expanded police protection, would not occur with implementation of the program. The temporary construction activities would not result in an increased demand for police protection. The proposed program rehabilitation would not result in the provision of new or physically altered governmental facilities to maintain acceptable service ratios or other performance objectives for police protection. Impacts would not occur, and no further analysis is required in the draft EIR.

Schools? ☐ ☒

No Impact. The proposed program would rehabilitate existing water distribution pipelines and would not require new school services because the proposed program would not expand the service area or indirectly contribute to new development. It does not include the construction of new homes or businesses. The program would not add capacity to the pipeline, which could induce population growth. Therefore, direct population growth, which could result in the need for additional or expanded school facilities, would not occur with implementation of the program. Rather, the program would repair and maintain existing infrastructure to ensure an adequate water supply to the existing water service area. As a result, the program would not increase school enrollment or result in the need for new or expanded school facilities. The proposed program rehabilitation would not result in the provision of new or physically altered governmental facilities to maintain acceptable performance objectives for schools. Impacts would not occur and no further analysis is required in the draft EIR.

Parks? ☐ ☒

No Impact. The proposed program would rehabilitate existing water distribution pipelines and would not require new parks because the proposed program would not expand the service area or indirectly contribute to new development. Therefore, direct population growth, which could result in the need for additional parks, would not occur with implementation of the program. Rather, the program would repair and maintain existing infrastructure to ensure an adequate water supply to the existing water service area. The proposed program would not result in an increase in water conveyance capacity or otherwise affect the location, distribution, density, or growth rate of the

population within the vicinity. Because growth would not occur, the proposed program would not result in an increase in the use of existing parks such that new parks would be needed or that physical deterioration of the parks would occur. Activities would be limited to construction along the existing underground pipeline. The proposed program rehabilitation would not result in the provision of new or physically altered governmental facilities to maintain acceptable objectives for parks. Impacts would not occur, and no further analysis is required in the draft EIR.

Other public facilities? ☐ ☒

No Impact. The proposed program would not require new public facilities because the proposed program would not expand the service area or indirectly contribute to development. Rehabilitation of the existing pipelines would provide for increased reliability of supplemental water deliveries to local water agencies. Impacts would not occur, and no further analysis is required in the draft EIR.

EVALUATION OF PROJECT-RELATED ENVIRONMENTAL IMPACTS

INTRODUCTION

Under the proposed project, Metropolitan proposes to rehabilitate the PCCP portions of the SLF (see Section 10, Description of Proposed Project, for additional details). This section of the initial study checklist evaluates the potential environmental impacts associated with the rehabilitation activities that would occur under the proposed project.

Each category analyzed has several specific questions. This evaluation determined that the proposed project would have "no impact" or a "less-than-significant impact" on some categories or questions within each category. These categories are evaluated in this section, therefore, further analysis of these topics is not required in the draft EIR.

The categories listed below will be analyzed further in the draft EIR. Topics in parenthesis are the remaining impacts to be further analyzed.

I. Aesthetics (scenic vistas, visual character or quality, new source of light or glare)

III. Air quality (applicable air quality plan, existing or projected air quality violation, net increase in any criteria pollutant, exposure to substantial pollutant concentrations)

IV. Biological resources (adverse effect on candidate, sensitive, or special-status species; adverse effect on riparian habitat or other sensitive natural community; adverse effect on federally protected wetlands; conflict with any local policies or ordinances)

V. Cultural resources

VI. Geology and soils (exposure to earthquake faults, seismic ground shaking, seismically related ground failure/liquefaction, and landslides; soil erosion; unstable soils; expansive soils)

VII. Greenhouse gas emissions

VIII. Hazards and hazardous materials (routine transport, use, or disposal of hazardous materials; reasonably foreseeable upset and accident conditions; hazardous materials within 0.25 mile of a school; hazardous materials site; airport land use plan; emergency response or evacuation plan)

IX. Hydrology and water quality (water quality/wastewater discharge, drainage patterns and runoff, mudflow)

X. Land use and planning (conflict with applicable land use plan, policy, or regulation)

XII. Noise (noise in excess of standards, groundborne vibration or noise, temporary increase in noise, airport land use plan)

XV. Recreation (increased use of recreational facilities)

XVI. Transportation and traffic (applicable plan, ordinance, or policy; congestion management program, design feature, emergency access; public transit, bicycle, or pedestrian facilities)

Operating conditions of the SLF following rehabilitation would be identical to baseline conditions. The SLF is a subsurface pipeline that is not visible or otherwise noticeable aboveground, except for some appurtenant structures. Vegetation and paving materials removed during rehabilitation would be replaced in kind prior to the completion of rehabilitation. Therefore, there would be no change between baseline

and operational conditions of the SLF following rehabilitation. Impacts on resources resulting from operation of the SLF would not occur and will not be further addressed in either this evaluation or the draft EIR. Only impacts related to rehabilitation will be evaluated in the draft EIR.

I. AESTHETICS

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Have a substantial adverse effect on a scenic vista?	☒	☐

Potentially Significant Impact. Scenic vistas discussed in the Draft Los Angeles County General Plan and the Orange County General Plan include views from hillsides and ridges as well as scenic highways. Some city general plans also identify scenic vistas. Construction equipment used would be of various sizes, the largest of which has the potential to temporarily obscure scenic vistas from surrounding properties. The potential for SLF rehabilitation to affect scenic vistas substantially will be further evaluated in the draft EIR.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☒

Less-than-Significant Impact. There are no state-designated scenic highways within the vicinity of the SLF. The closest designated scenic highway to the SLF alignment is a portion of SR-91 east of SR-55, the closest point of which is approximately 2.5 miles southeast of the SLF alignment (California Department of Transportation 2012). Construction activities associated with the proposed project would be concentrated around excavation points and would be temporary. Construction equipment would not be large enough to obscure views of the background mountain views. Therefore, the potential for any rehabilitation-related impacts from SLF implementation on scenic highways is very low. SLF rehabilitation would not substantially damage scenic resources within a state scenic highway, and impacts would be less than significant. No further analysis is required in the draft EIR.

c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☒	☐

Potentially Significant Impact. While SLF rehabilitation is underway, excavation sites, work zones, and staging areas would be required, which would entail grading, vegetation removal, and excavation of a shored pit. Such actions could make the areas in which they are located less visually appealing and temporarily alter the existing visual character and quality of the site(s) and the surrounding areas. The potential for the SLF rehabilitation activities to degrade the existing visual character or quality of sites and their surroundings substantially will be further evaluated in the draft EIR.

d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area? ☒ ☐

Potentially Significant Impact. SLF rehabilitation would generally occur during daytime hours, precluding the need for lighting that would be capable of creating new sources of substantial light or glare. However, under certain conditions, nighttime or around-the-clock rehabilitation activities may be necessary to minimize traffic impacts and shorten water shutdowns. Although these impacts would be temporary, nighttime rehabilitation activities would require the use of lighting to illuminate the work area. The potential for the SLF rehabilitation to create a new source of substantial light or glare that would affect day or nighttime views in the area will be further evaluated in the draft EIR.

II. AGRICULTURE AND FORESTRY RESOURCES

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☒

No Impact. According to the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation, Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is not present in the segment of the SLF alignment in Los Angeles County (California Department of Conservation 2010). Two areas near the Orange County part of the SLF alignment are designated as Unique Farmland. One portion of the SLF intersects Unique Farmland within the city of Anaheim, and another portion of the SLF is approximately 0.10 mile south of Unique Farmland within the city of Yorba Linda. However, in both instances, the designated Unique Farmland is not within the public right-of-way in which SLF rehabilitation would occur, and staging areas are not planned in these two designated areas. Consequently, no conversion of state-designated Farmland to a non-agricultural use would occur, and there would be no impacts on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. No further analysis is required in the draft EIR.

b. Conflict with existing zoning for agricultural use or a Williamson Act contract? ☐ ☒

No Impact. As described above, SLF rehabilitation would not conflict with existing zoning for agricultural use. Based on a review of the Williamson Act enrollment maps for Orange and Los Angeles counties, no parcels of land are under a Williamson Act contract within the vicinity of the SLF alignment; therefore, impacts involving a conflict with existing zoning for agricultural use or a Williamson Act contract would not occur. No further analysis is required in the draft EIR (California Department of Conservation 2013).

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☒

No Impact. The nearest forest land is the Cleveland National Forest, which is located 11 miles southeast of the SLF alignment at the Diemer Plant (U.S. Forest Service 2014). There are no areas of forest land, timberland, or timberland zoned for timberland production near the SLF alignment (California Department of Conservation 2010; U.S. Forest Service 2014). Therefore, no impacts on forestland or timberland would occur as a result of SLF rehabilitation. No further analysis is required in the draft EIR.

d. Result in the loss of forestland or conversion of forestland to non-forest use?	☐	☒

No Impact. As described above, there are no existing forestlands near the SLF alignment. The nearest forestland is 11 miles away. Therefore, no loss or conversion of forestland would occur, and no impacts would occur as a result of SLF rehabilitation. No further analysis is required in the draft EIR.

e. Involve other changes in the existing environment that, because of their location or nature, could result in the conversion of Farmland to non-agricultural use or the conversion of forestland to non-forest use?	☐	☒

Less-than-Significant Impact. One parcel within the city of Placentia, at 292–350 Yorba Linda Boulevard, identified as a potential staging area, is currently being used for agricultural purposes. The property is designated for office uses in the city of Placentia's zoning and land use maps (City of Placentia 2009a; City of Placentia 2009b). Temporary use of the property for staging purposes would not preclude the property owners from continuing the site's current agricultural use following the completion of SLF rehabilitation. Consequently, SLF rehabilitation would not result in the permanent conversion of farmland to non-agricultural uses, and impacts would be less than significant. There are no existing forestland, timberland, or timberland areas zoned for timberland production within the vicinity of the proposed project alignment. No further analysis is required in the draft EIR.

III. AIR QUALITY

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐

Potentially Significant Impact. The proposed project is located in the South Coast Air Basin (Basin), which is regulated by the South Coast Air Quality Management District (SCAQMD). During the course of rehabilitation, emissions would result from construction equipment, rehabilitation activities (e.g., excavation, cutting concrete), and the transport of workers and materials to and from work sites. Rehabilitation along the SLF alignment could occur consecutively or concurrently, thus influencing the timing, type, and amount of emissions. The potential for SLF rehabilitation to conflict with or obstruct implementation of the applicable air quality plan of the SCAQMD will be further evaluated in the draft EIR.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐

Potentially Significant Impact. As stated above for Item (a), SLF rehabilitation is expected to result in the emission of pollutants and emissions may exceed localized significance thresholds established in the *CEQA Air Quality Handbook* developed by SCAQMD for criteria pollutants. The potential for emissions resulting from SLF rehabilitation to violate any air quality standard or contribute substantially to an existing or projected air quality violation will be further evaluated in the draft EIR.

c. Result in a cumulatively considerable net increase in any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☒	☐

Potentially Significant Impact. As discussed in Items (a) and (b), SLF rehabilitation activities are anticipated to emit pollutants for which the Basin is not in attainment. The potential for the proposed project to result in a cumulatively considerable net increase in criteria pollutants in a non-attainment area will be further evaluated in the draft EIR.

d. Expose sensitive receptors to substantial pollutant concentrations?	☒	☐

Potentially Significant Impact. Sensitive receptors adjacent to the proposed project include numerous single-family and multi-family residences, schools, parks, and health care facilities. SLF rehabilitation would take place adjacent to such sensitive receptors. The potential for rehabilitation activities to expose sensitive receptors to substantial pollutant concentrations will be further evaluated in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
e. Create objectionable odors that would affect a substantial number of people?	☐	☒

Less-than-Significant Impact. According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment facilities, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities. Rehabilitation includes none of these land uses. During the rehabilitation process, some limited odor may result from asphalt paving activities, which may be detectable by people immediately adjacent to work sites. However, asphalt paving would occur for a limited time period at each excavation site (less than 1 week), and the locations of paving activities would be distributed over several excavation sites along the entire alignment. Furthermore, SCAQMD Rule 402 prohibits the discharge of air contaminants that cause nuisance or annoyance to the public, including odors. And SCAQMD maintains both a toll-free phone line (1-800-CUT-SMOG) and a web-based platform (http://www.aqmd.gov/contact/complaints) for reporting complaints related to air quality, including odors. Given the limited duration and location of asphalt paving, mandatory compliance with SCAQMD Rule 402, and ability for the public to report complaints to SCAQMD, SLF rehabilitation would not create a significant level of objectionable odors. No further analysis is required in the draft EIR.

IV. BIOLOGICAL RESOURCES

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐

Potentially Significant Impact. The proposed project is located primarily within Metropolitan-owned rights-of-way and public roads and in fully developed and urbanized areas of Los Angeles and Orange counties; however, sensitive species and critical habitat have been documented in proximity to the SLF alignment. A search of the California Natural Diversity Database (CNDDB) yielded 15 sensitive species that have the potential to be found within several hundred feet of the SLF alignment (California Natural Diversity Database 2014). Given the proximity of critical habitat and the potential for sensitive species to occur adjacent to the SLF alignment, sensitive species could be directly or indirectly affected by SLF rehabilitation. The potential for SLF rehabilitation to have a substantial direct or indirect adverse effect on sensitive species will be further evaluated in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐

Potentially Significant Impact. The proposed project is located primarily within Metropolitan-owned rights-of-way and public roads and in fully developed and urbanized areas of Los Angeles and Orange counties; however, there is the potential for riparian habitats or other sensitive communities to be located adjacent to the alignment. The potential for SLF rehabilitation to affect riparian habitat or other sensitive natural communities substantially and adversely will be further addressed in the draft EIR.

c. Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal areas, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐

Potentially Significant Impact. The SLF extends under concrete-lined flood control channels and other existing drainages (i.e., Dominguez Channel, the Los Angeles River, San Gabriel River, Coyote Creek) (USFWS 2014). In addition, the SLF intersects with unnamed and unlined water bodies, including a stream that connects freshwater ponds within El Dorado East Regional Park and a freshwater pond located on the west bank of the Los Angeles River (USFWS 2014). Given the proximity of the SLF to such water bodies, the potential for SLF rehabilitation to affect federally protected wetlands substantially and adversely will be further evaluated in the draft EIR.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites?	☐	☒

Less-than-Significant Impact. Proposed project rehabilitation would not affect the movement of fish or wildlife species because work areas would be located outside of the concrete-lined flood protection channels, and pipeline work would primarily occur below the surface. For the proposed project to interfere substantially with fish or wildlife movement, it would have to occur within or between habitat areas. The northern segment of the SLF is not within a habitat area designated by the Orange County Central and Coastal Subregion Natural Community Conservation Plan (NCCP) and Habitat Conservation Plan (HCP) (habitat areas are located approximately 6 miles to the southeast of the alignment) (GIS data based on Nature Reserve 1996). Furthermore, the SLF alignment is not located between wildlife habitat areas identified in the Orange County General Plan (Figures VI-4 and VI-5 County of Orange 2005). The southern terminus of the SLF is not located within a wildlife area, nor is it located in areas that could serve as wildlife corridors. The SLF alignment is 3 miles east of the Palos Verdes Peninsula NCCP/HCP (Palos Verdes Peninsula Land Conservancy 2004 [Figure 2-2]). In addition, there are no regional wildlife linkages near the SLF alignment (County of Los Angeles 2014a [Figure 6.3]). All other areas of the alignment are urbanized with no wildlife areas. Consequently, SLF rehabilitation would not impose physical

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*

barriers that would prevent fish and animal species from migrating, and impacts would be less than significant. No further analysis is required in the draft EIR.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ☒ ☐

Potentially Significant Impact. Some vegetation and trees adjacent to existing roadways may be removed or disturbed during the rehabilitation process. The potential for SLF rehabilitation to conflict with any local policies or ordinances protecting biological resources will be further evaluated in the draft EIR.

f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan? ☐ ☒

No Impact. As discussed above, the SLF alignment does not pass through the Orange County Central and Coastal Subregion NCCP/HCP; the NCCP/HCP area is located approximately 6 miles to the southeast (GIS data based on Nature Reserve 1996). The closest portion of the SLF alignment to the Palos Verdes Peninsula NCCP/HCP is 3 miles west of the NCCP/HCP (Palos Verdes Peninsula Land Conservancy 2004 [Figure 2-2]). Therefore, SLF rehabilitation would not conflict with the provisions of these plans. The Los Angeles County Department of Regional Planning identifies Significant Ecological Areas (SEAs), which are designated to preserve undisturbed or lightly disturbed habitat by placing additional conditions on development in areas within their boundaries (County of Los Angeles 2014b). The southern terminus of the SLF alignment is located 0.4 mile east of the Rolling Hills Canyons SEA and immediately adjacent to a portion of the proposed Palos Verdes Peninsula and Coastline SEA (GIS data based on County of Los Angeles 2014b). The work site at this location would not extend into the boundaries of the proposed Palos Verdes Peninsula and Coastline SEA. Because no portion of the SLF alignment or rehabilitation area coincides with an existing or proposed SEA, no SEA-related conditions would be imposed. SLF rehabilitation would not conflict with the provisions of an adopted HCP/NCCP/or other approved local, regional, or state HCP, and no impact would occur. No further analysis is required in the draft EIR.

V. CULTURAL RESOURCES

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5?	☒	☐

Potentially Significant Impact. SLF rehabilitation would require excavation and soil disturbance, which could affect unknown historical resources buried along the pipeline alignment. The potential for rehabilitation to cause a substantial adverse change in the significance of a historical resource will be further evaluated in the draft EIR.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☒	☐

Potentially Significant Impact. The SLF is subsurface and primarily within public rights-of-way. Areas surrounding the SLF alignment are previously disturbed. Unknown buried archaeological resources were most likely previously disturbed by the extensive development in the area; however, past development in Southern California has resulted in numerous buried archaeological resources being uncovered during excavation and soil-disturbing activities. The potential for SLF rehabilitation to affect archaeological resources substantially and adversely will be further evaluated in the draft EIR.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐

Potentially Significant Impact. The SLF alignment extends through different geologic formations, some of which could have high potential for sensitive paleontological resources. Because the exact locations and depths of potentially sensitive paleontological resources are unknown, disturbance of intact paleontological resources during the rehabilitation process could occur. The potential for SLF rehabilitation to destroy a unique paleontological resource directly or indirectly will be further evaluated in the draft EIR.

d. Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐

Potentially Significant Impact. SLF rehabilitation would occur primarily within previously disturbed public rights-of-way in previously disturbed areas. The probability of workers encountering human remains, including those interred outside of formal cemeteries is considered relatively low; however, the potential for SLF rehabilitation to disturb human remains will be further evaluated in the draft EIR.

VI. GEOLOGY AND SOILS

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:		
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42)?	☒	☐

Potentially Significant Impact. The proposed project lies within the Newport-Inglewood-Rose Canyon Earthquake Fault Zone, as defined by the California Geological Survey (GeoPentech 2014). In addition, the SLF passes through other fault zones that are not delineated as Alquist-Priolo Earthquake Fault Zones, including two Quaternary faults (the Los Alamitos fault and the Palos Verdes fault), as defined by the U.S. Geological Survey Quaternary Fault and Fold Database (GeoPentech 2014). The potential for fault-related impacts will be further evaluated in the draft EIR.

ii. Strong seismic ground shaking?	☒	☐

Potentially Significant Impact. The proposed project is in Southern California, which is a known seismically active region. The potential for impacts with respect to seismic ground shaking will be further evaluated in the draft EIR.

iii. Seismically related ground failure, including liquefaction?	☒	☐

Potentially Significant Impact. Liquefaction is the phenomenon whereby soils lose shear strength and exhibit fluid-like flow behavior, typically as a result of seismic ground acceleration in areas with sandy and saturated soils. According to the preliminary geotechnical/geologic evaluation, the central portion of the SLF alignment extends through several Liquefaction Hazard Zones, as defined by the California Geological Survey (GeoPentech 2014). The potential for seismically related ground failure impacts will be further evaluated in the draft EIR.

iv. Landslides?	☒	☐

Potentially Significant Impact. The SLF alignment passes within 0.25 mile of Earthquake-Induced Landslide Hazard Zones near the northeastern end of the alignment (Reach 1) as well as near the southwestern end of the alignment (Reach 10) (GeoPentech 2014). Given the proximity to landslide areas and the seismically active nature of Southern California, there is the potential for landslides to affect the pipeline and construction workers at excavation sites and work zones. The potential for impacts related to landslides will be further evaluated in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
b. Result in substantial soil erosion or the loss of topsoil?	☒	☐

Potentially Significant Impact. During the course of SLF rehabilitation, excavation activities would temporarily uncover areas that are currently paved, exposing such areas to erosive forces. As a result, some erosion and a temporary reduction in soil stability may occur, particularly on steeper grades. The potential for impacts related to erosion and the loss of topsoil will be further evaluated in the draft EIR.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☒	☐

Potentially Significant Impact. As discussed in Item VIa, iii and iv, above, the SLF alignment would extend through areas that are susceptible to liquefaction and seismically induced landslides. The potential for impacts related to unstable soils will be further evaluated in the draft EIR.

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☒	☐

Potentially Significant Impact. Expansive soils generally owe their characteristics to the presence of swelling clay minerals, which expand as they take on water and reduce as water drains from them. The resulting swelling and shrinking can exert strong pressures on structures and are capable of causing property damage. According to the preliminary geotechnical/geologic evaluation, clays are likely to be found in soils through which the SLF alignment extends (GeoPentech 2014). The potential for impacts related to expansive soils will be further evaluated in the draft EIR.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☒

No Impact. SLF rehabilitation would not include the installation or use of septic tanks or alternative wastewater disposal systems. No impacts would occur. No further analysis is required in the draft EIR.

VII. GREENHOUSE GAS EMISSIONS

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐

Potentially Significant Impact. Greenhouse gas (GHG) emissions would be generated as a result of on-site construction equipment usage, off-site vehicle trips by construction workers, and travel to and from the proposed project site by haul/delivery trucks. The increase in GHG emissions from SLF rehabilitation would be a small fraction of the regional, statewide, and worldwide total inventory. The potential for impacts related to GHG emissions will be further evaluated in the draft EIR.

b. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐

Potentially Significant Impact. As discussed in Item VIIa, above, GHG emissions would be emitted as a result of SLF rehabilitation. The potential for GHG emissions to conflict with applicable plans, policies, or regulations will be further evaluated in the draft EIR.

VIII. HAZARDS AND HAZARDOUS MATERIALS

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☒	☐

Potentially Significant Impact. During the course of the SLF rehabilitation, some hazardous material would be used, such as fuel, oils, lubricants, and disinfection solutions that use chlorine. These hazardous materials would be used, transported to and from, and possibly stored at work sites. Therefore, the potential for impacts associated with use, transport, and handling of hazardous materials during rehabilitation will be further evaluated in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐

Potentially Significant Impact. Rehabilitation work and equipment used for the proposed project would require the use of hazardous substances (e.g., fuel and lubricants). Therefore, SLF rehabilitation has the potential to release oils, greases, solvents, and other finishing materials through accidental spills or upsets of these materials, which would have the potential to affect surrounding land uses, although the amount of hazardous substances that would be used for the project is relatively small. The potential for impacts related to reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment will be further evaluated in the draft EIR.

c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☒	☐

Potentially Significant Impact. There are several schools within 0.25 mile of the SLF alignment. With the exception of the fuels, lubricants, disinfectants containing chlorine, other substances used during the rehabilitation process, and contaminated soil that the crews could uncover, no other hazardous or acutely hazardous materials are anticipated to be encountered. However, the potential for impacts related to hazardous emissions within 0.25 mile of schools will be further evaluated in the draft EIR.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?	☒	☐

Potentially Significant Impact. According to the preliminary findings of the hazardous materials analysis, 3,399 federal and state regulatory case files were identified by Environmental Data Resources (a data retrieval service), where hazardous substances or petroleum products were used, transported, stored, disposed of, or released within 0.25 mile of the PCCP sections of the SLF alignment (UltraSystems 2014). Of the 3,399 cases, 152 case files reported unauthorized releases to the subsurface that could affect soil and/or groundwater. In addition, the SLF alignment traverses the Gaffey, Torrance, and Long Beach oil and gas fields in Los Angeles County and the Richfield, Coyote East, and Yorba Linda oil and gas fields in Orange County. Therefore, the SLF alignment could be located on a site that has been included on a list of hazardous materials sites. The potential for impacts related to hazardous materials sites will be further evaluated in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
e. For a project located within an airport land use plan or, where such plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☒	☐

Potentially Significant Impact. The SLF alignment crosses within the northern boundary of Long Beach Airport. Construction activities would take place within several hundred feet of a runway and within the airport boundary. The potential for impacts related to SLF rehabilitation within an airport setting will be further evaluated in the draft EIR.

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☒

Less-than-Significant Impact. Los Alamitos Joint Forces Training Base is 1.2 miles south of the SLF alignment. In addition, Torrance Airport is 1.2 miles west of the SLF alignment, near its southern terminus. Rehabilitation work would generally be located outside of this area and therefore would not be close enough to the airports to create a safety hazard for construction workers or people at the airports. No further analysis is required in the draft EIR.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☒	☐

Potentially Significant Impact. During the course of SLF rehabilitation, portions of existing roadways would be shut down to accommodate excavation sites, work zones, or staging areas. In addition, cranes may need to temporarily disrupt traffic. The potential for the SLF rehabilitation to impair implementation of or physically interfere with adopted emergency response plans or evacuation plans will be further evaluated in the draft EIR.

h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including areas where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒

No Impact. The SLF alignment is located primarily within a fully developed, urbanized environment and not immediately adjacent to wildlands. The only undeveloped area near the SLF alignment is an undeveloped hillside area adjacent to the Diemer Water Treatment Plant, just outside of Yorba Linda. However, this undeveloped hillside is on the northern side of the treatment plant, and SLF rehabilitation activities would begin on the southern side of the treatment plant adjacent to a golf course. Given that the SLF alignment is not located in wildland areas, SLF rehabilitation would not expose people or structures to the risk of loss, injury, or death as a result of wildland fires. No impact would occur. No further analysis is required in the draft EIR.

IX. HYDROLOGY AND WATER QUALITY

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Violate any water quality standards or waste discharge requirements?	☒	☐

Potentially Significant Impact. SLF rehabilitation tasks that may result in adverse effects on water quality include grading and cleanup as well as short-term, localized excavation and grading activities. Because of the proximity to watercourses (preliminarily identified in Items IVb and IVc), SLF rehabilitation activities could result in releases of excess sediment or other pollutants into these and other waterways. The potential for SLF rehabilitation to violate water quality standards and waste discharge requirements will be further evaluated in the draft EIR.

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☒

Less-than-Significant Impact. The proposed project involves the rehabilitation of an existing water conveyance pipeline. No changes to water usage or supply would occur as a result of the proposed project as demand would remain unchanged. The proposed project would not result in increased use or extraction of groundwater, and there would be no associated impacts on groundwater supplies, aquifer volumes, or groundwater tables. In the unlikely event that shallow groundwater is encountered during SLF rehabilitation activities, temporary dewatering efforts would be minimal and short-term. Based on the temporary nature and limited extent of such potential dewatering activities, no associated impacts related to the drawdown or depletion of local groundwater resources would occur. The proposed project would entail relining the existing SLF and would not result in the construction of substantial new impervious surfaces such as pavement. Accordingly, the proposed project would not result in impacts related to the reduction of local or regional infiltration and associated groundwater recharge capacity. Therefore, impacts would be less than significant. No further analysis is required in the draft EIR.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?	☒	☐

Potentially Significant Impact. Some staging areas or excavation sites would be close to receiving waters. These areas and sites may experience grading or other ground-disturbing activities that could result in altering the existing drainage patterns such that a substantial erosion or siltation could occur in the receiving waters. The potential for SLF rehabilitation to result in substantial erosion or siltation on or off site will be further evaluated in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?	☒	☐

Potentially Significant Impact. Some staging areas and excavation sites would be close to receiving waters. Staging areas and excavation sites would experience grading or other ground-disturbing activities. These ground-disturbing activities have the potential to alter the existing drainage pattern of a site such that the amount of surface water runoff could be affected. The potential for SLF rehabilitation to increase the rate or amount of surface water runoff substantially as a result of alterations to the existing drainage area such that flooding would occur will be further evaluated in the draft EIR.

e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? (Note: Refer to Item XVIIc regarding capacity of stormwater systems.)	☒	☐

Potentially Significant Impact. As identified in Items IXc and IXd, above, siltation or runoff could occur as a result of the effects ground-disturbing activities during SLF rehabilitation. The potential for SLF rehabilitation to provide substantial additional sources of polluted runoff will be further evaluated in the draft EIR.

f. Otherwise substantially degrade water quality?	☐	☒

Less-Than-Significant Impact. Proposed project rehabilitation would not result in other substantial degradations of water quality beyond those previously discussed under Items IXa through IXg above. Impacts would be less than significant. No further analysis is required in the draft EIR.

g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☒

No Impact. The proposed project does not include the construction of any housing, and no impacts related to the placement of housing in a floodplain would occur. Therefore, impacts would not occur. No further analysis is required in the draft EIR.

h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	☐	☒

Less-than-Significant Impact. According to the Federal Emergency Management Agency's (FEMA's) National Flood Hazard Layer mapping tool, several portions of the SLF alignment occur within a 100-year flood hazard area but are located within actual concrete-lined flood control channels. These concrete-lined channels are designed to protect surrounding areas from flooding, and inundation of the surrounding areas would not occur during typical flooding events (FEMA 2013). Structures related to the SLF alignment within these areas would primarily be

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*

underground and are not expected to impede or redirect flows that would be contained by the concrete-lined channels. A portion of the SLF alignment east of Coyote Creek, within the cities of Long Beach, Los Alamitos, and Cypress, is within an area that has been designated as a Future Conditions 1% Annual Chance Flood Hazard (Zone X), which differs from existing conditions 100-year flood hazard areas. This designation is made only to support floodplain management decision-making (FEMA 2013). This area is currently developed, and structures related to the SLF alignment within the area would primarily be underground. Consequently, proposed project structures would not impede or redirect floodflows, and impacts would be less than significant. No further analysis is required in the draft EIR.

i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam? ☐ ☒

Less-than-Significant Impact. As discussed in Item IXh, above, portions of the SLF alignment are located within a 100-year flood hazard area. In addition, according to Figure 12.4 of the Los Angeles County Draft General Plan, the SLF alignment is located within the dam and reservoir inundation areas of San Gabriel, Morris, and Big Dalton reservoirs (County of Los Angeles 2014a). A small portion of the SLF rehabilitation would be performed adjacent to Metropolitan's existing Palos Verdes Reservoir. Excavations for the SLF rehabilitation would occur in areas outside of the dam and above the reservoir's water surface elevation and would not result in any additional risk. Given the 25-mile distance that flood flows would have to travel before reaching the project area and given that the location of the SLF rehabilitation would not contribute to dam vulnerabilities, impacts would be less than significant. No further analysis is required in the draft EIR.

j. Expose people or structures to inundation by seiche, tsunami, or mudflow? ☒ ☐

Potentially Significant Impact. As discussed in Item IXi, above, portions of the SLF alignment are located within a dam and reservoir inundation area, but the risk of a seiche emanating from San Gabriel, Morris, and Big Dalton reservoirs that would affect the project area 25 miles to the south is very low. Figure 12.3 of the Los Angeles County Draft General Plan (and the Orange County General Plan) indicates that the proposed project is not located within a tsunami inundation area (County of Los Angeles 2014a; County of Orange 2005). Excavations to perform SLF rehabilitation adjacent to Metropolitan's existing Palos Verdes Reservoir are at elevations above the reservoir such that inundation by seiche is not expected to occur. Therefore, SLF rehabilitation would not result in inundation by seiche or tsunami. No further analysis regarding seiches and tsunamis is required in the draft EIR.

As discussed in Item VIa, iv, there are Earthquake-Induced Landslide Hazard Zones near the northeastern end of the alignment, as well as near the southwestern end of the alignment. The potential for mudflows in connection with landslides will be discussed in the draft EIR.

X. LAND USE AND PLANNING

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Physically divide an established community?	☐	☒

No Impact. Rehabilitation work would involve excavation sites, work zones, and staging areas. Barriers would be used to confine construction for safety purposes. The proposed project consists of improvements to an existing subsurface water distribution pipeline and would not involve the construction or operation of any permanent structures or alterations that would physically divide an established community. No impacts would occur. No further analysis is required in the draft EIR.

b. Conflict with applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐

Potentially Significant Impact. The SLF alignment traverses multiple local and regional jurisdictions. The proposed project's consistency with applicable land use plans, policies, and regulations will be further evaluated in the draft EIR. It should be noted that California Government Code Section 53091 exempts Metropolitan, as a regional public water purveyor and utility, from local zoning and building ordinances. This exemption applies to the SLF as a water transmission pipeline and a direct component of Metropolitan's treatment, storage, and transmission system. Despite this exemption from local land use planning jurisdiction, for purposes of full disclosure of potential project impacts on the environment, this EIR evaluates project compatibility with relevant general plan policies.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☒

No Impact. As discussed in Item IVf, the SLF alignment does not pass through the Orange County Central and Coastal Subregion NCCP/HCP; the NCCP/HCP area is approximately 6 miles to the southeast. The closest portion of the SLF alignment to the Palos Verdes Peninsula NCCP/HCP is 3 miles west of the NCCP/HCP. Given the distance of the SLF rehabilitation from the NCCP/HCP areas, conflicts with these plans are not anticipated, and no impact would occur. No further analysis is required in the draft EIR.

XI. MINERAL RESOURCES

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☒

Less-than-Significant Impact. The proposed project would occur within rights-of-way that have been previously disturbed by both installation of the SLF and other development (e.g., roads, sidewalks, surrounding buildings). According to the Conservation Element of the Rolling Hills Estates General Plan, land in and around the Chandler Quarry, a source of aggregate materials, has been designated a Mineral Resource Zone (MRZ-2) by the State of California (City of Rolling Hills Estates 1992). Although the SLF alignment intersects the Mineral Resource Zone, it is fully within the transportation right-of-way where it coincides with the zone. SLF rehabilitation would not preclude continued use of the quarry and the collection of aggregate materials, nor would it result in the loss of availability of aggregate in the surrounding area. Impacts would be less than significant. No further analysis is required in the draft EIR.

b. Result in the loss of availability of a locally important mineral resource recovery site, as delineated on a local general plan, specific plan, or other land use plan?	☐	☒

Less-than-Significant Impact. According to Figure 9.6 of the Los Angeles County Draft General Plan, the SLF alignment extends through areas that are known to contain oil and gas resources (County of Los Angeles 2014a). Because the SLF alignment occurs within a transportation right-of-way that overlaps oil and gas resources, the oil and gas resources are not currently accessible within those areas. Furthermore, SLF rehabilitation would not contribute to the loss of availability of such resources because they could continue to be accessed and used at other locations within the area known to contain oil and gas. Impacts would be less than significant. No further analysis is required in the draft EIR.

XII. NOISE

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	☒	☐

Potentially Significant Impact. SLF Rehabilitation would generally occur during daytime hours, in accordance with the local jurisdiction's ordinances. Nighttime, Saturday, or 24-hour rehabilitation work may be necessary for an operational response or to minimize traffic impacts or shorten water shutdown and refill periods. Noise related to rehabilitation work would be generated by the use of various pieces of equipment, including, but not limited to, tunnel/pipe ventilation fans, excavators, concrete saws, and generators. This equipment could generate noise in excess of standards established in the local general plans or noise ordinances of the various jurisdictions the SLF alignment traverses. The potential for the SLF rehabilitation activities to expose persons to or generate noise in excess of standards will be further evaluated in the draft EIR.

b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	☒	☐

Potentially Significant Impact. Rehabilitation work could result in ground vibration or noise because it would take place below grade. Construction would not involve high-impact activities such as pile-driving or blasting; however, given the proximity of excavation sites to residences and other sensitive receivers, use of equipment in the excavation and compaction phases of the rehabilitation process could result in excessive groundborne vibration or noise. The potential for the SLF rehabilitation to expose persons to or generate excessive groundborne vibrations or noise will be further evaluated in the draft EIR.

c. Result in a substantial permanent increase in ambient noise levels in the project vicinity, above levels existing without the project?	☐	☒

No Impact. The proposed project would not result in a permanent increase in ambient noise levels in the project vicinity because of the temporary nature of the rehabilitation work. Once SLF rehabilitation is complete, operation of the SLF alignment would continue below grade. Therefore, a substantial permanent increase in ambient noise levels would not occur and there would be no impact. No further analysis related to operational noise is required in the draft EIR.

d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity, above levels existing without the project?	☒	☐

Potentially Significant Impact. As discussed in Item XIIa, noise related to SLF rehabilitation activities would be generated by the use of various pieces of equipment, including, but not limited to, tunnel/pipe ventilation fans, excavators, concrete saws, and generators. The potential for SLF rehabilitation to substantially increase ambient noise levels temporarily or periodically will be further evaluated in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?	☒	☐

Potentially Significant Impact. The SLF alignment crosses the northern boundary of Long Beach Airport, and SLF rehabilitation activities would occur within the airport boundary. The potential for impacts related to noise created by the proposed project in the vicinity of Long Beach Airport will be further evaluated in the draft EIR.

f. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels?	☐	☒

Less-than-Significant Impact. Los Alamitos Joint Forces Training Base is approximately 1.2 miles south of the SLF alignment. In addition, Torrance Airport is approximately 1.2 miles west of the SLF alignment. Because of the distance of these airports from the SLF rehabilitation areas, equipment at the excavation sites and work zones would not be louder than noise generated by aircraft at these airports. SLF rehabilitation would not expose construction workers to excessive noise generated by a private airstrip. Impacts would be less than significant. No further analysis is required in the draft EIR.

XIII. POPULATION AND HOUSING

Would the project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure)?	☐	☒

No Impact. The proposed project does not include construction or operation of housing that would result in a direct increase in population, nor would it displace any existing population or housing. The proposed project would only rehabilitate segments of an existing subsurface water distribution pipeline. It would not expand the existing water distribution system, thereby providing an indirect catalyst for population growth. Impacts would not occur, and further analysis is not required in the draft EIR.

b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☒

No Impact. SLF rehabilitation would not displace any existing housing units, thereby necessitating the construction of replacement housing elsewhere. Rehabilitation activities would take place along an existing pipeline alignment, within existing rights-of-way or easements where homes do not currently exist. Impacts would not occur. Further analysis is not required in the draft EIR.

Would the project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☒

No Impact. SLF rehabilitation would not displace people, thereby necessitating the construction of replacement housing elsewhere. Rehabilitation activities are temporary and would take place along an existing pipeline alignment, within rights-of-way or easements. Therefore, people living in homes in the area would not be displaced. Impacts would not occur. Further analysis is not required in the draft EIR.

XIV. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
Fire protection?	☐	☒

No Impact. The SLF rehabilitation project would rehabilitate an existing water distribution pipeline and would not require new fire protection services because the proposed project would not expand the service area or indirectly contribute to new development. It does not include the construction of new homes or businesses. The project would not add capacity to the pipeline, which could induce population growth. Therefore, direct population growth, which could result in the need for additional or expanded fire protection, would not occur with implementation of the project. The temporary construction activities necessary to rehabilitate the existing pipelines would not have a significant effect on or result in a need for new or altered fire protection services. Metropolitan would ensure that appropriate fire safety procedures are followed during construction. The proposed project would not result in the provision of new or physically altered governmental facilities to maintain acceptable service ratios or other performance objectives for fire protection. No impact would occur, and no further analysis is required in the draft EIR. Potential impacts on emergency responders, including fire protection, access, and response times, are discussed in Section XVI, Transportation/Traffic.

Police protection?	☐	☒

No Impact. The SLF rehabilitation project would rehabilitate an existing water distribution pipeline and would not require new police protection services because the proposed project would not expand the service area or indirectly contribute to new development. It does not include the construction of new homes or businesses. The project would not add capacity to the pipeline, which could induce population growth. Therefore, direct population growth, which could result in the need for additional or expanded police protection, would not occur with implementation of the project. The temporary construction activities would not result in an increased demand for police

protection. The proposed project would not result in the provision of new or physically altered governmental facilities to maintain acceptable service ratios or other performance objectives for police protection. Impacts would not occur, and no further analysis is required in the draft EIR. Potential impacts on emergency responders, including police, access, and response times, are discussed in Section XVI, Transportation/Traffic.

Schools? ☐ ☒

No Impact. The SLF rehabilitation project would rehabilitate an existing water distribution pipeline and would not require new school services because the proposed project would not expand the service area or indirectly contribute to new development. It does not include the construction of new homes or businesses. The project would not add capacity to the pipeline, which could induce population growth. Therefore, direct population growth, which could result in the need for additional or expanded school facilities, would not occur with implementation of the project. Rather, the project would repair and maintain existing infrastructure to ensure an adequate water supply to the existing water service area. As a result, the project would not increase school enrollment or result in the need for new or expanded school facilities. The proposed project would not result in the provision of new or physically altered governmental facilities to maintain acceptable performance objectives for schools. Impacts would not occur, and no further analysis is required in the draft EIR. Potential temporary impacts on school athletic fields or other school-related recreational facilities are discussed in Section XV, Recreation. Potential impacts on school parking are discussed in Section XVI, Transportation/Traffic.

Parks? ☐ ☒

No Impact. The SLF rehabilitation project would rehabilitate existing water distribution pipelines and would not require new parks because the proposed project would not expand the service area or indirectly contribute to new development. The project would repair and maintain existing infrastructure to ensure an adequate water supply to the existing water service area and does not include the expansion or construction of park facilities. As described previously, the project would not result in an increase in water conveyance capacity or otherwise affect the location, distribution, density, or growth rate of the population within the vicinity of the project area. Because growth would not occur, the proposed project would not result in an increase in the use of existing parks such that new parks would be needed or that physical deterioration of the parks would occur. Activities would be limited to construction along the existing underground pipeline. The proposed project would not result in the provision of new or physically altered governmental facilities to maintain acceptable objectives for parks. Impacts would not occur, and no further analysis is required in the draft EIR. Potential temporary impacts on recreational facilities are discussed in Section XV, Recreation.

Other public facilities? ☐ ☒

No Impact. The proposed project would not require new public facilities because the proposed project would not expand the service area or indirectly contribute to development. Rehabilitation of the existing pipeline would provide for increased reliability of water deliveries to member agencies. Impacts would not occur, and no further analysis is required in the draft EIR.

XV. RECREATION

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☒	☐

Potentially Significant Impact. The proposed project would rehabilitate an existing water distribution pipeline. It would not result in or contribute to population growth such that increased use of existing parks would occur. However, SLF rehabilitation could occur within and adjacent to parks and other recreational areas (e.g., open spaces or school athletic fields) and could result in short-term, indirect effects on recreational facilities (e.g., access restrictions, construction noise, or pollutant emissions) or short-term, direct effects (e.g., eliminate the use of the recreation facility for a period of time). Although SLF rehabilitation is unlikely to lead to permanent deterioration of such facilities, impacts could be significant and will be further evaluated in the draft EIR.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☒

No Impact. The proposed project does not include recreational facilities, nor would it require the construction or expansion of existing facilities. No impact would occur. Further analysis is not required in the draft EIR.

XVI. TRANSPORTATION/TRAFFIC

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Conflict with an applicable plan, ordinance, or policy that establishes measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, and pedestrian and bicycle paths?	☒	☐

Potentially Significant Impact. During the course of the SLF rehabilitation, work zones would be established within existing roadways, requiring lane closures for extended periods of time (e.g., potentially several months). Temporary signage, traffic cones, fencing, and barriers would be placed where needed during rehabilitation as part of the proposed project. In addition, staging areas and work zones could displace existing parking at various locations (e.g., schools and roadways). The potential for the proposed project to conflict with applicable plans, ordinances, or policies related to the circulation system will be further evaluated in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?	☒	☐

Potentially Significant Impact. As described in Item XVIa, SLF rehabilitation would disrupt traffic and conflict with congestion management plans or existing level-of-service standards during the different construction phases of the proposed project. The potential for SLF rehabilitation activities to conflict with congestion management plans or level-of-service standards related to the circulation system will be further evaluated in the draft EIR.

c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that would result in substantial safety risks?	☐	☒

Less-than-Significant Impact. The proposed project would rehabilitate existing subsurface water distribution pipelines and therefore would not result in an increase in air traffic levels such that air traffic patterns would be influenced. Rehabilitation activities may occur in areas adjacent to existing runways at Long Beach Airport, but the work sites would not be located on the runways. Consequently, SLF rehabilitation would not alter air traffic patterns at Long Beach Airport. Impacts would be less than significant. No further analysis is required in the draft EIR.

d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐

Potentially Significant Impact. During the rehabilitation activities, work zones would be established within roadways and would include heavy machinery, handheld equipment, and excavation pits. Lane closures would be required for some work zones. The potential for the SLF rehabilitation to result in transportation hazards will be further evaluated in the draft EIR.

e. Result in inadequate emergency access?	☒	☐

Potentially Significant Impact. During the course of SLF rehabilitation, lane closures would be required to accommodate SLF rehabilitation activities within the work zones and the use of equipment. In some areas with narrow roadways, full road closures would be necessary. Both lane closures and full road closures could affect access to roadways that are used by emergency providers. SLF rehabilitation would result in the temporary disruption or shutdown of existing roads, as described in Item VIIIg. Disruption of traffic has the potential to delay fire personnel, police, or first responders and possibly to increase response times. The potential for SLF rehabilitation to result in inadequate emergency access will be further evaluated in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities?	☒	☐

Potentially Significant Impact. SLF rehabilitation would take place along several roadways that are designated as bus corridors. Buses could be delayed if lanes are needed to provide space for work zones. Bus stops may be temporarily relocated in consideration of the locations of the work zones. In addition, Bixby Road in the city of Long Beach has Class II bicycle lanes that could be temporarily disrupted during rehabilitation activities. The potential for SLF rehabilitation activities to conflict with the performance of existing public transit, bicycle, or pedestrian facilities will be further evaluated in the draft EIR.

XVII. UTILITIES AND SERVICE SYSTEMS

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (RWQCB)?	☐	☒

Less-than-Significant Impact. The proposed project would not generate any long-term or substantial quantities of wastewater, and it would not involve permanent structures with the potential to generate wastewater. The proposed project would require dewatering of the pipe prior to rehabilitation. The pipe would be flushed with chlorinated water upon completion of rehabilitation activities. The flushed water would be dechlorinated and released into local flood control channels and sewer systems. Therefore, no additional treatment of water from dewatering or flushed water would be required. No wastewater treatment requirements would be violated or exceeded as a result of the proposed project. Further analysis is not required in the draft EIR.

b. Require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒

No Impact. The proposed project would rehabilitate existing PCCP along the SLF alignment. It would not involve the construction of new water facilities, and it would not increase the capacity of the system. The proposed project would not result in construction of new wastewater treatment facilities. No impacts would occur, and further analysis is not required in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
c. Require or result in the construction of new stormwater drainage facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒

No Impact. The construction of new stormwater drainage facilities or the expansion of existing facilities is typically required to maintain or increase the facilities' capacity to accommodate an increase in stormwater runoff in an area, such as when a project involves a substantial increase in the amount of impermeable surface. SLF rehabilitation would not involve paving previously unpaved areas and therefore would not result in an increase in impermeable surfaces that would necessitate the construction of new or expanded stormwater facilities or the provision of additional capacity. Impacts would not occur, and further analysis is not required in the draft EIR.

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new and expanded entitlements needed?	☐	☒

No Impact. The proposed project would rehabilitate an existing water distribution pipeline. It would not entail uses that would result in long-term water consumption. Consequently, the proposed project would not affect existing water entitlements or require new entitlements. No impact would occur, and further analysis is not required in the draft EIR.

e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to its existing commitments?	☐	☒

No Impact. The proposed project consists of rehabilitating an existing pipeline. It would not include long-term uses that would require wastewater treatment. No new wastewater would be generated from operation of the SLF. Upon completion of SLF rehabilitation work, the pipeline would operate as it currently does. Consequently, the proposed project would not affect existing wastewater treatment capabilities of the local provider. No impacts would occur, and further analysis is not required in the draft EIR.

f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☒

Less-than-Significant Impact. The proposed project would not generate substantial amounts of solid waste. Solid waste debris generated could include cutback asphalt, cut portions of PCCP, and excavated soil that could not be reused on site. This debris would either be reused on site, if feasible, or be recycled off site. The selected contractor would use cost-effective means and methods to recycle or dispose of any solid waste debris generated during rehabilitation. Construction and demolition facilities accept these types of materials on a regular basis to process and dispose of them. Construction and demolition facilities used for current emergency repairs of the SLF include: Dan Copp Crushing, Arcadia Reclamation, and Standard Metals. The selected contractor would coordinate with these types of facilities prior to rehabilitation. Other solid waste debris that cannot be recycled and cannot go to a construction and demolition facility could be

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*

accommodated by one or more of the six solid waste facilities in Los Angeles County. The selected contractor could coordinate with one or more of these facilities. These facilities accepted, on average, more than 500 tons of solid waste per day as of 2012 (Los Angeles County Department of Public Works 2013 [Appendix E-2, Table 1]). These facilities include Antelope Valley (accepts 822 tons per day), Calabasas (accepts 633 tons per day), Chiquita Canyon (accepts 2,971 tons per day), Lancaster (accepts 682 tons per day), Scholl Canyon (accepts 675 tons per day), and Sunshine Canyon (accepts 7,107 tons per day). Given the intent to maximize the proposed project's use of excavated materials as backfill and the presence of multiple designated construction and demolition facilities and landfills with existing daily capacity to recycle or dispose of solid waste debris, impacts would be less than significant. Further analysis is not required in the draft EIR.

g. Comply with federal, state, and local statutes and regulations related to solid waste? ☐ ☒

Less-than-Significant Impact. As discussed above, SLF rehabilitation activities would generate small amounts of solid waste including construction and demolition debris. All waste produced due to proposed project activities would be removed immediately following the activity and disposed of properly in accordance with federal, state, and local statutes and regulations. The proposed project is not anticipated to have a significant impact on solid waste disposal needs, and no further analysis is required. Impacts would be less than significant. Further analysis is not required in the draft EIR.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a Rare or Endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☒	☐

Potentially Significant Impact. As discussed in Section IV above, the potential for SLF rehabilitation to reduce the quality of the environment and affect wildlife species and associated habitat will be addressed further in the draft EIR. As discussed in Section V above, the potential for SLF rehabilitation to eliminate important examples of major periods of California history or prehistory will be addressed further in the draft EIR.

Would the proposed project:	*Impact to Be Analyzed in EIR*	*No Additional Analysis Required*
b. Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐

Potentially Significant Impact. The potential for SLF rehabilitation to contribute to cumulative impacts will be addressed further in the draft EIR.

c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐

Potentially Significant Impact. The potential for SLF rehabilitation to result in direct and/or indirect adverse impacts on human beings will be addressed further in the draft EIR.

REFERENCES

California Department of Conservation. 2010. *Farmland Mapping and Monitoring Program* (GIS data). Available: <ftp://ftp.consrv.ca.gov/pub/dlrp/fmmp/2010/>. Accessed: September 26, 2014.

California Department of Conservation. 2013. The California Land Conservation Act 2012 Status Report: The Williamson Act. October. Available: <http://www.conservation.ca.gov/dlrp/lca/stats_reports/Documents/2012%20WA%20Status%20Report.pdf>. Accessed: September 30, 2014.

California Department of Transportation. 2012. *Caltrans Earth online tool*. Available: <http://earth.dot.ca.gov/>. Accessed: September 17, 2014.

California Natural Diversity Database. 2014. GIS shapefile. September 2014.

City of Irvine. 2013. *Zoning Map.* Available: <http://www.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=13672>. Accessed: October 26, 2014.

City of Placentia. 2009a. *Zoning Map*. Available: <http://www.placentia.org/DocumentCenter/View/3343>. Accessed: September 29, 2014.

City of Placentia. 2009b. *General Plan Land Use Map*. Available: <http://www.placentia.org/DocumentCenter/View/3344>. Accessed: September 29, 2014.

City of Rolling Hills Estates. 1992. *General Plan*. Conservation Element. Available: <http://www.ci.rolling-hills-estates.ca.us/Modules/ShowDocument.aspx?documentid=1921>. Accessed: September 24, 2014.

City of Upland. 1986. *General Plan: Mineral Resources Supplement to the Open Space/Conservation Element.* Available: <http://www.ci.upland.ca.us/pdf/UplandGeneralPlan/9-3MineralResourcesSupplementGPA-82III.pdf>. Accessed: September 29, 2014.

County of Los Angeles. 2014a. *Draft General Plan 2035*. Figure 6-3: Regional Wildlife Linkages. Available: <http://planning.lacounty.gov/assets/upl/project/gp_2035_FIG_6-3_Regional_Wildlife_Linkages.pdf >. Accessed: September 23, 2014.

County of Los Angeles. 2014b. *SEA Program.* Available: <http://planning.lacounty.gov/sea/>. Accessed: September 26, 2014.

County of Orange. 2005. *General Plan 2005*. Available: <http://ocplanning.net/planning/generalplan2005>. Accessed: September 23, 2014.

Federal Emergency Management Agency. 2013. *National Flood Hazard Laye*r. Online mapping tool. Available: <https://hazards.fema.gov/femaportal/wps/portal/NFHLWMSkmzdownload>. Accessed: September 23, 2014.

GeoPentech. 2014. *Draft Preliminary Geotechnical/Geologic Evaluation of Second Lower Feeder Alignment.* April.

Los Angeles County Department of Public Works. 2013. *2012 Annual Report: Los Angeles County Countywide Integrated Waste Management Plan*. Appendix E-2, Table 1. Available: <http://dpw.lacounty.gov/epd/swims/ShowDoc.aspx?id=590&hp=yes&type=PDF>. Accessed: September 7, 2014.

Nature Reserve of Orange County. 1996. *Natural Community Conservation Plan and Habitat Conservation Plan*. Available: <http://www.naturereserveoc.org/NCCP%20Parts%20I%20&%20II%20-%20Plan.pdf >. Accessed: September 26, 2014.

Palos Verdes Peninsula Land Conservancy. 2004. *Rancho Palos Verdes Natural Communities Conservation Planning Subarea Plan.* Prepared by URS. Available: <http://www.pvplc.org/_lands/docs/NCCP.pdf>. Accessed: September 26, 2014.

UltraSystems. 2014. Status Memorandum – Environmental Review, Metropolitan Water District, PCCP, Relining & Replacement Study, Second Lower Feeder, Southern California. July 7.

U. S. Forest Service. 2014. Administrative Region Boundaries GIS data. Available: <https://catalog.data.gov/dataset/u-s-forest-service-administrative-region-boundaries>. Accessed: October 26, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014. *National Wetlands Inventory*. Online Google Earth tool. Last modified: May 1, 2014. Available: <http://www.fws.gov/wetlands/Data/Google-Earth.html>. Accessed: September 25, 2014.

PREPARERS OF INITIAL STUDY

The following individuals participated in the preparation of the initial study:

The Metropolitan Water District of Southern California (CEQA lead agency)

- Diane Doesserich
- Malinda Stalvey

ICF International, Inc.

- Donna McCormick
- Nicole Williams
- Rusty Whisman
- Tanya Jones
- Elizabeth Irvin
- John Mathias
- Jenelle Mountain-Castro

Appendix B
Comment Letters on the Notice of Preparation

CITY OF ORANGE

DEPARTMENT OF COMMUNITY DEVELOPMENT www.cityoforange.org

ADMINISTRATION	PLANNING DIVISION	BUILDING DIVISION	CODE ENFORCEMENT DIVISION
(714) 744-7240	(714) 744-7220	(714) 744-7200	(714) 744-7244
fax: (714) 744-7222	fax: (714) 744-7222	fax: (714) 744-7245	fax: (714) 744-7245

January 20, 2015 #35-14

Ms. Diane Doesserich via email: EPT@mwdh2o.com
Environmental Planning Team
The Metropolitan Water District of Southern California
PO Box 54153
Los Angeles, CA 90054-0153

Subject: Pre-Stressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program and Second Lower Feeder (SLF) Rehabilitation Project

Dear Ms. Doesserich:

The City of Orange (City) has received a Notice of Preparation (NOP) for an Environmental Impact Report (EIR) for the PCCP Rehabilitation Program and the SLF Rehabilitation Project. The project includes rehabilitation of the Allen McColloch , Calabasas, Rialto, Sepulveda Feeder and Second Lower Feeder water distribution pipelines. The pipelines are located within MWD-owned rights of way and existing roads. Work includes trenching, relining existing pipes, installation of supplemental or relocated pipes, and refurbishment or replacement of valves and other appurtenant structures. We understand that work would start on the SLF in 2016 and move to the other four pipelines over the next 15 to 20 years.

The Allen McCullough Pipeline is located within the City of Orange. Therefore, we have an interest in ensuring that the EIR evaluate and mitigate any potential impacts to our infrastructure or operations. As such, we request consideration of the following comments:

1. The City requests that the EIR describe the general sequencing and timing for the Allen McColloch Pipeline work and identify any potential for disruption of water service to Orange's connections. We also request substantial advance notification (at least 12 to 24 months) of any work on the AMP that would disrupt water service to Orange's connections, so that there is sufficient time to coordinate any necessary operational changes.

2. The City requests the EIR identify City streets that would be affected by project construction and describe the nature and extent of the disruption. The City requests the EIR describe any street or lane closures or detours and evaluate the impact of redistribution of traffic on adjacent local streets during construction. Any haul routes or detour routes should avoid residential neighborhoods and other sensitive use areas.

3. The City requests the EIR acknowledge that MWD will obtain encroachment permits, haul permits, transportation permits and/or traffic control plan approvals from the City of Orange prior to construction. Depending on the volume of materials hauled, issuance of the haul permit may be a discretionary action approved at the City Council level.

   In addition, please note that conditions may be applied to City-issued permits as a means of minimizing impacts and inconvenience to local roadway users. Conditions may include but are not limited to restricted work or haul hours and implementation of certain traffic safety measures such as use of flagmen at sensitive locations. Also, please note that as a condition of our encroachment and haul permit, the City will require MWD to perform a pavement survey and replace any pavement damaged or disturbed by project equipment, work, or hauling. Depending on project design, this may result in MWD repaving the entire width of the roadway where pipeline work is located.

Thank you for the opportunity to comment on the NOP. We look forward to reviewing the Draft EIR upon completion and coordinating on any future work. If you have any questions, please feel free to contact Mr. Frank Sun, City Engineer at (714) 744 – 5544 or at fsun@cityoforange.org.

Sincerely,

Joe DeFrancesco
Public Works Director
City of Orange

DEPARTMENT OF TRANSPORTATION
DISTRICT 12
3347 MICHELSON DRIVE, SUITE 100
IRVINE, CA 92612-8894
PHONE (949) 724-2000
FAX (949) 724-2019
TTY 711
www.dot.ca.gov

Flex your power!
Be energy efficient!

Jan. 16, 2014

Diane Doesserich
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, , CA 90054-0153

File: IGR/CEQA
SCH#: 2014121055
IGR Log #: 4158

Dear Ms. Doesserich,

Thank you for the opportunity to review and comment on the **Notice of Preparation (NOP) for the Draft Environmental Impact Report(EIR) for the Pre-Stressed Concrete Cylinder Pipe Rehabilitation Program and Second Lower Feeder Rehabilitation Project.** Metropolitan Water District of Southern California has more than 830 miles of pipelines that distribute drinking water to its member agencies within its service area. The pipelines are made of various materials, including PCCP. Between 1962 and 1985, 163 miles of PCCP was installed throughout the service area. Under certain subsurface conditions, PCCP lines have an elevated risk of failure compared with other types of pipe. PCCP failures can occur without warning. Such failures can be catastrophic, compromising system reliability and resulting in unplanned major repairs, significant costs from service interruptions and repair work, and potential third-party damages. In response to this risk, in 1999, Metropolitan developed a program to inspect and asses all 163 miles of PCCP within its distribution system. In 2011, Metropolitan initiated a comprehensive program to evaluate and rank PCCP lines with the highest risk of failure. The inspections and data indicate that the following five feeders represent the highest risk: the Sepulveda Feeder, Rialto Pipeline, Allen McColloch Pipeline (AMP), Calabasas Feeder, and the SLF. Metropolitan proposes to rehabilitate the PCCP portions of these five pipelines under the proposed program and proposed project. Rehabilitation would occur along approximately 70 miles of the AMP, Calabasas Feeder, Rialto Pipeline, and Sepulveda Feeder under the proposed program and approximately 30 miles of the SLF under the proposed project. The first pipeline to be rehabilitated by Metropolitan would be the SLF, followed by the remaining four pipelines (Sepulveda Feeder, Rialto Pipeline, and Calabasas Feeder, AMP) over a period of approximately 15 to 20 years. Rehabilitation would include relining PCCP lines or installing supplemental or relocated lines. Rehabilitation or replacement of isolation valves or appurtenances such as blow-off valves, air-release and vacuum valves, manholes, and meters would also occur within or adjacent to the pipelines.

Caltrans is a commenting agency on this project and has the following comments:

1. If the cost of work within the State R/W is below one Million Dollars the Encroachment Permit process will be handled by Caltrans Permits Branch, otherwise the permit should be authorized through Caltrans Project Development.

2. Allow 2 to 4 weeks for a complete submittal to be reviewed and for a permit to be issued. When applying for Encroachment Permit, please incorporate Environmental Documentation, SWPPP/ WPCP, Hydraulic Calculations, Traffic Control Plans, Geotechnical Analysis, Materials specifications, and all relevant design details including design exception approvals. Maintenance Agreement shall be required between State and the City.

3. If MWD's contractor has not been exempt from permit fees in the Cooperative Agreement, a deposit of $820 will be needed at the time of Double Permit Application submittal.

4. For specific details on Caltrans Encroachment Permits procedure, please refer to Caltrans Encroachment Permits Manual. The latest edition of the Manual is available on the web site: http://www.dot.ca.gov/hq/traffops/developserv/permits/

5. A Traffic Management Plan (TMP) for construction vehicles should be submitted to Caltrans in order to minimize the impacts on the State highway facilities. Coordination of this project with other construction activities may be needed. Any hauling of materials should not occur during A.M and P.M peak periods of travel on State highway facilities during demolition and/or construction of the proposed project. All vehicle loads should be covered so that materials do not blow over or onto the Caltrans Right-of-Way.

Please continue to keep us informed of this project and any future developments that could potentially impact State transportation facilities. If you have any questions or need to contact us, please do not hesitate to call Maryam Molavi at (949) 724-2241.

Sincerely,

MAUREEN EL HARAKE
Branch Chief, Regional-Community-Transit Planning
District 12

City of Anaheim

PUBLIC UTILITIES DEPARTMENT

Environmental Services

January 27, 2015

Ms. Diane Doesserich
Environmental Planning Team
The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

RE: NOTICE OF PREPRARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE PRE-STRESSED CONCRETE CYLINDER PIPE REHABILITATION PROGRAM (PCCP) AND SECOND LOWER FEEDER REHABILITATION PROJECT (SLF)

Dear Ms. Doesserich:

Thank you for the opportunity to review and comment on the above-referenced document.

Public Utilities Department – Water Planning and Resources staff offer the following comments:

1. The City of Anaheim has existing aboveground and subsurface infrastructure within the Project Area. During design and before Project construction, all appropriate measures shall be taken to minimize or avoid any potential disturbances to any existing City of Anaheim infrastructure improvements within the Project Area.

2. MWD shall coordinate their maintenance/construction activities with Anaheim when those activities occur in Anaheim's water service area.

Should you have any questions regarding these comments, please contact Al Shaikh, Principal Civil Engineer, at (714)765-5268.

The Public Utilities Department, Environmental Services Division, offers the following comments:

1. Recommend adding the name of the street, Ball Road, to the map on page 32 in order to offer more identification of the location of the Second Lower Feeder.

2. Page 41, Section IX – Hydrology and Water Quality, of the Initial Study indicates that the Allen McColloch Pipeline (AMP) is not within an area of potential dam failure or inundation. Please refer to the "Dam Inundation Map" of the Safety Element of the Anaheim General Plan which indicates areas of the AMP are within an area subject to inundation due to failure of Prado Dam.

Should you have any questions regarding these comments from the Utilities Department, please contact Marie Newland, Environmental Services Specialist, at (714)765-4166.

The Public Works Department, Traffic Engineering staff offers the following comments:

1. Traffic studies should be included to address construction related impacts. Project construction will most likely impact traffic circulation, including transit service, particularly within The Anaheim Resort Area. Any significant traffic impacts will require mitigation in order to avoid increases to existing traffic congestion conditions.

2. Traffic Control Plans will need to be submitted to the City of Anaheim Public Works Department for approval for any work to be done within Anaheim's city limits. The traffic control plans will assist in providing a safe, uniform flow of traffic. The proposed construction activities and public travel, whether by vehicle, bicycle, or by pedestrians walking, must be given equal consideration when developing traffic control plans.

For comments related to Traffic Engineering, please contact Rafael Cobian, Associate Engineer, at (714) 765-4991.

We would again like to thank you for the opportunity to comment on the above-referenced project. Please forward any subsequent public notices and/or environmental documents regarding this project to my attention at the address listed at the bottom of the first page of this letter.

Sincerely,

Marie Newland
Environmental Services Specialist

cc:

Sara Mathis, Public Utilities Department
Al Shaikh, Public Utilities
Rafael Cobian, Public Works Department
Raul Garcia, Public Works Department
Rod Yong, Public Utilities Department
Nam Nguyen, Public Utilities Department

201 S. Anaheim Boulevard, Suite 1101
Anaheim, California 92805

TEL (714) 765-4166 – mnewland@anaheim.net

City of Anaheim
PUBLIC UTILITIES DEPARTMENT
Environmental Services

January 27, 2015

Ms. Diane Doesserich
Environmental Planning Team
The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

RE: NOTICE OF PREPRARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE PRE-STRESSED CONCRETE CYLINDER PIPE REHABILITATION PROGRAM (PCCP) AND SECOND LOWER FEEDER REHABILITATION PROJECT (SLF)

Dear Ms. Doesserich:

Thank you for the opportunity to review and comment on the above-referenced document.

Public Utilities Department – Water Planning and Resources staff offer the following comments:

1. The City of Anaheim has existing aboveground and subsurface infrastructure within the Project Area. During design and before Project construction, all appropriate measures shall be taken to minimize or avoid any potential disturbances to any existing City of Anaheim infrastructure improvements within the Project Area.

2. MWD shall coordinate their maintenance/construction activities with Anaheim when those activities occur in Anaheim's water service area.

Should you have any questions regarding these comments, please contact Al Shaikh, Principal Civil Engineer, at (714)765-5268.

Public Utilities Department, Environmental Services Division, offers the following comments:

1. Recommend adding the name of the street, Ball Road, to the map on page 32 in order to offer more identification of the location of the Second Lower Feeder.

2. Page 41, Section IX – Hydrology and Water Quality, of the Initial Study indicates that the Allen McColloch Pipeline (AMP) is not within an area of potential dam failure or inundation. Please refer to the "Dam Inundation Map" of the Safety Element of the Anaheim General Plan which indicates areas of the AMP are within an area subject to inundation due to failure of Prado Dam.

Should you have any questions regarding these comments from the Utilities Department, please contact Marie Newland, Environmental Services Specialist, at (714)765-4166.

We would again like to thank you for the opportunity to comment on the above-referenced

Public Works Department, Traffic Engineering staff offers the following comments:

1. Traffic studies should be included to address construction related impacts. Project construction will most likely impact traffic circulation, including transit service, particularly within The Anaheim Resort Area. Any significant traffic impacts will require mitigation in order to avoid increases to existing traffic congestion conditions.

2. Traffic Control Plans will need to be submitted to the City of Anaheim Public Works Department for approval for any work to be done within Anaheim's city limits. The traffic control plans will assist in providing a safe, uniform flow of traffic. The proposed construction activities and public travel, whether by vehicle, bicycle, or by pedestrians walking, must be given equal consideration when developing traffic control plans.

For comments related to Traffic Engineering, please contact Rafael Cobian, Associate Engineer, at (714) 765-4991.

Public Works Department, Development staff offers the following comments:

1. The contractor shall obtain a right of way construction permit for all work with City of Anaheim right-of-ways.
2. During the duration of the project within Anaheim, the contractor needs to schedule regular Traffic Coordination meetings.
3. The Contractor shall include Emergency Services (Fire, Police, etc) in the Traffic Control coordination meetings.
4. Any work outside of the City right-of-way, but within Anaheim's jurisdiction may require a grading permit.
5. Pavement restoration plans shall be submitted to the City of Anaheim
6. No storage of materials on the street will be allowed.
7. Welding ventilation system outlets need to be located away from residential areas.
8. The Contractor shall avoid any conflicts with City projects in the area.
9. The Contractor shall be prepared to address any possibility of street flooding at the Ball Road/Knott Avenue intersection general area.
10. The project shall be coordinated with CALTRANS for the crossing at Beach Avenue.
11. The project shall be coordinated with OCTA for any impacts to bus services.
12. Street closures are not allowed unless approved by City of Anaheim.

For comments related to Development, please contact Raul Garcia, Principal Engineer, at (714) 765-5255.

We would again like to thank you for the opportunity to comment on the above-referenced project. Please forward any subsequent public notices and/or environmental documents regarding this project to my attention at the address listed at the bottom of the first page of this letter.

201 S. Anaheim Boulevard, Suite 1101
Anaheim, California 92805

TEL (714) 765-4166 – mnewland@anaheim.net

Sincerely,

Marie Newland
Environmental Services Specialist

cc:

Sara Mathis, Public Utilities Department
Al Shaikh, Public Utilities
Rafael Cobian, Public Works Department
Raul Garcia, Public Works Department
Rod Yong, Public Utilities Department
Nam Nguyen, Public Utilities Department

201 S. Anaheim Boulevard, Suite 1101
Anaheim, California 92805

TEL (714) 765-4166 – mnewland@anaheim.net

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

January 16, 2015

Ms. Diane Doesserich
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153
Email: EPT@mwdh2o.com

Subject: Comments on the Notice of Preparation of a Joint Project Level and Program Level Draft Environmental Impact Report for the Pre-Stressed Concrete Cylinder Pipe Rehabilitation Program and Second Lower Feeder Rehabilitation Project; Los Angeles, Orange, and San Bernardino Counties, SCH#2014121055.

Dear Ms. Doesserich:

The California Department of Fish and Wildlife (Department) has reviewed the Pre-Stressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (PCCP Program) and Second Lower Feeder (SLF) Rehabilitation Project (SLF Project) Notice of Preparation (NOP) and Initial Study (IS) for a joint project level and program level Draft Environmental Impact Report (DEIR). The PCCP Program, if approved by the Metropolitan Water District of Southern California (Metropolitan), will consist of rehabilitation along approximately 100 miles of drinking water distribution PCCP identified to have a higher risk of failure. The PCCP Program would include relining PCCP lines or installing supplemental or relocated lines. Rehabilitation or replacement of isolation valves or appurtenances such as blow - off valves, air - release and vacuum valves, manholes, and meters would also occur within or adjacent to the pipelines.

The PCCP Program would occur primarily in Metropolitan-owned rights-of-way and public roads and extends through unincorporated Los Angeles, Orange and San Bernardino County and numerous cities within these counties.

The first pipeline to be rehabilitated in the PCCP Program would be the SLF Project which will include: Anaheim, Buena Park, Carson, Cypress, Lakewood, Lomita, Long Beach, Los Alamitos, Los Angeles, Placentia, Rolling Hills Estates, Torrance, Yorba Linda, unincorporated Los Angeles County, and unincorporated Orange County. The SLF Project will be followed by the remaining pipelines included in the PCCP Program over a period of approximately 15 to 20 years.

The following comments and recommendations have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the Project (California Environmental Quality Act [CEQA] Guidelines § 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed Project that come under the purview of the California Endangered Species Act ([CESA] Fish and Game Code § 2050 *et seq.*) and Fish and Game Code section 1600 *et seq*. to assist the City in avoiding and minimizing impacts to biological resources.

1. The Department has responsibility for wetland and riparian habitats. It is the policy of the Department to strongly discourage development in wetlands or conversion of wetlands to uplands. We oppose any development or conversion, which would result in a reduction of wetland acreage or wetland habitat, values, unless, at a minimum, Project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. Development and conversion include but are not limited to conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether intermittent or perennial, should be retained and provided with substantial setbacks, which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations. Mitigation measures to compensate for impacts to mature riparian corridors must be included in the DEIR and must compensate for the loss of function and value of a wildlife corridor.

   a) The Project area supports riparian habitat and may support other wetland habitat types; therefore, a jurisdictional delineation of any creeks and their associated riparian habitats should be included in the DEIR. The delineation should be conducted pursuant to the U.S. Fish and Wildlife Service wetland definition adopted by the Department.[1] Please note that some wetland and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers.

   b) The Department also has regulatory authority over activities in streams and/or lakes that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed. For any such activities, the Project applicant (or "entity") must provide written notification to the Department pursuant to section 1600 et seq. of the Fish and Game Code. Based on this notification and other information, the Department determines whether a Lake and Streambed Alteration (LSA) Agreement with the applicant is required prior to conducting the proposed activities. The Department's issuance of a LSA Agreement for a Project that is subject to CEQA will require CEQA compliance actions by the Department as a Responsible Agency. The Department as a Responsible Agency under CEQA may consider the local jurisdiction's (lead agency) Negative Declaration or Environmental Impact Report for the Project. To minimize additional requirements by the Department pursuant to section 1600 *et seq.* and/or under CEQA, the document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the LSA Agreement.[2]

2. The Department considers adverse impacts to a species protected by the CESA, for the purposes of CEQA, to be significant without mitigation. As to CESA, take of any endangered, threatened, or candidate species that results from the Project is prohibited, except as authorized by state law (Fish and Game Code, §§ 2080, 2085.) Consequently, if the Project, Project construction, or any Project-related activity during the life of the Project will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, the Department recommends that the Project proponent seek appropriate take authorization under CESA prior to implementing the Project. Appropriate authorization from the Department may include an incidental take permit (ITP) or a

[1] Cowardin, Lewis M., et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.
[2] A notification package for a LSA may be obtained by accessing the Department's website at www.wildlife.ca.gov/habcon/1600.

consistency determination in certain circumstances, among other options (Fish and Game Code §§ 2080.1, 2081, subds. (b),(c)). Early consultation is encouraged, as significant modification to a Project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of an ITP unless the Project CEQA document addresses all Project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of an ITP. For these reasons, biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.

3. To enable the Department to adequately review and comment on the proposed Project from the standpoint of the protection of plants, fish and wildlife, we recommend the following information be included in the DEIR.

   a) A complete discussion of the purpose and need for, and description of, the proposed Project, including all staging areas and access routes to the construction and staging areas.

   b) A range of feasible alternatives to ensure that alternatives to the proposed Project are fully considered and evaluated; the alternatives should avoid or otherwise minimize impacts to sensitive biological resources particularly wetland/riparian habitat. Specific alternative locations should be evaluated in areas with lower resource sensitivity where appropriate.

Biological Resources within the Project's Area of Potential Effect

4. To provide a complete assessment of the flora and fauna within and adjacent to the Project area, with particular emphasis upon identifying endangered, threatened, sensitive, and locally unique species and sensitive habitats, the DEIR should include the following information.

   a) Per CEQA Guidelines, section 15125(c), information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis should be placed on resources that are rare or unique to the region.

   b) A thorough, recent floristic-based assessment of special status plants and natural communities, following the Department's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (see http://www.dfg.ca.gov/habcon/plant/). The Department recommends that floristic, alliance- and/or association-based mapping and vegetation impact assessments be conducted at the Project site and neighboring vicinity. The Manual of California Vegetation, second edition, should also be used to inform this mapping and assessment (Sawyer et al. 2008)[3]. Adjoining habitat areas should be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at

[3] Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2008. A Manual of California Vegetation. Second edition. California Native Plant Society, Sacramento, California, USA.

the alliance level will help establish baseline vegetation conditions.

c) A current inventory of the biological resources associated with each habitat type on site and within the area of potential effect. The Department's California Natural Diversity Data Base in Sacramento should be contacted at www.wildlife.ca.gov/biogeodata/ to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

d) An inventory of rare, threatened, endangered, and other sensitive species on site and within the area of potential effect. Species to be addressed should include all those which meet the CEQA definition (see CEQA Guidelines, § 15380). This should include sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the Project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

Analyses of the Potential Project-Related Impacts on the Biological Resources

5. To provide a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, the following should be addressed in the DEIR.

a) A discussion of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage should also be included. The latter subject should address: Project-related changes on drainage patterns on and downstream of the Project site; the volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-Project fate of runoff from the Project site. The discussions should also address the proximity of the extraction activities to the water table, whether dewatering would be necessary, and the potential resulting impacts on the habitat, if any, supported by the groundwater. Mitigation measures proposed to alleviate such impacts should be included.

b) Discussions regarding indirect Project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed or existing reserve lands (e.g., preserve lands associated with a NCCP). Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated in the DEIR.

c) The zoning of areas for development Projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document.

d) A cumulative effects analysis should be developed as described under CEQA Guidelines, section 15130. General and specific plans, as well as past, present, and anticipated future Projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

Mitigation for the Project-related Biological Impacts

6. The DEIR should include measures to fully avoid and otherwise protect Rare Natural Communities from Project-related impacts. The Department considers these communities as threatened habitats having both regional and local significance.

7. The DEIR should include mitigation measures for adverse Project-related impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of Project impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

8. For proposed preservation and/or restoration, the DEIR should include measures to perpetually protect the targeted habitat values from direct and indirect negative impacts. The objective should be to offset the Project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

9. In order to avoid impacts to nesting birds, the DEIR should require that clearing of vegetation, and when biologically warranted construction, occur outside of the peak avian breeding season which generally runs from February 1 through September 1 (as early as January for some raptors). If Project construction is necessary during the bird breeding season a qualified biologist with experience in conducting bird breeding surveys should conduct weekly bird surveys for nesting birds, within three days prior to the work in the area, and ensure no nesting birds in the Project area would be impacted by the Project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer should be a minimum width of 300 feet (500 feet for raptors), be delineated by temporary fencing, and remain in effect as long as construction is occurring or until the nest is no longer active. No Project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the Project. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.

10. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Studies have shown that these efforts are experimental in nature and largely unsuccessful.

11. Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

We appreciate the opportunity to comment on the referenced NOP. Questions regarding this letter and further coordination on these issues should be directed to Scott Harris, Environmental Scientist at (626) 797-3170 or scott.p.harris@wildlife.ca.gov.

Sincerely,

Betty J. Courtney
Environmental Program Manager I

ec: Erinn Wilson, CDFW, Los Alamitos
Marilyn Fluharty, CDFW, San Diego
Jeff Brandt, CDFW, Ontario
Kelly Schmoker, CDFW, Mission Viejo
Scott Harris, CDFW, Pasadena
Victoria Chau, CDFW, Los Alamitos
State Clearing House

From: Mark McAvoy [mailto:m.mcavoy@lomitacity.com]
Sent: Tuesday, January 20, 2015 5:43 PM
To: Environmental Planning Team - EPT
Cc: Mark Andersen; Tom Shahbazi; Ulises Escalona; Paul.Williams@waterboards.ca.gov; Ric.Roda@waterboards.ca.gov
Subject: PCCP Rehabilitation Program and SLF Rehabilitation Project

Date: January 20, 2015

To: Ms. Diane Doesserich, Environmental Planning Team
The Metropolitan Water District of Southern California
P.O. Box 54153 Los Angeles, CA 90054-0153

From: Mark McAvoy, City of Lomita, Director of Public Works/City Engineer
P.O. Box 339, Lomita CA 90717 – 310.325.7110 x124

Subject: PCCP Rehabilitation Program and SLF Rehabilitation Project

The City of Lomita has received the Notice of Preparation (NOP) of an EIR, for the PCCP Rehabilitation Program and SLF Rehabilitation Project, prepared by The Metropolitan Water District of Southern California (MWD). MWD proposes to rehabilitate (5) pipelines, the Sepulveda Feeder, Rialto Pipeline, Allen McColloch Pipeline, Calabasas Feeder and the Second Lower Feeder over a period of approximately 15 to 20 years, beginning with the Second Lower Feeder. The City is concerned regarding this project's potential impacts to the operations of the City's water system, and how those potential impacts are going to be mitigated.

Background

The City of Lomita was incorporated in 1964, and is located 26 miles south of downtown Los Angeles and is bounded by the City of Torrance to the north and west; the City of Los Angeles to the east; the City of Rolling Hills Estates on the southwest; the City of Rancho Palos Verdes on the southeast and unincorporated County area to the northeast. The City's total area is 1.97 square miles.

The City is a retail water agency within West Basin Municipal Water District's (WBMWD) service area. The City's Water Division currently serves a population of approximately 21,515 and handles operations, maintenance, water treatment and upgrading of the (41) miles of distribution pipes within the water system which has more than 4200 service connections.

Pressure Zones

The City of Lomita's topography varies widely in elevation (225 ft. to 430 ft.) requiring (4) different pressure zones to deliver water at adequate pressures to the City's customers.

MWD Connections

The table below provides a summary of the imported MWD water connections that supply the City.

Site Name	Location	Inlet PSI	Outlet PSI	Flow Capacity (gpm)
WB-7	Walnut Ave & Turrell St.	120	72	1,800
WB-8	Appian Way	165	110	3,350

WB-7 can only supplement supply within water pressure Zone I (that portion of the City of Lomita north of Pacific Coast Highway (SR-1)) which serves 75% of the City's population. WB-8 can supply all (4) pressures Zones.

Emergency Connections

The table below provides a summary of emergency connections.

Location	2 way/1 way	Size	Discharge (gpm)
Palos Verdes Drive	2 way	8"	1,800
239th and Narbonne	1 way	8"	1,350
Pennsylvania Ave and 240th St.	1 way	8"	1,350

These (3) connections can allow water to flow to the City's water distribution system during emergencies, but cannot supply the entire City (water pressure Zone II has no emergency connection).

Storage Facilities

There are (2) operating reservoirs in the City's system; the Cypress reservoir at 5.3 MG and the Harbor Hills reservoir at 100,000 gallons, with a combined storage capacity of 5.4 MG. Harbor Hills supplies Zone III and IV and Cypress supplies Zone I. Zone II is a closed zone with no storage capacity and is solely dependent upon imported water supplied through WB-8.

Pump Stations

There are (2) pump stations. One is located at the Cypress Water Production Facility (CWPF) and the other is adjacent to WB-8. The booster pump at Appian Way can supply all (4) pressure zones.

Cypress Water Production Facility (CWPF)

CWPF was successfully placed into service in April of 2013. This facility includes a well capable of 1,500 gpm, a chemical disinfection system, iron and manganese filter and a 5.3 MG reservoir. Secondary water quality issues prohibit the sole distribution of well water. Current operations include blending 50% MWD water

supplied through WB-8 with 50% well water which is then treated, stored and distribution through gravity to Zone I. There are no back up wells within the City's water system.

Water Demands

The table below provides a (2) year summary of historical water demand.

Fiscal Year	CWPF	MWD
2013 - 2014	592.3 AF	1,787.7 AF
2012 - 2013	161.7 AF	2,275.0 AF

This equates to an approximate daily average of 2.3 MGD, which is consistent with the City's (10) year historical water usage data.

Potential Impacts to Water Resources

The City of Lomita is greatly dependent upon MWD's supply from the Second Lower Feeder (SLF) which directly supplies WB-8. While the City understands MWD's need to rehabilitate the SLF, the City is concerned about potential direct and cumulative impacts of this project on water supplies to the City.

The City respectfully requests that prior to implementation of the SLF project, MWD work with the City to identify adequate backup water supplies for the City's population so that water can continue to be delivered to the City's customers. In addition, assistance is requested to help prepare a written contingency plan to be practiced between MWD operational staff and the City's Water Division staff to ensure these planned emergency operations can functionally supply water to each of the (4) water pressure zones within the City's water distribution system. At no point can the City sustain a shutdown of WB-8 before an adequate backup for water pressure Zone II is identified and constructed. The City also understands that the WB-8 connection is referred to by two (2) separate names, WB-8A and WB-8B; we would like confirmation whether that implies two separate connections and whether or not both of these connections would be affected by the SLF project.

We appreciate the opportunity to provide input to your planning process and look forward to receiving future correspondence on this project.

Mark A. McAvoy
Public Works Director

City of Lomita
24300 Narbonne Avenue
Lomita, CA 90717
(310) 325-7110, x124

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

January 8, 2015

Diane Doesserich
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

RE: SCH # 2014121055 Pre-Stressed Concrete Cylinder Pipe Rehabilitation Program and Second Lower Feeder Rehabilitation, Los Angeles County.

Dear Ms. Doesserich,

The Native American Heritage Commission (NAHC) has reviewed the Notice of Preparation (NOP) referenced above. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA Guidelines 15064(b)). To comply with this provision the lead agency is required to assess whether the project will have an adverse impact on historical resources within the area of project effect (APE), and if so to mitigate that effect. To adequately assess and mitigate project-related impacts to archaeological resources, the NAHC recommends the following actions:

- ✓ Contact the appropriate regional archaeological Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. **USGS 7.5-minute quadrangle name, township, range, and section required**
  - A list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached.**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) Guidelines §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered cultural items that are not burial associated, which are addressed in Public Resources Code (PRC) §5097.98, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, PRC §5097.98, and CEQA Guidelines §15064.5(e), address the process to be followed in the event of an accidental discovery of any human remains and associated grave goods in a location other than a dedicated cemetery.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Government Program Analyst

CC: State Clearinghouse

Native American Contacts
Los Angeles County
January 7, 2015

Beverly Salazar Folkes
1931 Shadybrook Drive — Chumash
Thousand Oaks CA 91362 — Tataviam
folkes9@msn.com — Ferrnandeño
(805) 492-7255
(805) 558-1154 Cell

Barbareno/Ventureno Band of Mission Indians
Julie Lynn Tumamait-Stennslie, Chair
365 North Poli Ave — Chumash
Ojai , CA 93023
jtumamait@hotmail.com
(805) 646-6214

Owl Clan
Dr. Kote & Lin A-Lul'Koy Lotah
48825 Sapaque Road — Chumash
Bradley , CA 93426
mupaka@gmail.com
(805) 472-9536

Patrick Tumamait
992 El Camino Corto — Chumash
Ojai , CA 93023
(805) 640-0481
(805) 216-1253 Cell

San Manuel Band of Mission Indians
Lynn Valbuena, Chairwoman
26569 Community Center — Serrano
Highland , CA 92346
(909) 864-8933
(909) 864-3724 Fax
(909) 864-3370 Fax

San Luis Obispo County Chumash Council
Chief Mark Steven Vigil
1030 Ritchie Road — Chumash
Grover Beach CA 93433
(805) 481-2461
(805) 474-4729 Fax

Fernandeno Tataviam Band of Mission Indians
Larry Ortega, Chairperson
1019 - 2nd Street, Suite #1 — Fernandeno
San Fernando CA 91340 — Tataviam
(818) 837-0794 Office
(818) 837-0796 Fax

LA City/County Native American Indian Comm
Ron Andrade, Director
3175 West 6th St, Rm. 403
Los Angeles , CA 90020
randrade@css.lacounty.gov
(213) 351-5324
(213) 386-3995 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed SCH #2014121055 Pre-Stressed Concrete Cylinder Pipe-Rehabilitation Program and Second Level Feeder Rehab, Los Angeles County.

Native American Contacts
Los Angeles County
January 7, 2015

Owl Clan
Qun-tan Shup
48825 Sapaque Road
Bradley , CA 93426
mupaka@gmail.com
(805) 472-9536 Voice/Fax
(805) 835-2382 Cell
Chumash

Gabrieleno/Tongva San Gabriel Band of Mission Indian
Anthony Morales, Chairperson
P.O. Box 693
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 483-3564 Cell
(626) 286-1262 Fax
Gabrielino Tongva

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
,
tattnlaw@gmail.com
(310) 570-6567
Gabrielino Tongva

Randy Guzman - Folkes
4676 Walnut Avenue
Simi Valley , CA 93063
ndnRandy@yahoo.com
(805) 905-1675 Cell
(805) 520-5915 Fax
Chumash
Fernandeño
Tataviam
Shoshone Paiute
Yaqui

Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez, Chairperson
115 Radio Street
Bakersfield , CA 93305
deedominguez@juno.com
(626) 339-6785
Yowlumne
Kitanemuk

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St.
Los Angeles , CA 90012
sgoad@gabrielino-tongva.com
(951) 807-0479
Gabrielino Tongva

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838
Newhall , CA 91322
tsen2u@hotmail.com
(661) 753-9833 Office
(760) 885-0955 Cell
(760) 949-1604 Fax
Fernandeño
Tataviam
Serrano
Vanyume
Kitanemuk

Coastal Band of the Chumash Nation
Michael Cordero, Chairperson
P.O. Box 4464
Santa Barbara CA 93140
CbcnTRIBALCHAIR@gmail.com
(805) 689-9528
Chumash

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed SCH #2014121055 Pre-Stressed Concrete Cylinder Pipe-Rehabilitation Program and Second Level Feeder Rehab, Los Angeles County.

Native American Contacts
Los Angeles County
January 7, 2015

Richard Angulo
P.O. Box 935
Salome , AZ 85348
Chumash

Carol A. Pulido
165 Mountainview Street
Oak View , CA 93022
Chumash

San Manuel Band of Mission Indians
Daniel McCarthy, M.S.., Director-CRM Dept.
26569 Community Center Drive
Highland , CA 92346
dmccarthy@sanmanuel-nsn.gov
(909) 864-8933 Ext 3248
(909) 862-5152 Fax
Serrano

Melissa M. Parra-Hernandez
119 North Balsam Street
Oxnard , CA 93030
envyy36@yahoo.com
(805) 983-7964
(805) 248-8463 Cell
Chumash

Gabrielino Tongva Indians of California Tribal Council
Robert F. Dorame, Tribal Chair/Cultural Resources
P.O. Box 490
Bellflower , CA 90707
gtongva@verizon.net
(562) 761-6417 Voice/Fax
Gabrielino Tongva

Frank Arredondo
P.O. Box 161
Santa Barbara CA 93102
ksen_sku_mu@yahoo.com
Chumash

Kern Valley Indian Council
Robert Robinson, Co-Chairperson
P.O. Box 401
Weldon , CA 93283
brobinson@iwvisp.com
(760) 378-4575 Home
(760) 549-2131 Work
Tubatulabal
Kawaiisu
Koso
Yokuts

Gabrielino-Tongva Tribe
Bernie Acuna, Co-Chairperson
1999 Avenue of the Stars, Suite 1100
Los Angeles , CA 90067

(310) 428-5690 Cell
Gabrielino

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed SCH #2014121055 Pre-Stressed Concrete Cylinder Pipe-Rehabilitation Program and Second Level Feeder Rehab, Los Angeles County.

Native American Contacts
Los Angeles County
January 7, 2015

Gabrielino-Tongva Tribe
Linda Candelaria, Co-Chairperson
1999 Avenue of the Stars, Suite 1100 Gabrielino
Los Angeles , CA 90027
(626) 676-1184 Cell

Barbareno/Ventureno Band of Mission Indians
Raudel Joe Banuelos, Jr.
331 Mira Flores Court Chumash
Camarillo , CA 93012
(805) 987-5314

Santa Ynez Tribal Elders Council
Freddie Romero, Cultural Preservation Conslnt
P.O. Box 365 Chumash
Santa Ynez , CA 93460
freddyromero1959@yahoo.com
(805) 688-7997, Ext 37

Coastal Band of the Chumash Nation
Janet Darlene Garcia
P.O. Box 4464 Chumash
Santa Barbara CA 93140
(805) 689-9528

Gabrieleno Band of Mission Indians
Andrew Salas, Chairperson
P.O. Box 393 Gabrielino
Covina , CA 91723
gabrielenoindians@yahoo.
(626) 926-4131

Coastal Band of the Chumash Nation
Crystal Baker
P.O. Box 723 Chumash
Atascadero , CA 93423
(805) 466-8406

Barbareno/Ventureno Band of Mission Indians
Kathleen Pappo
2762 Vista Mesa Drive Chumash
Rancho Pales Verdes CA 90275
(310) 831-5295

Gabrielino-Tongva Tribe
Conrad Acuna
1999 Avenue of the Stars, Suite 1100 Gabrielino
Los Angeles , CA 90027

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed SCH #2014121055 Pre-Stressed Concrete Cylinder Pipe-Rehabilitation Program and Second Level Feeder Rehab, Los Angeles County.

Native American Contacts
Los Angeles County
January 7, 2015

Gabrielino /Tongva Nation
Sam Dunlap, Cultural Resources Director
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
samdunlap@earthlink.net
(909) 262-9351

PeuYoKo Perez
5501Stanford Street Chumash
Ventura , CA 93003
grndowl4U@yahoo.com
(805) 231 -0229 Cell

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed SCH #2014121055 Pre-Stressed Concrete Cylinder Pipe-Rehabilitation Program and Second Level Feeder Rehab, Los Angeles County.

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

Notice of Preparation

December 18, 2014

To: Reviewing Agencies

Re: Pre-Stressed Concrete Cylinder Pipe Rehabilitation Program and Second Lower Feeder Rehabilitation Project
SCH# 2014121055

Attached for your review and comment is the Notice of Preparation (NOP) for the Pre-Stressed Concrete Cylinder Pipe Rehabilitation Program and Second Lower Feeder Rehabilitation Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Diane Doesserich
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2014121055
Project Title Pre-Stressed Concrete Cylinder Pipe Rehabilitation Program and Second Lower Feeder Rehabilitation Project
Lead Agency Metropolitan Water District of Southern California

---

Type NOP Notice of Preparation

Description Metropolitan has more than 830 miles of pipelines that distribute drinking water to its member agencies within its service area. The pipelines are made of various materials, including PCCP. Between 1962 and 1985, 163 miles of PCCP was installed throughout the service area. Under certain subsurface conditions, PCCP lines have an elevated risk of failure compared with other types of pipe. PCCP failures can occur without warning. Such failures can be catastrophic, compromising system reliability and resulting in unplanned major repairs, significant costs from service interruptions and repair work, and potential third-party damages. In response to this risk, in 1999, Metropolitan developed a program to inspect and asses all 163 miles of PCCP within its distribution system. In 2011, Metropolitan initiated a comprehensive program to evaluate and rank PCCP lines with the highest risk of failure. The inspections and data indicate that the following five feeders represent the highest risk: the Sepulveda Feeder, Rialto Pipeline, Allen McColloch Pipeline (AMP), Calabasas Feeder, and the SLF. Metropolitan proposes to rehabilitate the PCCP portions of these five pipelines under the proposed program and proposed project. Rehabilitation would occur along approximately 70 miles of the AMP, Calabasas Feeder, Rialto Pipeline, and Sepulveda Feeder under the proposed program and approximately 30 miles of the SLF under the proposed project. The first pipeline to be rehabilitated by Metropolitan would be the SLF, followed by the remaining four pipelines (Sepulveda Feeder, Rialto Pipeline, and Calabasas Feeder, AMP) over a period of approximately 15 to 20 years. Rehabilitation would include relining PCCP lines or installing supplemental or relocated lines. Rehabilitation or replacement of isolation valves or appurtenances such as blow-off valves, air-release and vacuum valves, manholes, and meters would also occur within or adjacent to the pipelines.

Document Details Report
State Clearinghouse Data Base

Lead Agency Contact

Name	Diane Doesserich
Agency	Metropolitan Water District of Southern California
Phone	(213) 217-6899 **Fax**
email	
Address	P.O. Box 54153
City	Los Angeles **State** CA **Zip** 90054-0153

Project Location

County	Los Angeles
City	
Region	
Cross Streets	
Lat / Long	
Parcel No.	
Township	**Range** **Section** **Base**

Proximity to:

Highways	
Airports	
Railways	
Waterways	
Schools	
Land Use	

Project Issues

Reviewing Agencies Resources Agency; Coachella Valley Mountains Conservancy; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 5; Native American Heritage Commission; California Highway Patrol; Caltrans, District 7; Caltrans, District 12; Air Resources Board; State Water Resources Control Board, Divison of Financial Assistance; State Water Resources Control Board, Division of Drinking Water; Regional Water Quality Control Board, Region 4

Date Received 12/18/2014 **Start of Review** 12/18/2014 **End of Review** 01/16/2015

NOP Distribution List

County: Los Angeles SCH# 2014121055

esources Agency

- Resources Agency
  Nadell Gayou
- Dept. of Boating & Waterways
  Nicole Wong
- California Coastal Commission
  Elizabeth A. Fuchs
- Colorado River Board
  Lisa Johansen
- Dept. of Conservation
  Elizabeth Carpenter
- California Energy Commission
  Eric Knight
- Cal Fire
  Dan Foster
- Central Valley Flood Protection Board
  James Herota
- Office of Historic Preservation
  Ron Parsons
- Dept of Parks & Recreation
  Environmental Stewardship Section
- California Department of Resources, Recycling & Recovery
  Sue O'Leary
- S.F. Bay Conservation & Dev't. Comm.
  Steve McAdam
- Dept. of Water Resources
  Resources Agency
  Nadell Gayou

Fish and Game

- Depart. of Fish & Wildlife
  Scott Flint
  Environmental Services Division
- Fish & Wildlife Region 1
  Donald Koch
- Fish & Wildlife Region 1E
  Laurie Harnsberger
- Fish & Wildlife Region 2
  Jeff Drongesen
- Fish & Wildlife Region 3
  Charles Armor
- Fish & Wildlife Region 4
  Julie Vance
- Fish & Wildlife Region 5
  Leslie Newton-Reed
  Habitat Conservation Program
- Fish & Wildlife Region 6
  Tiffany Ellis
  Habitat Conservation Program
- Fish & Wildlife Region 6 I/M
  Heidi Sickler
  Inyo/Mono, Habitat Conservation Program
- Dept. of Fish & Wildlife M
  George Isaac
  Marine Region

Other Departments

- Food & Agriculture
  Sandra Schubert
  Dept. of Food and Agriculture
- Depart. of General Services
  Public School Construction
- Dept. of General Services
  Anna Garbeff
  Environmental Services Section
- Delta Stewardship Council
  Kevan Samsam
- Housing & Comm. Dev.
  CEQA Coordinator
  Housing Policy Division

Independent Commissions,Boards

- Delta Protection Commission
  Michael Machado
- OES (Office of Emergency Services)
  Dennis Castrillo
- Native American Heritage Comm.
  Debbie Treadway
- Public Utilities Commission
  Leo Wong
- Santa Monica Bay Restoration
  Guangyu Wang
- State Lands Commission
  Jennifer Deleong
- Tahoe Regional Planning Agency (TRPA)
  Cherry Jacques

Cal State Transportation Agency CalSTA

- Caltrans - Division of Aeronautics
  Philip Crimmins
- Caltrans – Planning HQ LD-IGR
  Terri Pencovic
- California Highway Patrol
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

- Caltrans, District 1
  Rex Jackman
- Caltrans, District 2
  Marcelino Gonzalez
- Caltrans, District 3
  Eric Federicks – South
  Susan Zanchi - North
- Caltrans, District 4
  Erik Alm
- Caltrans, District 5
  Larry Newland
- Caltrans, District 6
  Michael Navarro
- Caltrans, District 7
  Dianna Watson
- Caltrans, District 8
  Mark Roberts
- Caltrans, District 9
  Gayle Rosander
- Caltrans, District 10
  Tom Dumas
- Caltrans, District 11
  Jacob Armstrong
- Caltrans, District 12
  Maureen El Harake

Cal EPA

Air Resources Board

- All Other Projects
  Cathi Slaminski
  - Transportation Projects
    Nesamani Kalandiyur
  - Industrial/Energy Projects
    Mike Tollstrup
- State Water Resources Control Board
  Regional Programs Unit
  Division of Financial Assistance
- State Water Resources Control Board
  Jeffery Werth
  Division of Drinking Water
- State Water Resources Control Board
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- State Water Resouces Control Board
  Phil Crader
  Division of Water Rights
- Dept. of Toxic Substances Control
  CEQA Tracking Center
- Department of Pesticide Regulation
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- RWQCB 1
  Cathleen Hudson
  North Coast Region (1)
- RWQCB 2
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- RWQCB 3
  Central Coast Region (3)
- RWQCB 4
  Teresa Rodgers
  Los Angeles Region (4)
- RWQCB 5S
  Central Valley Region (5)
  - RWQCB 5F
    Central Valley Region (5)
    Fresno Branch Office
  - RWQCB 5R
    Central Valley Region (5)
    Redding Branch Office
- RWQCB 6
  Lahontan Region (6)
  - RWQCB 6V
    Lahontan Region (6)
    Victorville Branch Office
- RWQCB 7
  Colorado River Basin Region (7)
- RWQCB 8
  Santa Ana Region (8)
- RWQCB 9
  San Diego Region (9)

- Other _____
- _____ Conservancy

Last Updated 10/13/2014

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

December 23, 2014

Ms. Diane Doesserich
The Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, CA 90012

Notice of Preparation of a CEQA Document for the Pre-Stressed Concrete Cylinder Pipe Rehabilitation Program and Second Lower Feeder Rehabilitation Project

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document. The SCAQMD staff's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the draft CEQA document. Please send the SCAQMD a copy of the CEQA document upon its completion. Note that copies of the Draft EIR that are submitted to the State Clearinghouse are not forwarded to the SCAQMD. Please forward a copy of the Draft EIR directly to SCAQMD at the address in our letterhead. **In addition, please send with the draft EIR all appendices or technical documents related to the air quality and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files. These include original emission calculation spreadsheets and modeling files (not Adobe PDF files). Without all files and supporting air quality documentation, the SCAQMD will be unable to complete its review of the air quality analysis in a timely manner. Any delays in providing all supporting air quality documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. More recent guidance developed since this Handbook was published is also available on SCAQMD's website here: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993). SCAQMD staff also recommends that the lead agency use the CalEEMod land use emissions software. This software has recently been updated to incorporate up-to-date state and locally approved emission factors and methodologies for estimating pollutant emissions from typical land use development. CalEEMod is the only software model maintained by the California Air Pollution Control Officers Association (CAPCOA) and replaces the now outdated URBEMIS. This model is available free of charge at: www.caleemod.com.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Additionally, construction impacts from hauling should be analyzed. Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the analysis.

The SCAQMD has also developed both regional and localized significance thresholds. The SCAQMD staff requests that the lead agency quantify criteria pollutant emissions and compare the results to the recommended regional significance thresholds found here: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2. In addition to analyzing regional air quality impacts, the SCAQMD staff recommends

calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LST's can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the proposed project, it is recommended that the lead agency perform a localized analysis by either using the LSTs developed by the SCAQMD or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

In the event that the proposed project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the lead agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("*Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*") can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis. An analysis of all toxic air contaminant impacts due to the use of equipment potentially generating such air pollutants should also be included.

In addition, guidance on siting incompatible land uses (such as placing homes near freeways) can be found in the California Air Resources Board's *Air Quality and Land Use Handbook: A Community Perspective*, which can be found at the following internet address: http://www.arb.ca.gov/ch/handbook.pdf. CARB's Land Use Handbook is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process.

Mitigation Measures

In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize or eliminate these impacts. Pursuant to state CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed. Several resources are available to assist the Lead Agency with identifying possible mitigation measures for the project, including:

- Chapter 11 of the SCAQMD *CEQA Air Quality Handbook*
- SCAQMD's CEQA web pages at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies.
- CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* available here: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.
- SCAQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook for controlling construction-related emissions
- Other measures to reduce air quality impacts from land use projects can be found in the SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. This document can be found at the following internet address: http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf?sfvrsn=4.

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's webpage (http://www.aqmd.gov).

The SCAQMD staff is available to work with the Lead Agency to ensure that project emissions are accurately evaluated and mitigated where feasible. If you have any questions regarding this letter, please contact me at jbaker@aqmd.gov or call me at (909) 396-3176.

Sincerely,

Jillian Baker

Jillian Baker, Ph.D.
Program Supervisor
Planning, Rule Development & Area Sources

ALL141219-04
Control Number

CALIFORNIA Water Boards

EDMUND G. BROWN JR. GOVERNOR

MATTHEW RODRIQUEZ SECRETARY FOR ENVIRONMENTAL PROTECTION

State Water Resources Control Board

JAN 14 2015

Diane Doesserich
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Dear Ms. Doesserich:

NOTICE OF PREPARATION (NOP) FOR METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA (DISTRICT); PRE-STRESSED CONCRETE CLINDER PIPE REHABILITATION PROGRAM AND SECOND LOWER FEEDER REHABILITATION PROJECT (PROJECT);LOS ANGELES COUNTY; STATE CLEARINGHOUSE NO: 2014121055

We understand that the District maybe pursuing Clean Water State Revolving Fund (CWSRF) financing for this Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing the following information on the preparation of the California Environmental Quality Act (CEQA) documents for the Project.

The State Water Board, Division of Financial Assistance, is responsible for administering the CWSRF Program. The primary purpose for the CWSRF Program is to implement the Clean Water Act and various state laws by providing financial assistance for wastewater treatment facilities necessary to prevent water pollution, recycle water, correct nonpoint source and storm drainage pollution problems, provide for estuary enhancement, and thereby protect and promote health, safety and welfare of the inhabitants of the state. The CWSRF Program provides low-interest funding equal to one-half of the most recent State General Obligation Bond Rates with a 30-year term. Applications are accepted and processed continuously. Please refer to the State Water Board's CWSRF website at:
www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/index.shtml.

The CWSRF Program is partially funded by the United States Environmental Protection Agency and requires additional "CEQA-Plus" environmental documentation and review. Three enclosures are included that further explain the CWSRF Program environmental review process and the additional federal requirements. For the complete environmental application package please visit:
http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml. The State Water Board is required to consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of a CWSRF financing commitment for the proposed Project. For further information on the CWSRF Program, please contact Mr. Ahmad Kashkoli, at (916) 341-5855.

It is important to note that prior to a CWSRF financing commitment, projects are subject to provisions of the Federal Endangered Species Act (ESA), and must obtain Section 7 clearance from the United States Department of the Interior, Fish and Wildlife Service (USFWS), and/or the United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) for any potential effects to special-status species.

Please be advised that the State Water Board will consult with the USFWS, and/or the NMFS regarding all federal special-status species that the Project has the potential to impact if the Project is to be financed by the CWSRF Program. The District will need to identify whether the Project will involve any direct effects from construction activities, or indirect effects such as growth inducement, that may affect federally listed threatened, endangered, or candidate species that are known, or have a potential to occur in the Project site, in the surrounding areas, or in the service area, and to identify applicable conservation measures to reduce such effects.

In addition, CWSRF projects must comply with federal laws pertaining to cultural resources, specifically Section 106 of the National Historic Preservation Act (Section 106). The State Water Board has responsibility for ensuring compliance with Section 106 and the State Water Board must consult directly with the California State Historic Preservation Officer (SHPO). SHPO consultation is initiated when sufficient information is provided by the CWSRF applicant. The District must retain a consultant that meets the Secretary of the Interior's Professional Qualifications Standards (http://www.nps.gov/history/local-law/arch_stnds_9.htm) to prepare a Section 106 compliance report.

Note that the District will need to identify the Area of Potential Effects (APE), including construction and staging areas, and the depth of any excavation. The APE is three-dimensional and includes all areas that may be affected by the Project. The APE includes the surface area and extends below ground to the depth of any Project excavations. The records search request should extend to a ½-mile beyond project APE. The appropriate area varies for different projects but should be drawn large enough to provide information on what types of sites may exist in the vicinity.

Other federal environmental requirements pertinent to the Project under the CWSRF Program include the following (for a complete list of all environmental requirements please visit: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/forms/application_environmental_package.pdf):

A. Compliance with the Federal Clean Air Act: (a) Provide air quality studies that may have been done for the Project; and (b) if the Project is in a nonattainment area or attainment area subject to a maintenance plan; (i) provide a summary of the estimated emissions (in tons per year) that are expected from both the construction and operation of the Project for each federal criteria pollutant in a nonattainment or maintenance area, and indicate if the nonattainment designation is moderate, serious, or severe (if applicable); (ii) if emissions are above the federal de minimis levels, but the Project is sized to meet only the needs of current population projections that are used in the approved State Implementation Plan for air quality, quantitatively indicate how the proposed capacity increase was calculated using population projections.

B. Compliance with the Coastal Zone Management Act: Identify whether the Project is within a coastal zone and the status of any coordination with the California Coastal Commission.

C. Protection of Wetlands: Identify any portion of the proposed Project area that should be evaluated for wetlands or United States waters delineation by the United States Army Corps of Engineers (USACE), or requires a permit from the USACE, and identify the status of coordination with the USACE.

D. Compliance with the Farmland Protection Policy Act: Identify whether the Project will result in the conversion of farmland. State the status of farmland (Prime, Unique, or Local and Statewide Importance) in the Project area and determine if this area is under a Williamson Act Contract.

E. Compliance with the Migratory Bird Treaty Act: List any birds protected under this act that may be impacted by the Project and identify conservation measures to minimize impacts.

F. Compliance with the Flood Plain Management Act: Identify whether or not the Project is in a Flood Management Zone and include a copy of the Federal Emergency Management Agency flood zone maps for the area.

G. Compliance with the Wild and Scenic Rivers Act: Identify whether or not any Wild and Scenic Rivers would be potentially impacted by the Project and include conservation measures to minimize such impacts.

Following the preparation of the draft CEQA document for the Project, please provide us a copy of the document to review if the District's is considering CWSRF financing. In addition, we would appreciate notices of any hearings or meetings held regarding environmental review for the Project.

Thank you for the providing us a copy of your NOP, and the consideration of the CWSRF for the financing of the District's Project. If you have any questions or concerns, please feel free to contact me at (916) 341-5855, or by email at Ahmad.Kashkoli@waterboards.ca.gov or contact Amanda Dwyer at (916) 341-5739, or by email at Amanda.Dwyer@waterboards.ca.gov.

Sincerely,

Ahmad Kashkoli
Senior Environmental Scientist

cc: State Clearinghouse
(Re: SCH#2014121055)
P.O. Box 3044
Sacramento, CA 95812-3044

CLEAN WATER STATE REVOLVING FUND

California Environmental Quality Act Requirements

State Water Resources Control Board
Division of Financial Assistance

The State Water Resources Control Board (State Water Board), Division of Financial Assistance, administers the Clean Water State Revolving Fund (CWSRF) Program. The CWSRF Program is partially funded by grants from the United States Environmental Protection Agency. All applicants seeking CWSRF financing must comply with the California Environmental Quality Act (CEQA), and provide sufficient information so that the State Water Board can document compliance with federal environmental laws. The "Environmental Package" provides the forms and instructions needed to complete the environmental review requirements for CWSRF Program financing. It is available at: ***http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml***

LEAD AGENCY

The applicant is usually the "Lead Agency" and must prepare and circulate an environmental document before approving a project. Only a public agency, such as a local, regional or state government, may be the "Lead Agency" under CEQA. If a project will be completed by a non-governmental organization, "Lead Agency" responsibility goes to the first public agency providing discretionary approval for the project.

RESPONSIBLE AGENCY

The State Water Board is generally a "Responsible Agency" under CEQA. As a "Responsible Agency," the State Water Board must make findings based on information provided by the "Lead Agency" before financing a project.

ENVIRONMENTAL REVIEW

The State Water Board's environmental review of the project's compliance with both CEQA and federal cross-cutting regulations must be completed before a project can be financed by the CWSRF Program.

DOCUMENT REVIEW

Applicants are encouraged to consult with State Water Board staff early during preparation of CEQA document if considering CWSRF financing. Applicants shall also send their environmental documents to the State Water Board, Environmental Review Unit during the CEQA public review period. This way, any environmental concerns can be addressed early in the process.

REQUIRED DOCUMENTS

The Environmental Review Unit requires the documents listed below to make findings and complete its environmental review. Once the State Water Board receives all the required documents and makes its own findings, the environmental review for the project will be complete.

- ✓ Draft and Final Environmental Documents: Environmental Impact Report, Negative Declaration, and Mitigated Negative Declaration as appropriate to the project
- ✓ Resolution adopting/certifying the environmental document, making CEQA findings, and approving the project
- ✓ All comments received during the public review period and the "Lead Agency's" responses to those comments
- ✓ Adopted Mitigation Monitoring and Reporting Plan, if applicable
- ✓ Date-stamped copy of the Notice of Determination or Notice of Exemption filed with the County Clerk(s) and the Governor's Office of Planning and Research
- ✓ CWSRF Evaluation Form for Environmental Review and Federal Coordination with supporting documents

We've got the **green**...
to keep California's **water clean**.
CLEAN WATER STATE REVOLVING FUND

Contact Information: For more information related to the CWSRF Program environmental review process and requirements, please contact your State Water Board Project Manager or Mr. Ahmad Kashkoli at 916-341-5855 or Ahmad.Kashkoli@waterboards.ca.gov

Water Boards
waterboards.ca.gov

REVISED FEB 2014

CLEAN WATER STATE REVOLVING FUND

Basic Criteria for Cultural Resources Report Preparation

State Water Resources Control Board
Division of Financial Assistance

For Section 106 Consultation with the State Historic Preservation Officer (SHPO) under the National Historic Preservation Act

CULTURAL RESOURCES REPORT

The Cultural Resources Report must be prepared by a qualified researcher that meets the Secretary of the Interior's Professional Qualifications Standards. Please see the Professional Qualifications Standards at the following website at: *http://www.cr.nps.gov/local-law/arch_stnds_9.htm*

The Cultural Resources Report should include one of the four "findings" listed in Section 106. These include:

"No historic properties affected"
(no properties are within the area of potential effect (APE; including below the ground).

"No effect to historic properties"
(properties may be near the APE, but the project will not have any adverse effects).

"No adverse effect to historic properties"
(the project may affect "historic properties", but the effects will not be adverse).

"Adverse effect to historic properties"
Note: Consultation with the SHPO will be required if a "no adverse effect to historic properties" or an "adverse effect to historic properties" determination is made, to develop and evaluate alternatives or modifications to the proposed project that could avoid, minimize or mitigate adverse effects on "historic properties."

RECORDS SEARCH

- A records search (less than one year old) extending to a half-mile beyond the project APE from a geographically appropriate Information Center is required. The records search should include maps that show all recorded sites and surveys in relation to the APE for the proposed project, and copies of the confidential site records included as an appendix to the Cultural Resources Report.
- The APE is three-dimensional (depth, length and width) and all areas (e.g., new construction, easements, staging areas, and access roads) directly affected by the proposed project.

We've got the **green**...
to keep California's **water clean**
CLEAN WATER STATE REVOLVING FUND

NATIVE AMERICAN and INTERESTED PARTY CONSULTATION

- Native American and interested party consultation should be initiated at the planning phase of the proposed project to gather information to assist with the preparation of an adequate Cultural Resources Report.
- The Native American Heritage Commission (NAHC) must be contacted to obtain documentation of a search of the Sacred Lands Files for or near the project APE.
- All local Native American tribal organizations or individuals identified by the NAHC must be contacted by certified mail, and the letter should include a map and a description of the proposed project.
- Follow-up contact should be made by telephone and a phone log maintained to document the contacts and responses.
- Letters of inquiry seeking historical information on the project area and local vicinity should be sent to local historical societies, preservation organizations, or individual members of the public with a demonstrated interest in the proposed project.

Copies of all documents mentioned above (project description, map, phone log and letters sent to the NAHC and Native American tribal organizations or individuals and interested parties) must be included in the Cultural Resources Report.

Contact Information: For more information related to the CWSRF Program Cultural Resources and Requirments, please contact Mr. Ahmad Kashkoli at 916-341-5855 or Ahmad.Kashkoli@waterboards.ca.gov

PRECAUTIONS

A finding of ***"no known resources"*** without supporting evidence is unacceptable. The Cultural Resources Report must identify resources within the APE or demonstrate with sufficient evidence that none are present.

"The area is sensitive for buried archaeological resources," followed by a statement that ***"monitoring is recommended."*** Monitoring is not an acceptable option without good-faith effort to demonstrate that no known resource is present.

If ***"the area is already disturbed by previous construction"*** documentation is still required to demonstrate that the proposed project will not affect "historic properties." An existing road can be protecting a buried archaeological deposit or may itself be a "historic property." Additionally, previous construction may have impacted an archaeological site that has not been previously documented.

SHPO CONSULTATION LETTER

Submit a draft consultation letter prepared by the qualified researcher with the Cultural Resources Report to the State Water Resources Control Board. A draft consultation letter template is available for download on the State Water Board webpage at: *http://www.waterboards.ca.gov/water_issues/programs/grants_loans/cwsrf_requirements.shtml*

CALIFORNIA Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS
waterboards.ca.gov

REVISED JAN 2014

Appendix C
Air Quality Calculations

Air Quality Assumptions

General

Phasing and Overlap

Typical Excavation Site Based on discussions with MWD staff, it was assumed that no more than 10 typical excavation sites in which slip-lining would occur would be utilized at any given time. This analysis assumes that the subphase for a typical excavation site with the greatest criteria/precursor pollutant emissions would occur concurrently with 9 other typical excavation sites.

Typical New Valve/ Meter Vault Structure Two new valve/meter vaults were assumed to be constructed concurrently with the other program elements and maximum dimensions of the vault size were assumed.

Typical Below Grade AV/VV Relocation Three relocations of below-grade air release/vacuum valves were assumed to be constructed concurrently with the other program elements. Dimensions are based on those given in the program description chapter of the EIR.

Pipeline Replacement/ Parallel Piping A single 1,000-ft parallel piping segment was also assumed to be under construction concurrently with the other program elements

Idle Emissions	5	minutes per trip
Miles/Trip	14.7	commute average for South Coast Air Basin
	6.9	vendor trip average for South Coast Air Basin

Typical Excavation Site

1.1 Mobilize and Site Setup

Import	200	m of K-rail	6.1	m/seg	4	tons/seg	1.35	tons/cy	**97.14633 cy**
Import Trips	97.1463267	cy	16	cy/truck	6.071645	round trips			
	6.07164542	round trips	5	day phase duratic	2	round trips/day (rounded)			

1.2 Excavation, Shoring, Dewatering

Export	30	ft long	25	ft wide	25	ft deep	**694.4444 cy**		
Export Trips	694.444444	cy	16	cy/truck	43.40278	round trips			
	43.4027778	round trips	20	day phase duratic	3	round trips/day (rounded)			

1.3 Pipe Removal/Pipe Relining

Deliveries	2	round trips of liner deliveries/day

1.4 Backfill and Asphalt Replacement

Import (Paving Materials)	150	ft length	80	ft wide	0.5	ft deep	**222.2222 cy**		
Import (Backfill)	30	ft long	25	ft wide	25	ft deep	**694.4444 cy**		
Import Trips	916.666667	cy	16	cy/truck	57.29167	round trips			
	57.2916667	round trips	15	day phase duratic	4	round trips/day (rounded)			

1.5 Site Restoration and Clean Up

Export	200	m of K-rail	6.1	m/seg	4	tons/seg	1.35	tons/cy	**97.14633 cy**
Export Trips	97.1463267	cy	20	tons/truck	4.857316	round trips			
	4.85731633	round trips	5	day phase duratic	1	round trips/day (rounded)			

Typical New Valve/Meter Vault Structure

2.1 Mobilize and Site Setup

Import	200	m of K-rail	6.1	m/seg	4	tons/seg	1.35	tons/cy	**97.14633 cy**
Import Trips	97.1463267	cy	16	cy/truck	6.071645	round trips			
	6.07164542	round trips	5	day phase duratic	2	round trips/day (rounded)			

2.2 Excavation, Shoring, Dewatering

Export	66	ft long	22	ft wide	21	feet deep	**1129.333 cy**		
Export Trips	1129.33333	cy	16	cy/truck	70.58333	round trips			
	70.5833333	round trips	20	day phase duratic	4	round trips/day (rounded)			

2.3 Construct New Valve Structure

Import (Concrete)	3-feet walls assumed		**331.3333**	cy					
Import Trips	331.333333	cy	16	cy/truck	20.70833	round trips			
	20.7083333	round trips	30	day phase duratic	1	round trips/day (rounded)			

2.4 Install New Equipment

Deliveries	2	round trips of equipment deliveries/day

2.5 Backfill and Asphalt Replacement

Import (Paving Materials)	150	ft length	80	ft wide	0.5	ft deep	**222.2222**		
Import Trips	222.222222	cy	16	cy/truck	13.88889	round trips			
	13.8888889	round trips	15	day phase duratic	1	round trips/day (rounded)			

2.6 Demolition of Old Vault Structure,Backfill and Asphalt Replacement

Import	66	ft long	22	ft wide	21	ft deep	**1129.333**		
Import Trips	1129.33333	cy	16	cy/truck	70.58333	round trips			
	70.5833333	round trips	20	day phase duratic	4	round trips/day (rounded)			

2.7 Site Restoration and Clean Up

Export	200	m of K-rail	6.1	m/seg	4	tons/seg	1.35	tons/cy	**97.14633 cy**
Export Trips	97.1463267	cy	20	tons/truck	4.857316	round trips			
	4.85731633	round trips	5	day phase duratic	1	round trips/day (rounded)			

Typical Below Grade AV/VV Relocation			1,000-foot segment assumed							
3.1 Mobilize and Site Setup										
Deliveries	1	round trip of equipment deliveries/day								
3.2 Remove Existing AV and Appurtenances										
3.3 Trench Excavation										
Export	30	ft long	2	ft wide	4	ft deep	**8.888889**	cy		
Export Trips	8.88888889	cy	16	cy/truck	0.555556	round trips				
	0.55555556	round trips	2	day phase duratic	1	round trips/day (rounded)				
3.4 Install New AV and Equipment										
Deliveries	1	round trip of equipment deliveries/day								
3.5 Backfill and Asphalt Replacement										
Import (Backfill)	30	ft long	2	ft wide	4	ft deep	**8.888889**	cy		
Import (Paving)	30	ft long	30	ft wide	0.5	ft deep	**16.66667**	cy		
Import Trips	25.5555556	cy	16	cy/truck	1.597222	round trips				
	1.59722222	round trips	1	day phase duratic	2	round trips/day (rounded)				
3.6 Site Restoration and Clean Up										
Deliveries	1	round trip of equipment deliveries/day								
Pipeline Replacement/Parallel Piping										
4.1 Mobilize and Site Setup										
Import	600	m of K-rail	6.1	m/seg	4	tons/seg	1.35	tons/cy	**291.439**	cy
Import Trips	291.43898	cy	16	cy/truck	18.21494	round trips				
	18.2149362	round trips	5	day phase duratic	4	round trips/day (rounded)				
4.2 Trench Excavation, Shoring										
Export	1000	ft long	16	ft wide	30	ft deep	**17777.78**	cy		
Export Trips	17777.7778	cy	16	cy/truck	1111.111	round trips				
	1111.11111	round trips	30	day phase duratic	38	round trips/day (rounded)				
4.3 Install Pipe										
Deliveries	3	round trips of pipeline deliveries/day								
4.4 Backfill and Asphalt Replacement										
Import (Backfill)	1000	ft long	16	ft wide	20	ft deep	**11851.85**	cy		
Import (Paving)	1200	ft long	60	ft wide	0.5	ft deep	**1333.333**	cy		
Import Trips	13185.1852	cy	16	cy/truck	824.0741	round trips				
	824.074074	round trips	30	day phase duratic	28	round trips/day (rounded)				
4.5 Site Restoration and Clean Up										
Export	600	m of K-rail	6.1	m/seg	4	tons/seg	1.35	tons/cy	**291.439**	cy
Export Trips	291.43898	cy	16	cy/truck	18.21494	round trips				
	18.2149362	round trips	5	day phase duratic	4	round trips/day (rounded)				

Off-Road Equipment (part 1)

Project Element/Phase/(Total Number)	Working Days	Excavator			Crane			Frontend Loader			Slip Lining Cart			Soil/Asphalt Compactor			Soil/Asphalt Drum Compactor			Asphalt Paver		
		Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total
1.0 Typical Excavation Site																						
1.1 Mobilize and Site Setup	5.0	-	-	-	1.0	6.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2 Excavation, Shoring, Dewatering	20.0	1.0	8.0	8.0	1.0	6.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3 Pipe Removal/Pipe Relining	80.0	-	-	-	1.0	6.0	6.0	-	-	-	1.0	8.0	8.0	-	-	-	-	-	-	-	-	-
1.4 Backfill and Asphalt Replacement	15.0	-	-	-	-	-	-	1.0	8.0	8.0	-	-	-	1.0	8.0	8.0	1.0	8.0	8.0	1.0	8.0	8.0
1.5 Site Restoration and Clean Up	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.0 Typical New Valve/Meter Vault Structure																						
2.1 Mobilize and Site Setup	5.0	-	-	-	1.0	6.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2 Excavation, Shoring, Dewatering	20.0	1.0	8.0	8.0	1.0	6.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.3 Construct New Valve Structure	30.0	-	-	-	1.0	6.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4 Install New Equipment	25.0	-	-	-	1.0	6.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.5 Backfill and Asphalt Replacement	15.0	-	-	-	-	-	-	1.0	8.0	8.0	-	-	-	1.0	8.0	8.0	1.0	8.0	8.0	1.0	12.0	12.0
2.6 Demolition of Old Vault Structure, Backfill and Asphalt Replacement	20.0	-	-	-	-	-	-	-	-	-	-	-	-	1.0	8.0	8.0	1.0	8.0	8.0	1.0	12.0	12.0
2.7 Site Restoration and Clean Up	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.0 Typical Below Grade AV/VV Relocation																						
3.1 Mobilize and Site Setup	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.2 Remove Existing AV and Appurtenances	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.3 Trench Excavation	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.4 Install New AV and Equipment	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.5 Backfill and Asphalt Replacement	1.0	-	-	-	-	-	-	-	-	-	-	-	-	1.0	8.0	8.0	-	-	-	1.0	8.0	8.0
3.6 Site Restoration and Clean Up	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.0 Pipeline Replacement/Parallel Piping																						
4.1 Mobilize and Site Setup	5.0	-	-	-	1.0	6.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.2 Trench Excavation, Shoring	30.0	1.0	8.0	8.0	1.0	6.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.3 Install Pipe	30.0	-	-	-	1.0	6.0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.4 Backfill and Asphalt Replacement	30.0	-	-	-	-	-	-	1.0	8.0	8.0	-	-	-	1.0	8.0	8.0	1.0	8.0	8.0	1.0	8.0	8.0
4.5 Site Restoration and Clean Up	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Off-Road Equipment (part 2)

Project Element/Phase/(Total Number)	Backhoe Loader			Confined Space Blower/Fan			Welding, Grouting, and Lining Machines			Pneumatic Tools			Forklift			Concrete Coring Machine			Pump			Generator			Compressor			Concrete Saw			Maintenance Truck w/ Crane		
	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total	Qty	Hr/Day	Total
1.0 Typical Excavation Site																																	
1.1 Mobilize and Site Setup	-	-	-	-	-	-	-	-	-	2.0	8.0	16.0	1.0	8.0	8.0			-			-			-			-			-	-	-	-
1.2 Excavation, Shoring, Dewatering	1.0	8.0	8.0	-	-	-	-	-	-	2.0	8.0	16.0	1.0	8.0	8.0			-	1.0	12.0	12.0			-			-	1.0	8.0	8.0	-	-	-
1.3 Pipe Removal/Pipe Relining	-	-	-	-	-	-	2.0	8.0	16.0	2.0	8.0	16.0	-	-	-	1.0	4.0	4.0	1.0	4.0	4.0	1.0	12.0	12.0	1.0	12.0	12.0	-	-	-	-	-	-
1.4 Backfill and Asphalt Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5 Site Restoration and Clean Up	-	-	-	-	-	-	-	-	-	-	-	-	1.0	8.0	8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.0 Typical New Valve/Meter Vault Structure																																	
2.1 Mobilize and Site Setup	-	-	-	-	-	-	-	-	-	1.0	8.0	8.0	1.0	8.0	8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.2 Excavation, Shoring, Dewatering	1.0	8.0	8.0	-	-	-	-	-	-	1.0	8.0	8.0	1.0	8.0	8.0	-	-	-	1.0	12.0	12.0	-	-	-	-	-	-	1.0	8.0	8.0	-	-	-
2.3 Construct New Valve Structure	-	-	-	-	-	-	2.0	8.0	16.0	2.0	8.0	16.0	-	-	-	-	-	-	1.0	12.0	12.0	1.0	12.0	12.0	1.0	12.0	12.0	-	-	-	-	-	-
2.4 Install New Equipment	-	-	-	-	-	-	2.0	8.0	16.0	2.0	8.0	16.0	-	-	-	1.0	8.0	8.0	-	-	-	1.0	12.0	12.0	1.0	12.0	12.0	-	-	-	-	-	-
2.5 Backfill and Asphalt Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.6 Demolition of Old Vault Structure, Backfill and Asphalt Replacement	1.0	8.0	8.0	-	-	-	-	-	-	2.0	8.0	16.0	-	-	-	-	-	-	-	-	-	1.0	12.0	12.0	1.0	12.0	12.0	1.0	8.0	8.0	-	-	-
2.7 Site Restoration and Clean Up	-	-	-	-	-	-	-	-	-	-	-	-	1.0	8.0	8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.0 Typical Below Grade AV/VV Relocation																																	
3.1 Mobilize and Site Setup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.2 Remove Existing AV and Appurtenances	-	-	-	-	-	-	-	-	-	1.0	8.0	8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	8.0	8.0
3.3 Trench Excavation	1.0	8.0	8.0	1.0	8.0	8.0	-	-	-	1.0	8.0	8.0	-	-	-	-	-	-	-	-	-	1.0	12.0	12.0	1.0	12.0	12.0	-	-	-	-	-	-
3.4 Install New AV and Equipment	-	-	-	-	-	-	2.0	8.0	16.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	8.0	8.0
3.5 Backfill and Asphalt Replacement	1.0	8.0	8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	12.0	12.0	-	-	-	-	-	-	-	-	-	-	-	-
3.6 Site Restoration and Clean Up	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.0 Pipeline Replacement/Parallel Piping																																	
4.1 Mobilize and Site Setup	-	-	-	-	-	-	-	-	-	1.0	8.0	8.0	1.0	8.0	8.0			-			-			-	-	-	-	-	-	-	-	-	-
4.2 Trench Excavation, Shoring	1.0	8.0	8.0	-	-	-	-	-	-	1.0	8.0	8.0	1.0	8.0	8.0			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.3 Install Pipe	-	-	-	-	-	-	2.0	8.0	16.0	1.0	8.0	8.0	-	-	-	-	-	-	1.0	12.0	12.0	1.0	12.0	12.0	1.0	12.0	12.0	-	-	-	-	-	-
4.4 Backfill and Asphalt Replacement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.5 Site Restoration and Clean Up	-	-	-	-	-	-	-	-	-	-	-	-	1.0	8.0	8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project Element/Phase/(Total Number)	Working Days	On-Road															Excavation (CY)[2]	
		Dump Truck			Water Truck			Street Sweeper			Worker Commute Trips			Delivery Trucks (pipe, mortar,				
		Qty	Miles/Trip	Total	Qty	Mi/Trip	Total	Qty	Mi/Trip	Total	Qty	Mi/Trip	Total	Qty	Mi/Trip	Total	Import	Export
1.0 Typical Excavation Site																		
1.1 Mobilize and Site Setup	5.0	-	-	-	-	-	-	-	-	-	24.0	14.7	352.8	2.00	6.9	13.8	97.1	-
1.2 Excavation, Shoring, Dewatering	20.0	6.00	20.0	120.0	1.0	20.0	20.0	-	-	-	24.0	14.7	352.8	-	-	-	-	694.4
1.3 Pipe Removal/Pipe Relining	80.0	-	-	-	-	-	-	-	-	-	24.0	14.7	352.8	4.0	6.9	27.6	-	-
1.4 Backfill and Asphalt Replacement	15.0	8.00	20.0	160.0	1.0	20.0	20.0	1.0	5.0	5.0	24.0	14.7	352.8	-	-	-	916.7	-
1.5 Site Restoration and Clean Up	5.0	-	-	-	-	-	-	1.0	5.0	5.0	12.0	14.7	176.4	2.0	6.9	13.8	-	97.1
2.0 Typical New Valve/Meter Vault Structure																		
2.1 Mobilize and Site Setup	5.0	-	-	-	-	-	-	-	-	-	24.0	14.7	352.8	2.00	6.9	13.8	97.1	-
2.2 Excavation, Shoring, Dewatering	20.0	8.0	20.0	160.0	1.0	20.0	20.0	-	-	-	24.0	14.7	352.8	-	-	-	-	1,129.3
2.3 Construct New Valve Structure	30.0	-	-	-	-	-	-	-	-	-	24.0	14.7	352.8	2.0	6.9	13.8	331.3	-
2.4 Install New Equipment	25.0	-	-	-	-	-	-	-	-	-	24.0	14.7	352.8	4.0	6.9	27.6	-	-
2.5 Backfill and Asphalt Replacement	15.0	-	-	-	1.0	20.0	20.0	-	-	-	24.0	14.7	352.8	2.0	6.9	13.8	222.2	-
2.6 Demolition of Old Vault Structure, Backfill and Asphalt Replacement	20.0	8.0	20.0	160.0	-	-	-	1.0	5.0	5.0	24.0	14.7	352.8	-	-	-	1,129.3	-
2.7 Site Restoration and Clean Up	5.0	-	-	-	-	-	-	1.0	5.0	5.0	12.0	14.7	176.4	2.0	6.9	13.8	-	97.1
3.0 Typical Below Grade AV/VV Relocation																		
3.1 Mobilize and Site Setup	1.0	-	-	-	-	-	-	-	-	-	12.0	14.7	176.4	2.0	6.9	13.8	-	-
3.2 Remove Existing AV and Appurtenances	1.0	-	-	-	-	-	-	-	-	-	12.0	14.7	176.4	1.0	2.0	2.0	-	-
3.3 Trench Excavation	2.0	2.0	20.0	40.0	1.0	20.0	20.0	-	-	-	12.0	14.7	176.4	-	-	-	-	8.9
3.4 Install New AV and Equipment	1.0	-	-	-	-	-	-	-	-	-	12.0	14.7	176.4	1.0	2.0	2.0	-	-
3.5 Backfill and Asphalt Replacement	1.0	4.0	20.0	80.0	1.0	20.0	20.0	1.0	5.0	5.0	12.0	14.7	176.4	-	-	-	25.6	-
3.6 Site Restoration and Clean Up	1.0	-	-	-	-	-	-	1.0	5.0	5.0	12.0	14.7	176.4	1.0	6.9	6.9	-	-
4.0 Pipeline Replacement/Parallel Piping																		
4.1 Mobilize and Site Setup	5.0	-	-	-	-	-	-	-	-	-	24.0	14.7	352.8	8.00	6.9	55.2	291.4	-
4.2 Trench Excavation, Shoring	30.0	76.0	20.0	1,520.0	1.0	20.0	20.0	-	-	-	24.0	14.7	352.8	-	-	-	-	17,777.8
4.3 Install Pipe	30.0	-	-	-	-	-	-	-	-	-	24.0	14.7	352.8	6.0	6.9	41.4	-	-
4.4 Backfill and Asphalt Replacement	30.0	56.0	20.0	1,120.0	1.0	20.0	20.0	1.0	5.0	5.0	24.0	14.7	352.8	-	-	-	13,185.2	-
4.5 Site Restoration and Clean Up	5.0	-	-	-	-	-	-	1.0	5.0	5.0	12.0	14.7	176.4	8.0	6.9	55.2	-	291.4

Emissions - Unmitigated

2018

SINGLE SITE EMISSIONS

2018 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	7	37	60	0	3	3
2.0 Typical New Valve/Meter Vault Structure						
	8	42	63	0	3	3
3.0 Typical Below Grade AV/VV Relocation						
	7	32	58	0	3	2
4.0 Pipeline Replacement/Parallel Piping						
	8	40	77	0	3	3
Single-Site Max	**8**	**42**	**77**	**0**	**3**	**3**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

2018 ON-SITE EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	7	37	58	0	3	3
2.0 Typical New Valve/Meter Vault Structure						
	8	42	61	0	3	3
3.0 Typical Below Grade AV/VV Relocation						
	7	32	57	0	2	2
4.0 Pipeline Replacement/Parallel Piping						
	7	36	57	0	3	3
Single-Site Max	**8**	**42**	**61**	**0**	**3**	**3**
*Localized Significance Thresholds**	N/A	231	46	N/A	4	3
Single Site Exceeds LST?	***No***	***No***	***Yes***	***No***	***No***	***Yes***

* 1-acre site and 25-meter receptor distances in SRA No.12 South Central LA County, which has the most stringent LSTs; no LSTs have been established for ROG and SOX

FULL CONSTRUCTION SCENARIO

2018 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site (10 sites concurrently)						
	74	372	604	1	31	30
2.0 Typical New Valve/Meter Vault Structure (2 sites concurrently)						
	16	85	127	0	7	6
3.0 Typical Below Grade AV/VV Relocation (3 sites concurrently)						
	21	96	175	0	8	7
4.0 Pipeline Replacement/Parallel Piping (1,000-ft segment)						
	8	40	77	0	3	3
Total	**118**	**593**	**983**	**1**	**48**	**47**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Exceeds Threshold?	***Yes***	***Yes***	***Yes***	***No***	***No***	***No***

2019

SINGLE SITE EMISSIONS

2019 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	7	37	55	0	3	3
2.0 Typical New Valve/Meter Vault Structure						
	7	42	57	0	3	3
3.0 Typical Below Grade AV/VV Relocation						
	6	32	52	0	2	2
4.0 Pipeline Replacement/Parallel Piping						
	7	39	70	0	3	3
Single-Site Max	**7**	**42**	**70**	**0**	**3**	**3**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

2019 ON-SITE EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	7	36	53	0	3	3
2.0 Typical New Valve/Meter Vault Structure						
	7	41	55	0	3	3
3.0 Typical Below Grade AV/VV Relocation						
	6	31	51	0	2	2
4.0 Pipeline Replacement/Parallel Piping						
	7	36	52	0	2	2
Single-Site Max	**7**	**41**	**55**	**0**	**3**	**3**
*Localized Significance Thresholds**	N/A	231	46	N/A	4	3
Single Site Exceeds LST?	***No***	***No***	***Yes***	***No***	***No***	***No***

* 1-acre site and 25-meter receptor distances in SRA No.12 South Central LA County, which has the most stringent LSTs; no LSTs have been established for ROG and SOX

FULL CONSTRUCTION SCENARIO

2019 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site (10 sites concurrently)						
	68	366	548	1	27	26
2.0 Typical New Valve/Meter Vault Structure (2 sites concurrently)						
	14	84	115	0	6	6
3.0 Typical Below Grade AV/VV Relocation (3 sites concurrently)						
	19	95	157	0	7	7
4.0 Pipeline Replacement/Parallel Piping (1,000-ft segment)						
	7	39	70	0	3	3
Total	**109**	**584**	**889**	**1**	**43**	**41**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Exceeds Threshold?	***Yes***	***Yes***	***Yes***	***No***	***No***	***No***

2020

SINGLE SITE EMISSIONS

2020 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	6	36	50	0	2	2
2.0 Typical New Valve/Meter Vault Structure						
	7	42	52	0	3	3
3.0 Typical Below Grade AV/VV Relocation						
	6	31	47	0	2	2
4.0 Pipeline Replacement/Parallel Piping						
	7	39	61	0	3	2
Single-Site Max	**7**	**42**	**61**	**0**	**3**	**3**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

2020 ON-SITE EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	6	36	48	0	2	2
2.0 Typical New Valve/Meter Vault Structure						
	6	41	50	0	3	2
3.0 Typical Below Grade AV/VV Relocation						
	6	31	46	0	2	2
4.0 Pipeline Replacement/Parallel Piping						
	6	35	47	0	2	2
Single-Site Max	**6**	**41**	**50**	**0**	**3**	**2**
*Localized Significance Thresholds**	N/A	231	46	N/A	4	3
Single Site Exceeds LST?	***No***	***No***	***Yes***	***No***	***No***	***No***

* 1-acre site and 25-meter receptor distances in SRA No.12 South Central LA County, which has the most stringent LSTs; no LSTs have been established for ROG and SOX

FULL CONSTRUCTION SCENARIO

2020 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site (10 sites concurrently)						
	63	361	497	1	24	24
2.0 Typical New Valve/Meter Vault Structure (2 sites concurrently)						
	13	83	104	0	5	5
3.0 Typical Below Grade AV/VV Relocation (3 sites concurrently)						
	18	94	140	0	6	6
4.0 Pipeline Replacement/Parallel Piping (1,000-ft segment)						
	7	39	61	0	3	2
Total	**101**	**578**	**802**	**1**	**38**	**37**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Exceeds Threshold?	***Yes***	***Yes***	***Yes***	***No***	***No***	***No***

2021

SINGLE SITE EMISSIONS

2021 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	6	36	44	0	2	2
2.0 Typical New Valve/Meter Vault Structure						
	6	41	46	0	2	2
3.0 Typical Below Grade AV/VV Relocation						
	6	31	41	0	2	2
4.0 Pipeline Replacement/Parallel Piping						
	6	39	52	0	2	2
Single-Site Max	**6**	**41**	**52**	**0**	**2**	**2**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

2021 ON-SITE EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	6	35	43	0	2	2
2.0 Typical New Valve/Meter Vault Structure						
	6	41	45	0	2	2
3.0 Typical Below Grade AV/VV Relocation						
	6	31	40	0	2	2
4.0 Pipeline Replacement/Parallel Piping						
	6	35	42	0	2	2
Single-Site Max	**6**	**41**	**45**	**0**	**2**	**2**
*Localized Significance Thresholds**	N/A	231	46	N/A	4	3
Single Site Exceeds LST?	***No***	***No***	***No***	***No***	***No***	***No***

* 1-acre site and 25-meter receptor distances in SRA No.12 South Central LA County, which has the most stringent LSTs; no LSTs have been established for ROG and SOX

FULL CONSTRUCTION SCENARIO

2021 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site (10 sites concurrently)						
	58	357	444	1	22	21
2.0 Typical New Valve/Meter Vault Structure (2 sites concurrently)						
	12	83	93	0	5	4
3.0 Typical Below Grade AV/VV Relocation (3 sites concurrently)						
	17	93	122	0	5	5
4.0 Pipeline Replacement/Parallel Piping (1,000-ft segment)						
	6	39	52	0	2	2
Total	**93**	**572**	**711**	**1**	**34**	**32**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Exceeds Threshold?	***Yes***	***Yes***	***Yes***	***No***	***No***	***No***

2022

SINGLE SITE EMISSIONS

2022 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	5	35	40	0	2	2
2.0 Typical New Valve/Meter Vault Structure						
	6	41	42	0	2	2
3.0 Typical Below Grade AV/VV Relocation						
	5	31	36	0	2	1
4.0 Pipeline Replacement/Parallel Piping						
	6	39	46	0	2	2
Single-Site Max	**6**	**41**	**46**	**0**	**2**	**2**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

2022 ON-SITE EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	5	35	39	0	2	2
2.0 Typical New Valve/Meter Vault Structure						
	6	41	41	0	2	2
3.0 Typical Below Grade AV/VV Relocation						
	5	31	36	0	1	1
4.0 Pipeline Replacement/Parallel Piping						
	5	35	38	0	2	2
Single-Site Max	**6**	**41**	**41**	**0**	**2**	**2**
*Localized Significance Thresholds**	N/A	231	46	N/A	4	3
Single Site Exceeds LST?	***No***	***No***	***No***	***No***	***No***	***No***

* 1-acre site and 25-meter receptor distances in SRA No.12 South Central LA County, which has the most stringent LSTs; no LSTs have been established for ROG and SOX

FULL CONSTRUCTION SCENARIO

2022 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site (10 sites concurrently)						
	54	354	401	1	19	18
2.0 Typical New Valve/Meter Vault Structure (2 sites concurrently)						
	11	83	84	0	4	4
3.0 Typical Below Grade AV/VV Relocation (3 sites concurrently)						
	16	93	109	0	5	4
4.0 Pipeline Replacement/Parallel Piping (1,000-ft segment)						
	6	39	46	0	2	2
Total	**88**	**568**	**639**	**1**	**30**	**28**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Exceeds Threshold?	***Yes***	***Yes***	***Yes***	***No***	***No***	***No***

Emissions - Mitigated with Tier 4 Engines for Off-Road Equipment

2018

SINGLE SITE EMISSIONS

2018 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	4	37	13	0	1	1
2.0 Typical New Valve/Meter Vault Structure						
	4	42	13	0	1	1
3.0 Typical Below Grade AV/VV Relocation						
	3	32	7	0	0	0
4.0 Pipeline Replacement/Parallel Piping						
	5	40	30	0	1	1
Single-Site Max	**5**	**42**	**30**	**0**	**1**	**1**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

2018 ON-SITE EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	4	37	10	0	0	0
2.0 Typical New Valve/Meter Vault Structure						
	4	42	11	0	1	1
3.0 Typical Below Grade AV/VV Relocation						
	3	32	6	0	0	0
4.0 Pipeline Replacement/Parallel Piping						
	4	36	10	0	1	0
Single-Site Max	**4**	**42**	**11**	**0**	**1**	**1**
*Localized Significance Thresholds**	N/A	231	46	N/A	4	3
Single Site Exceeds LST?	***No***	***No***	***No***	***No***	***No***	***No***

* 1-acre site and 25-meter receptor distances in SRA No.12 South Central LA County, which has the most stringent LSTs; no LSTs have been established for ROG and SOX

FULL CONSTRUCTION SCENARIO

2018 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site (10 sites concurrently)						
	43	372	129	1	5	5
2.0 Typical New Valve/Meter Vault Structure (2 sites concurrently)						
	9	85	27	0	1	1
3.0 Typical Below Grade AV/VV Relocation (3 sites concurrently)						
	10	96	22	0	1	1
4.0 Pipeline Replacement/Parallel Piping (1,000-ft segment)						
	5	40	30	0	1	1
Total	**68**	**593**	**208**	**1**	**9**	**8**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Exceeds Threshold?	***No***	***Yes***	***Yes***	***No***	***No***	***No***

2019

SINGLE SITE EMISSIONS

2019 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	4	37	12	0	0	0
2.0 Typical New Valve/Meter Vault Structure						
	4	42	13	0	1	1
3.0 Typical Below Grade AV/VV Relocation						
	3	32	7	0	0	0
4.0 Pipeline Replacement/Parallel Piping						
	5	39	28	0	1	1
Single-Site Max	**5**	**42**	**28**	**0**	**1**	**1**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

2019 ON-SITE EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	4	36	10	0	0	0
2.0 Typical New Valve/Meter Vault Structure						
	4	41	10	0	0	0
3.0 Typical Below Grade AV/VV Relocation						
	3	31	6	0	0	0
4.0 Pipeline Replacement/Parallel Piping						
	4	36	10	0	1	0
Single-Site Max	**4**	**41**	**10**	**0**	**1**	**0**
*Localized Significance Thresholds**	N/A	231	46	N/A	4	3
Single Site Exceeds LST?	***No***	***No***	***No***	***No***	***No***	***No***

* 1-acre site and 25-meter receptor distances in SRA No.12 South Central LA County, which has the most stringent LSTs; no LSTs have been established for ROG and SOX

FULL CONSTRUCTION SCENARIO

2019 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site (10 sites concurrently)						
	40	366	120	1	5	5
2.0 Typical New Valve/Meter Vault Structure (2 sites concurrently)						
	8	84	25	0	1	1
3.0 Typical Below Grade AV/VV Relocation (3 sites concurrently)						
	10	95	20	0	1	1
4.0 Pipeline Replacement/Parallel Piping (1,000-ft segment)						
	5	39	28	0	1	1
Total	**62**	**584**	**193**	**1**	**8**	**7**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Exceeds Threshold?	***No***	***Yes***	***Yes***	***No***	***No***	***No***

2020

SINGLE SITE EMISSIONS

2020 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	4	36	11	0	0	0
2.0 Typical New Valve/Meter Vault Structure						
	4	42	12	0	1	0
3.0 Typical Below Grade AV/VV Relocation						
	3	31	6	0	0	0
4.0 Pipeline Replacement/Parallel Piping						
	4	39	23	0	1	1
Single-Site Max	**4**	**42**	**23**	**0**	**1**	**1**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

2020 ON-SITE EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	4	36	9	0	0	0
2.0 Typical New Valve/Meter Vault Structure						
	4	41	10	0	0	0
3.0 Typical Below Grade AV/VV Relocation						
	3	31	6	0	0	0
4.0 Pipeline Replacement/Parallel Piping						
	4	35	9	0	1	0
Single-Site Max	**4**	**41**	**10**	**0**	**1**	**0**
*Localized Significance Thresholds**	N/A	231	46	N/A	4	3
Single Site Exceeds LST?	***No***	***No***	***No***	***No***	***No***	***No***

* 1-acre site and 25-meter receptor distances in SRA No.12 South Central LA County, which has the most stringent LSTs; no LSTs have been established for ROG and SOX

FULL CONSTRUCTION SCENARIO

2020 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site (10 sites concurrently)						
	37	361	112	1	5	4
2.0 Typical New Valve/Meter Vault Structure (2 sites concurrently)						
	7	83	24	0	1	1
3.0 Typical Below Grade AV/VV Relocation (3 sites concurrently)						
	9	94	19	0	1	1
4.0 Pipeline Replacement/Parallel Piping (1,000-ft segment)						
	4	39	23	0	1	1
Total	**57**	**578**	**179**	**1**	**7**	**6**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Exceeds Threshold?	***No***	***Yes***	***Yes***	***No***	***No***	***No***

2021

SINGLE SITE EMISSIONS

2021 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	3	36	10	0	0	0
2.0 Typical New Valve/Meter Vault Structure						
	3	41	11	0	0	0
3.0 Typical Below Grade AV/VV Relocation						
	3	31	6	0	0	0
4.0 Pipeline Replacement/Parallel Piping						
	4	39	19	0	1	1
Single-Site Max	**4**	**41**	**19**	**0**	**1**	**1**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

2021 ON-SITE EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	3	35	9	0	0	0
2.0 Typical New Valve/Meter Vault Structure						
	3	41	10	0	0	0
3.0 Typical Below Grade AV/VV Relocation						
	3	31	5	0	0	0
4.0 Pipeline Replacement/Parallel Piping						
	3	35	9	0	1	0
Single-Site Max	**3**	**41**	**10**	**0**	**1**	**0**
*Localized Significance Thresholds**	N/A	231	46	N/A	4	3
Single Site Exceeds LST?	***No***	***No***	***No***	***No***	***No***	***No***

* 1-acre site and 25-meter receptor distances in SRA No.12 South Central LA County, which has the most stringent LSTs; no LSTs have been established for ROG and SOX

FULL CONSTRUCTION SCENARIO

2021 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site (10 sites concurrently)						
	34	357	105	1	4	4
2.0 Typical New Valve/Meter Vault Structure (2 sites concurrently)						
	7	83	22	0	1	1
3.0 Typical Below Grade AV/VV Relocation (3 sites concurrently)						
	9	93	18	0	1	1
4.0 Pipeline Replacement/Parallel Piping (1,000-ft segment)						
	4	39	19	0	1	1
Total	**53**	**572**	**164**	**1**	**7**	**6**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Exceeds Threshold?	***No***	***Yes***	***Yes***	***No***	***No***	***No***

2022

SINGLE SITE EMISSIONS

2022 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	3	35	10	0	0	0
2.0 Typical New Valve/Meter Vault Structure						
	3	41	10	0	0	0
3.0 Typical Below Grade AV/VV Relocation						
	3	31	6	0	0	0
4.0 Pipeline Replacement/Parallel Piping						
	4	39	16	0	1	1
Single-Site Max	**4**	**41**	**16**	**0**	**1**	**1**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Single Site Exceeds Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

2022 ON-SITE EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site						
	3	35	9	0	0	0
2.0 Typical New Valve/Meter Vault Structure						
	3	41	9	0	0	0
3.0 Typical Below Grade AV/VV Relocation						
	3	31	5	0	0	0
4.0 Pipeline Replacement/Parallel Piping						
	3	35	8	0	1	0
Single-Site Max	**3**	**41**	**9**	**0**	**1**	**0**
*Localized Significance Thresholds**	N/A	231	46	N/A	4	3
Single Site Exceeds LST?	***No***	***No***	***No***	***No***	***No***	***No***

* 1-acre site and 25-meter receptor distances in SRA No.12 South Central LA County, which has the most stringent LSTs; no LSTs have been established for ROG and SOX

FULL CONSTRUCTION SCENARIO

2022 TOTAL REGIONAL MASS EMISSIONS (LBS/DAY)

	ROG	CO	NOX	SO2	PM10	PM2_5
1.0 Typical Excavation Site (10 sites concurrently)						
	31	354	98	1	4	3
2.0 Typical New Valve/Meter Vault Structure (2 sites concurrently)						
	6	83	21	0	1	1
3.0 Typical Below Grade AV/VV Relocation (3 sites concurrently)						
	8	93	18	0	1	1
4.0 Pipeline Replacement/Parallel Piping (1,000-ft segment)						
	4	39	16	0	1	1
Total	**50**	**568**	**153**	**1**	**6**	**5**
Regional Mass Emissions Threshold	75	550	100	150	150	55
Exceeds Threshold?	***No***	***Yes***	***Yes***	***No***	***No***	***No***

Appendix D
California Natural Diversity Database Species for Los Angeles County

California Natural Diversity Database Species for Los Angeles County

Available http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp
Accessed June 1, 2016

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Amphibians					
Anaxyrus californicus	arroyo toad	Endangered	None	SSC	-
Anaxyrus canorus	Yosemite toad	Threatened	None	SSC	-
Batrachoseps gabrieli	San Gabriel slender salamander	None	None	-	-
Ensatina eschscholtzii croceator	yellow-blotched salamander	None	None	SSC	-
Ensatina klauberi	large-blotched salamander	None	None	SSC	-
Rana boylii	foothill yellow-legged frog	None	None	SSC	-
Rana draytonii	California red-legged frog	Threatened	None	SSC	-
Rana muscosa	southern mountain yellow-legged frog	Endangered	Endangered	SSC	-
Taricha torosa	Coast Range newt	None	None	SSC	-
Spea hammondii	western spadefoot	None	None	SSC	-
Birds					
Accipiter cooperii	Cooper's hawk	None	None	WL	-
Accipiter gentilis	northern goshawk	None	None	SSC	-
Accipiter striatus	sharp-shinned hawk	None	None	WL	-
Aquila chrysaetos	golden eagle	None	None	FP ; WL	-
Buteo regalis	ferruginous hawk	None	None	WL	-
Buteo swainsoni	Swainson's hawk	None	Threatened	-	-
Circus cyaneus	northern harrier	None	None	SSC	-
Elanus leucurus	white-tailed kite	None	None	FP	-
Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	FP	-
Pandion haliaetus	osprey	None	None	WL	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Eremophila alpestris actia	California horned lark	None	None	WL	-
Cerorhinca monocerata	rhinoceros auklet	None	None	WL	-
Fratercula cirrhata	tufted puffin	None	None	SSC	-
Synthliboramphus scrippsi	Scripps's murrelet	Candidate	Threatened	-	-
Aythya americana	redhead	None	None	SSC	-
Branta bernicla	brant	None	None	SSC	-
Dendrocygna bicolor	fulvous whistling-duck	None	None	SSC	-
Chaetura vauxi	Vaux's swift	None	None	SSC	-
Cypseloides niger	black swift	None	None	SSC	-
Ardea alba	great egret	None	None	-	-
Ardea herodias	great blue heron	None	None	-	-
Botaurus lentiginosus	American bittern	None	None	-	-
Egretta thula	snowy egret	None	None	-	-
Ixobrychus exilis	least bittern	None	None	SSC	-
Nycticorax nycticorax	black-crowned night heron	None	None	-	-
Cardinalis cardinalis	northern cardinal	None	None	WL	-
Gymnogyps californianus	California condor	Endangered	Endangered	FP	-
Charadrius alexandrinus nivosus	western snowy plover	Threatened	None	SSC	-
Charadrius montanus	mountain plover	None	None	SSC	-
Mycteria americana	wood stork	None	None	SSC	-
Pica nuttalli	yellow-billed magpie	None	None	-	-
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered	-	-
Phoebastria albatrus	short-tailed albatross	Endangered	None	SSC	-
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None	None	WL	-
Aimophila ruficeps obscura	Santa Cruz Island rufous-crowned sparrow	None	None	SSC	-
Ammodramus savannarum	grasshopper sparrow	None	None	SSC	-
Artemisiospiza belli belli	Bell's sage sparrow	None	None	WL	-
Artemisiospiza belli clementeae	San Clemente sage sparrow	Threatened	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Chondestes grammacus	lark sparrow	None	None	-	-
Junco hyemalis caniceps	gray-headed junco	None	None	WL	-
Melospiza melodia graminea	Channel Island song sparrow	None	None	SSC	-
Passerculus sandwichensis alaudinus	Bryant's savannah sparrow	None	None	SSC	-
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None	Endangered	-	-
Passerculus sandwichensis rostratus	large-billed savannah sparrow	None	None	SSC	-
Pipilo maculatus clementae	San Clemente spotted towhee	None	None	SSC	-
Pooecetes gramineus affinis	Oregon vesper sparrow	None	None	SSC	-
Spizella atrogularis	black-chinned sparrow	None	None	-	-
Spizella breweri	Brewer's sparrow	None	None	-	-
Spizella passerina	chipping sparrow	None	None	-	-
Falco columbarius	merlin	None	None	WL	-
Falco mexicanus	prairie falcon	None	None	WL	-
Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	FP	-
Spinus lawrencei	Lawrence's goldfinch	None	None	-	-
Gavia immer	common loon	None	None	SSC	-
Grus canadensis canadensis	lesser sandhill crane	None	None	SSC	-
Grus canadensis tabida	greater sandhill crane	None	Threatened	FP	-
Haematopus bachmani	black oystercatcher	None	None	-	-
Progne subis	purple martin	None	None	SSC	-
Riparia riparia	bank swallow	None	Threatened	-	-
Oceanodroma furcata	fork-tailed storm-petrel	None	None	SSC	-
Oceanodroma homochroa	ashy storm-petrel	None	None	SSC	-
Oceanodroma melania	black storm-petrel	None	None	SSC	-
Agelaius tricolor	tricolored blackbird	None	None	SSC	-
Xanthocephalus xanthocephalus	yellow-headed blackbird	None	None	SSC	-
Lanius ludovicianus	loggerhead shrike	None	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Lanius ludovicianus anthonyi	Island loggerhead shrike	None	None	SSC	-
Lanius ludovicianus mearnsi	San Clemente loggerhead shrike	Endangered	None	SSC	-
Chlidonias niger	black tern	None	None	SSC	-
Hydroprogne caspia	Caspian tern	None	None	-	-
Larus californicus	California gull	None	None	WL	-
Sterna forsteri	Forster's tern	None	None	-	-
Sternula antillarum browni	California least tern	Endangered	Endangered	FP	-
Thalasseus elegans	elegant tern	None	None	WL	-
Toxostoma bendirei	Bendire's thrasher	None	None	SSC	-
Toxostoma lecontei	Le Conte's thrasher	None	None	SSC	-
Callipepla californica catalinensis	Catalina California quail	None	None	SSC	-
Baeolophus inornatus	oak titmouse	None	None	-	-
Icteria virens	yellow-breasted chat	None	None	SSC	-
Setophaga occidentalis	hermit warbler	None	None	-	-
Setophaga petechia	yellow warbler	None	None	SSC	-
Pelecanus erythrorhynchos	American white pelican	None	None	SSC	-
Pelecanus occidentalis californicus	California brown pelican	Delisted	Delisted	FP	-
Phalacrocorax auritus	double-crested cormorant	None	None	WL	-
Picoides albolarvatus	White-headed woodpecker	None	None	-	-
Picoides nuttallii	Nuttall's woodpecker	None	None	-	-
Sphyrapicus ruber	red-breasted sapsucker	None	None	-	-
Coturnicops noveboracensis	yellow rail	None	None	SSC	-
Laterallus jamaicensis coturniculus	California black rail	None	Threatened	FP	-
Rallus longirostris levipes	light-footed clapper rail	Endangered	Endangered	FP	-
Rallus longirostris obsoletus	California clapper rail	Endangered	Endangered	FP	-
Numenius americanus	long-billed curlew	None	None	WL	-
Asio flammeus	short-eared owl	None	None	SSC	-
Asio otus	long-eared owl	None	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Athene cunicularia	burrowing owl	None	None	SSC	-
Psiloscops flammeolus	flammulated owl	None	None	-	-
Strix occidentalis occidentalis	California spotted owl	None	None	SSC	-
Polioptila californica californica	coastal California gnatcatcher	Threatened	None	SSC	-
Polioptila melanura	black-tailed gnatcatcher	None	None	WL	-
Piranga rubra	summer tanager	None	None	SSC	-
Plegadis chihi	white-faced ibis	None	None	WL	-
Calypte costae	Costa's hummingbird	None	None	-	-
Selasphorus rufus	rufous hummingbird	None	None	-	-
Selasphorus sasin	Allen's hummingbird	None	None	-	-
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	None	None	SSC	-
Cistothorus palustris clarkae	Clark's marsh wren	None	None	SSC	-
Thryomanes bewickii leucophrys	San Clemente Bewick's wren	None	None	SSC	-
Contopus cooperi	olive-sided flycatcher	None	None	SSC	-
Empidonax traillii	willow flycatcher	None	Endangered	-	-
Empidonax traillii extimus	southwestern willow flycatcher	Endangered	Endangered	-	-
Pyrocephalus rubinus	vermilion flycatcher	None	None	SSC	-
Vireo bellii pusillus	least Bell's vireo	Endangered	Endangered	-	-
Vireo huttoni unitti	Catalina Hutton's vireo	None	None	SSC	-
Vireo vicinior	gray vireo	None	None	SSC	-
Fish					
Catostomus santaanae	Santa Ana sucker	Threatened	None	-	-
Gila orcuttii	arroyo chub	None	None	SSC	-
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	None	None	SSC	-
Siphateles bicolor mohavensis	Mohave tui chub	Endangered	Endangered	FP	-
Gasterosteus aculeatus microcephalus	resident threespine stickleback	None	None	-	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	Endangered	Endangered	FP	-
Eucyclogobius newberryi	tidewater goby	Endangered	None	SSC	-
Stereolepis gigas	giant sea bass	None	None	-	-
Oncorhynchus mykiss irideus	steelhead - southern California DPS	Endangered	None	-	-
Invertebrates					
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None	-	-
Streptocephalus woottoni	Riverside fairy shrimp	Endangered	None	-	-
Socalchemmis gertschi	Gertsch's socalchemmis spider	None	None	-	-
Haliotis corrugata	pink abalone	None	None	-	-
Haplotrema catalinense	Santa Catalina lancetooth	None	None	-	-
Micrarionta gabbi	San Clemente islandsnail	None	None	-	-
Xerarionta intercisa	horseshoe snail	None	None	-	-
Xerarionta redimita	wreathed cactussnail	None	None	-	-
Tryonia imitator	mimic tryonia (=California brackishwater snail)	None	None	-	-
Radiocentrum avalonense	Catalina mountainsnail	None	None	-	-
Sterkia clementina	San Clemente Island blunt-top snail	None	None	-	-
Gonidea angulata	western ridged mussel	None	None	-	-
Pristiloma shepardae	Shepard's snail	None	None	-	-
Trimerotropis occidentiloides	Santa Monica grasshopper	None	None	-	-
Bombus crotchii	Crotch bumble bee	None	None	-	-
Bombus morrisoni	Morrison bumble bee	None	None	-	-
Cicindela gabbii	western tidal-flat tiger beetle	None	None	-	-
Cicindela hirticollis gravida	sandy beach tiger beetle	None	None	-	-
Cicindela latesignata latesignata	western beach tiger beetle	None	None	-	-
Cicindela senilis frosti	senile tiger beetle	None	None	-	-
Ceratochrysis longimala	Desert cuckoo wasp	None	None	-	-
Carolella busckana	Busck's gallmoth	None	None	-	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Onychobaris langei	Lange's El Segundo Dune weevil	None	None	-	-
Trigonoscuta dorothea dorothea	Dorothy's El Segundo Dune weevil	None	None	-	-
Panoquina errans	wandering (=saltmarsh) skipper	None	None	-	-
Diplectrona californica	California diplectronan caddisfly	None	None	-	-
Callophrys mossii hidakupa	San Gabriel Mountains elfin butterfly	None	None	-	-
Euphilotes battoides allyni	El Segundo blue butterfly	Endangered	None	-	-
Glaucopsyche lygdamus palosverdesensis	Palos Verdes blue butterfly	Endangered	None	-	-
Plebejus saepiolus aureolus	San Gabriel Mountains blue butterfly	None	None	-	-
Plebulina emigdionis	San Emigdio blue butterfly	None	None	-	-
Rhaphiomidas terminatus terminatus	El Segundo flower-loving fly	None	None	-	-
Danaus plexippus pop. 1	monarch - California overwintering population	None	None	-	-
Euphydryas editha quino	quino checkerspot butterfly	Endangered	None	-	-
Coenonycha clementina	San Clemente Island coenonycha beetle	None	None	-	-
Brennania belkini	Belkin's dune tabanid fly	None	None	-	-
Coelus globosus	globose dune beetle	None	None	-	-
Aglaothorax longipennis	Santa Monica shieldback katydid	None	None	-	-
Eucosma hennei	Henne's eucosman moth	None	None	-	-
Mammals					
Ovis canadensis nelsoni	desert bighorn sheep	None	None	FP	-
Urocyon littoralis catalinae	Santa Catalina Island fox	Endangered	Threatened	-	-
Urocyon littoralis clementae	San Clemente Island fox	None	Threatened	-	-
Chaetodipus californicus femoralis	Dulzura pocket mouse	None	None	SSC	-
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None	None	SSC	-
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None	None	SSC	-
Dipodomys merriami parvus	San Bernardino kangaroo rat	Endangered	None	SSC	-
Perognathus alticolus inexpectatus	Tehachapi pocket mouse	None	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Perognathus inornatus	San Joaquin Pocket Mouse	None	None	-	-
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	None	SSC	-
Perognathus longimembris pacificus	Pacific pocket mouse	Endangered	None	SSC	-
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	None	SSC	-
Eumops perotis californicus	western mastiff bat	None	None	SSC	-
Nyctinomops femorosaccus	pocketed free-tailed bat	None	None	SSC	-
Nyctinomops macrotis	big free-tailed bat	None	None	SSC	-
Microtus californicus stephensi	south coast marsh vole	None	None	SSC	-
Neotoma lepida intermedia	San Diego desert woodrat	None	None	SSC	-
Onychomys torridus ramona	southern grasshopper mouse	None	None	SSC	-
Taxidea taxus	American badger	None	None	SSC	-
Macrotus californicus	California leaf-nosed bat	None	None	SSC	-
Ammospermophilus nelsoni	Nelson's antelope squirrel	None	Threatened	-	-
Neotamias speciosus speciosus	lodgepole chipmunk	None	None	-	-
Xerospermophilus mohavensis	Mohave ground squirrel	None	Threatened	-	-
Sorex ornatus salicornicus	southern California saltmarsh shrew	None	None	SSC	-
Sorex ornatus willetti	Santa Catalina shrew	None	None	SSC	-
Antrozous pallidus	pallid bat	None	None	SSC	-
Corynorhinus townsendii	Townsend's big-eared bat	None	Candidate Threatened	SSC	-
Euderma maculatum	spotted bat	None	None	SSC	-
Lasionycteris noctivagans	silver-haired bat	None	None	-	-
Lasiurus blossevillii	western red bat	None	None	SSC	-
Lasiurus cinereus	hoary bat	None	None	-	-
Lasiurus xanthinus	western yellow bat	None	None	SSC	-
Myotis ciliolabrum	western small-footed myotis	None	None	-	-
Myotis evotis	long-eared myotis	None	None	-	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Myotis lucifugus	little brown bat	None	None	-	-
Myotis thysanodes	fringed myotis	None	None	-	-
Myotis velifer	cave myotis	None	None	SSC	-
Myotis volans	long-legged myotis	None	None	-	-
Myotis yumanensis	Yuma myotis	None	None	-	-
Reptiles					
Anniella pulchra pulchra	silvery legless lizard	None	None	SSC	-
Charina trivirgata	rosy boa	None	None	-	-
Charina umbratica	southern rubber boa	None	Threatened	-	-
Chelonia mydas	green turtle	Threatened	None	-	-
Arizona elegans occidentalis	California glossy snake	None	None	-	-
Diadophis punctatus modestus	San Bernardino ringneck snake	None	None	-	-
Lampropeltis zonata (parvirubra)	California mountain kingsnake (San Bernardino population)	None	None	SSC	-
Lampropeltis zonata (pulchra)	California mountain kingsnake (San Diego population)	None	None	SSC	-
Salvadora hexalepis virgultea	coast patch-nosed snake	None	None	SSC	-
Gambelia sila	blunt-nosed leopard lizard	Endangered	Endangered	FP	-
Emys marmorata	western pond turtle	None	None	SSC	-
Thamnophis hammondii	two-striped garter snake	None	None	SSC	-
Thamnophis sirtalis ssp.	south coast garter snake	None	None	SSC	-
Phrynosoma blainvillii	coast horned lizard	None	None	SSC	-
Aspidoscelis hyperythra	orangethroat whiptail	None	None	SSC	-
Aspidoscelis tigris stejnegeri	coastal whiptail	None	None	-	-
Gopherus agassizii	desert tortoise	Threatened	Threatened	-	-
Crotalus ruber	red-diamond rattlesnake	None	None	SSC	-
Xantusia riversiana	island night lizard	Delisted	None	-	-
Plants					

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Anomobryum julaceum	slender silver moss	None	None	-	4.2
Tortula californica	California screw moss	None	None	-	1B.2
Texosporium sancti-jacobi	woven-spored lichen	None	None	-	3
Graphis saxorum	Baja rock lichen	None	None	-	3
Amaranthus watsonii	Watson's amaranth	None	None	-	4.3
Cymopterus deserticola	desert cymopterus	None	None	-	1B.2
Eryngium aristulatum var. parishii	San Diego button-celery	Endangered	Endangered	-	1B.1
Lomatium insulare	San Nicolas Island lomatium	None	None	-	1B.2
Oreonana vestita	woolly mountain-parsley	None	None	-	1B.3
Perideridia pringlei	adobe yampah	None	None	-	4.3
Spermolepis lateriflora	western bristly scaleseed	None	None	-	2A
Asplenium vespertinum	western spleenwort	None	None	-	4.2
Artemisia nesiotica	island sagebrush	None	None	-	4.3
Baccharis malibuensis	Malibu baccharis	None	None	-	1B.1
Centromadia parryi ssp. australis	southern tarplant	None	None	-	1B.1
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	None	None	-	1B.1
Constancea nevinii	Nevin's woolly sunflower	None	None	-	1B.3
Deinandra clementina	island tarplant	None	None	-	4.3
Deinandra minthornii	Santa Susana tarplant	None	Rare	-	1B.2
Deinandra paniculata	paniculate tarplant	None	None	-	4.2
Erigeron breweri var. jacinteus	San Jacinto Mountains daisy	None	None	-	4.3
Eriophyllum mohavense	Barstow woolly sunflower	None	None	-	1B.2
Hazardia cana	San Clemente Island hazardia	None	None	-	1B.2
Helianthus inexpectatus	Newhall sunflower	None	None	-	1B.1
Helianthus nuttallii ssp. parishii	Los Angeles sunflower	None	None	-	1A
Hulsea vestita ssp. gabrielensis	San Gabriel Mountains hulsea	None	None	-	4.3
Hulsea vestita ssp. parryi	Parry's hulsea	None	None	-	4.3

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Isocoma menziesii var. decumbens	decumbent goldenbush	None	None	-	1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None	None	-	1B.1
Layia heterotricha	pale-yellow layia	None	None	-	1B.1
Malacothrix foliosa ssp. foliosa	leafy malacothrix	None	None	-	4.2
Microseris douglasii ssp. platycarpha	small-flowered microseris	None	None	-	4.2
Munzothamnus blairii	Blair's munzothamnus	None	None	-	1B.2
Packera ionophylla	Tehachapi ragwort	None	None	-	4.3
Pentachaeta lyonii	Lyon's pentachaeta	Endangered	Endangered	-	1B.1
Pseudognaphalium leucocephalum	white rabbit-tobacco	None	None	-	2B.2
Senecio aphanactis	chaparral ragwort	None	None	-	2B.2
Senecio astephanus	San Gabriel ragwort	None	None	-	4.3
Stylocline masonii	Mason's neststraw	None	None	-	1B.1
Symphyotrichum defoliatum	San Bernardino aster	None	None	-	1B.2
Symphyotrichum greatae	Greata's aster	None	None	-	1B.3
Syntrichopappus lemmonii	Lemmon's syntrichopappus	None	None	-	4.3
Berberis nevinii	Nevin's barberry	Endangered	Endangered	-	1B.1
Cryptantha clokeyi	Clokey's cryptantha	None	None	-	1B.2
Cryptantha traskiae	Trask's cryptantha	None	None	-	1B.1
Cryptantha wigginsii	Wiggins' cryptantha	None	None	-	1B.2
Harpagonella palmeri	Palmer's grapplinghook	None	None	-	4.2
Nama stenocarpa	mud nama	None	None	-	2B.2
Phacelia floribunda	many-flowered phacelia	None	None	-	1B.2
Phacelia hubbyi	Hubby's phacelia	None	None	-	4.2
Phacelia mohavensis	Mojave phacelia	None	None	-	4.3
Phacelia ramosissima var. austrolitoralis	south coast branching phacelia	None	None	-	3.2
Phacelia stellaris	Brand's star phacelia	None	None	-	1B.1

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Plagiobothrys parishii	Parish's popcornflower	None	None	-	1B.1
Dithyrea maritima	beach spectaclepod	None	Threatened	-	1B.1
Erysimum insulare	island wallflower	None	None	-	1B.3
Erysimum suffrutescens	suffrutescent wallflower	None	None	-	4.2
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	None	None	-	4.3
Nasturtium gambelii	Gambel's water cress	Endangered	Threatened	-	1B.1
Sibara filifolia	Santa Cruz Island winged-rockcress	Endangered	None	-	1B.1
Thysanocarpus rigidus	rigid fringepod	None	None	-	1B.2
Bergerocactus emoryi	golden-spined cereus	None	None	-	2B.2
Opuntia basilaris var. brachyclada	short-joint beavertail	None	None	-	1B.2
Nemacladus secundiflorus var. robbinsii	Robbins' nemacladus	None	None	-	1B.2
Lonicera subspicata var. subspicata	Santa Barbara honeysuckle	None	None	-	1B.2
Arenaria paludicola	marsh sandwort	Endangered	Endangered	-	1B.1
Loeflingia squarrosa var. artemisiarum	sagebrush loeflingia	None	None	-	2B.2
Aphanisma blitoides	aphanisma	None	None	-	1B.2
Atriplex coulteri	Coulter's saltbush	None	None	-	1B.2
Atriplex pacifica	south coast saltscale	None	None	-	1B.2
Atriplex parishii	Parish's brittlescale	None	None	-	1B.1
Atriplex serenana var. davidsonii	Davidson's saltscale	None	None	-	1B.2
Chenopodium littoreum	coastal goosefoot	None	None	-	1B.2
Suaeda esteroa	estuary seablite	None	None	-	1B.2
Suaeda taxifolia	woolly seablite	None	None	-	4.2
Crocanthemum greenei	island rush-rose	Threatened	None	-	1B.2
Calystegia felix	lucky morning-glory	None	None	-	3.1
Calystegia macrostegia ssp. amplissima	island morning-glory	None	None	-	4.3
Calystegia peirsonii	Peirson's morning-glory	None	None	-	4.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Convolvulus simulans	small-flowered morning-glory	None	None	-	4.2
Dichondra occidentalis	western dichondra	None	None	-	4.2
Dudleya blochmaniae ssp. blochmaniae	Blochman's dudleya	None	None	-	1B.1
Dudleya cymosa ssp. agourensis	Agoura Hills dudleya	Threatened	None	-	1B.2
Dudleya cymosa ssp. crebrifolia	San Gabriel River dudleya	None	None	-	1B.2
Dudleya cymosa ssp. marcescens	marcescent dudleya	Threatened	Rare	-	1B.2
Dudleya cymosa ssp. ovatifolia	Santa Monica dudleya	Threatened	None	-	1B.1
Dudleya densiflora	San Gabriel Mountains dudleya	None	None	-	1B.1
Dudleya multicaulis	many-stemmed dudleya	None	None	-	1B.2
Dudleya virens ssp. hassei	Catalina Island dudleya	None	None	-	1B.2
Dudleya virens ssp. insularis	island green dudleya	None	None	-	1B.2
Dudleya virens ssp. virens	bright green dudleya	None	None	-	1B.2
Crossosoma californicum	Catalina crossosoma	None	None	-	1B.2
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	None	None	-	2B.2
Carex occidentalis	western sedge	None	None	-	2B.3
Cladium californicum	California saw-grass	None	None	-	2B.2
Fimbristylis thermalis	hot springs fimbristylis	None	None	-	2B.2
Arctostaphylos catalinae	Santa Catalina Island manzanita	None	None	-	1B.2
Arctostaphylos crustacea ssp. subcordata	Santa Cruz Island manzanita	None	None	-	4.2
Arctostaphylos glandulosa ssp. gabrielensis	San Gabriel manzanita	None	None	-	1B.2
Arctostaphylos parryana ssp. tumescens	interior manzanita	None	None	-	4.3
Euphorbia misera	cliff spurge	None	None	-	2B.2
Acmispon argophyllus var. adsurgens	San Clemente Island bird's-foot trefoil	None	Endangered	-	1B.1
Acmispon dendroideus var.	island broom	None	None	-	4.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
dendroideus					
Acmispon dendroideus var. traskiae	San Clemente Island lotus	Threatened	Endangered	-	1B.3
Astragalus bicristatus	crested milk-vetch	None	None	-	4.3
Astragalus brauntonii	Braunton's milk-vetch	Endangered	None	-	1B.1
Astragalus lentiginosus var. antonius	San Antonio milk-vetch	None	None	-	1B.3
Astragalus leucolobus	Big Bear Valley woollypod	None	None	-	1B.2
Astragalus miguelensis	San Miguel Island milk-vetch	None	None	-	4.3
Astragalus nevinii	San Clemente Island milk-vetch	None	None	-	1B.2
Astragalus preussii var. laxiflorus	Lancaster milk-vetch	None	None	-	1B.1
Astragalus pycnostachyus var. lanosissimus	Ventura Marsh milk-vetch	Endangered	Endangered	-	1B.1
Astragalus tener var. titi	coastal dunes milk-vetch	Endangered	Endangered	-	1B.1
Lupinus elatus	silky lupine	None	None	-	4.3
Lupinus excubitus var. johnstonii	interior bush lupine	None	None	-	4.3
Lupinus guadalupensis	Guadalupe Island lupine	None	None	-	1B.2
Lupinus peirsonii	Peirson's lupine	None	None	-	1B.3
Oxytropis oreophila var. oreophila	rock-loving oxytrope	None	None	-	2B.3
Rupertia rigida	Parish's rupertia	None	None	-	4.3
Trifolium palmeri	southern island clover	None	None	-	4.2
Quercus dumosa	Nuttall's scrub oak	None	None	-	1B.1
Quercus durata var. gabrielensis	San Gabriel oak	None	None	-	4.2
Quercus engelmannii	Engelmann oak	None	None	-	4.2
Quercus pacifica	island scrub oak	None	None	-	4.2
Quercus tomentella	island oak	None	None	-	4.2
Frasera neglecta	pine green-gentian	None	None	-	4.3
California macrophylla	round-leaved filaree	None	None	-	1B.2
Ribes divaricatum var. parishii	Parish's gooseberry	None	None	-	1A

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Ribes viburnifolium	Santa Catalina Island currant	None	None	-	1B.2
Juglans californica	southern California black walnut	None	None	-	4.2
Juncus acutus ssp. leopoldii	southwestern spiny rush	None	None	-	4.2
Juncus duranii	Duran's rush	None	None	-	4.3
Clinopodium mimuloides	monkey-flower savory	None	None	-	4.2
Lepechinia fragrans	fragrant pitcher sage	None	None	-	4.2
Lepechinia rossii	Ross' pitcher sage	None	None	-	1B.2
Monardella australis ssp. cinerea	gray monardella	None	None	-	4.3
Monardella hypoleuca ssp. hypoleuca	white-veined monardella	None	None	-	1B.3
Monardella linoides ssp. oblonga	Tehachapi monardella	None	None	-	1B.3
Monardella macrantha ssp. hallii	Hall's monardella	None	None	-	1B.3
Monardella saxicola	rock monardella	None	None	-	4.2
Scutellaria bolanderi ssp. austromontana	southern mountains skullcap	None	None	-	1B.2
Calochortus catalinae	Catalina mariposa-lily	None	None	-	4.2
Calochortus clavatus var. clavatus	club-haired mariposa-lily	None	None	-	4.3
Calochortus clavatus var. gracilis	slender mariposa-lily	None	None	-	1B.2
Calochortus fimbriatus	late-flowered mariposa-lily	None	None	-	1B.2
Calochortus palmeri var. palmeri	Palmer's mariposa-lily	None	None	-	1B.2
Calochortus plummerae	Plummer's mariposa-lily	None	None	-	4.2
Calochortus striatus	alkali mariposa-lily	None	None	-	1B.2
Calochortus weedii var. intermedius	intermediate mariposa-lily	None	None	-	1B.2
Fritillaria pinetorum	pine fritillary	None	None	-	4.3
Lilium humboldtii ssp. ocellatum	ocellated humboldt lily	None	None	-	4.2
Lilium parryi	lemon lily	None	None	-	1B.2
Lavatera assurgentiflora ssp. glabra	southern island mallow	None	None	-	1B.1
Malacothamnus clementinus	San Clemente Island bush-mallow	Endangered	Endangered	-	1B.1

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Malacothamnus davidsonii	Davidson's bush-mallow	None	None	-	1B.2
Malacothamnus fasciculatus var. catalinensis	Santa Catalina Island bush-mallow	None	None	-	4.2
Sidalcea neomexicana	Salt Spring checkerbloom	None	None	-	2B.2
Calandrinia breweri	Brewer's calandrinia	None	None	-	4.2
Cistanthe maritima	seaside cistanthe	None	None	-	4.2
Claytonia lanceolata var. peirsonii	Peirson's spring beauty	None	None	-	3.1
Lewisia brachycalyx	short-sepaled lewisia	None	None	-	2B.2
Abronia maritima	red sand-verbena	None	None	-	4.2
Camissoniopsis guadalupensis ssp. clementina	San Clemente Island evening-primrose	None	None	-	1B.2
Camissoniopsis lewisii	Lewis' evening-primrose	None	None	-	3
Clarkia xantiana ssp. parviflora	Kern Canyon clarkia	None	None	-	4.2
Botrychium crenulatum	scalloped moonwort	None	None	-	2B.2
Piperia cooperi	chaparral rein orchid	None	None	-	4.2
Castilleja gleasoni	Mt. Gleason paintbrush	None	Rare	-	1B.2
Castilleja grisea	San Clemente Island paintbrush	Threatened	Endangered	-	1B.3
Castilleja plagiotoma	Mojave paintbrush	None	None	-	4.3
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Endangered	Endangered	-	1B.2
Orobanche parishii ssp. brachyloba	short-lobed broomrape	None	None	-	4.2
Orobanche valida ssp. valida	Rock Creek broomrape	None	None	-	1B.2
Canbya candida	white pygmy-poppy	None	None	-	4.2
Dendromecon harfordii var. rhamnoides	south island bush-poppy	None	None	-	3.1
Eschscholzia ramosa	island poppy	None	None	-	4.3
Romneya coulteri	Coulter's matilija poppy	None	None	-	4.2
Parnassia cirrata var. cirrata	San Bernardino grass-of-Parnassus	None	None	-	1B.3
Mimulus diffusus	Palomar monkeyflower	None	None	-	4.3

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Mimulus flemingii	island bush monkeyflower	None	None	-	4.3
Mimulus johnstonii	Johnston's monkeyflower	None	None	-	4.3
Mimulus traskiae	Santa Catalina Island monkeyflower	None	None	-	1A
Gambelia speciosa	showy island snapdragon	None	None	-	1B.2
Dissanthelium californicum	California dissanthelium	None	None	-	1B.2
Hordeum intercedens	vernal barley	None	None	-	3.2
Imperata brevifolia	California satintail	None	None	-	2B.1
Muhlenbergia appressa	appressed muhly	None	None	-	2B.2
Muhlenbergia californica	California muhly	None	None	-	4.3
Orcuttia californica	California Orcutt grass	Endangered	Endangered	-	1B.1
Puccinellia simplex	California alkali grass	None	None	-	1B.2
Eriastrum rosamondense	Rosamond eriastrum	None	None	-	1B.1
Gilia interior	inland gilia	None	None	-	4.3
Gilia latiflora ssp. cuyamensis	Cuyama gilia	None	None	-	4.3
Gilia nevinii	Nevin's gilia	None	None	-	4.3
Leptosiphon pygmaeus ssp. pygmaeus	pygmy leptosiphon	None	None	-	1B.2
Linanthus concinnus	San Gabriel linanthus	None	None	-	1B.2
Navarretia fossalis	spreading navarretia	Threatened	None	-	1B.1
Navarretia ojaiensis	Ojai navarretia	None	None	-	1B.1
Navarretia peninsularis	Baja navarretia	None	None	-	1B.2
Navarretia prostrata	prostrate vernal pool navarretia	None	None	-	1B.1
Navarretia setiloba	Piute Mountains navarretia	None	None	-	1B.1
Acanthoscyphus parishii var. parishii	Parish's oxytheca	None	None	-	4.2
Chorizanthe leptotheca	Peninsular spineflower	None	None	-	4.2
Chorizanthe parryi var. fernandina	San Fernando Valley spineflower	Candidate	Endangered	-	1B.1
Chorizanthe parryi var. parryi	Parry's spineflower	None	None	-	1B.1

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Chorizanthe spinosa	Mojave spineflower	None	None	-	4.2
Dodecahema leptoceras	slender-horned spineflower	Endangered	Endangered	-	1B.1
Eriogonum giganteum var. formosum	San Clemente Island buckwheat	None	None	-	1B.2
Eriogonum giganteum var. giganteum	Santa Catalina Island buckwheat	None	None	-	4.3
Eriogonum grande var. grande	island buckwheat	None	None	-	4.2
Eriogonum kennedyi var. alpigenum	southern alpine buckwheat	None	None	-	1B.3
Eriogonum microthecum var. johnstonii	Johnston's buckwheat	None	None	-	1B.3
Eriogonum umbellatum var. minus	alpine sulphur-flowered buckwheat	None	None	-	4.3
Goodmania luteola	golden goodmania	None	None	-	4.2
Nemacaulis denudata var. denudata	coast woolly-heads	None	None	-	1B.2
Sidotheca caryophylloides	chickweed oxytheca	None	None	-	4.3
Androsace elongata ssp. acuta	California androsace	None	None	-	4.2
Delphinium parishii ssp. subglobosum	Colorado Desert larkspur	None	None	-	4.3
Delphinium parryi ssp. purpureum	Mt. Pinos larkspur	None	None	-	4.3
Delphinium variegatum ssp. kinkiense	San Clemente Island larkspur	Endangered	Endangered	-	1B.1
Delphinium variegatum ssp. thornei	Thorne's royal larkspur	None	None	-	1B.1
Ceanothus megacarpus var. insularis	island ceanothus	None	None	-	4.3
Rhamnus pirifolia	island redberry	None	None	-	4.2
Cercocarpus betuloides var. blancheae	island mountain-mahogany	None	None	-	4.3
Cercocarpus traskiae	Catalina Island mountain-mahogany	Endangered	Endangered	-	1B.1
Drymocallis cuneifolia var. ewanii	Ewan's cinquefoil	None	None	-	1B.3
Horkelia cuneata var. puberula	mesa horkelia	None	None	-	1B.1
Lyonothamnus floribundus ssp.	Santa Cruz Island ironwood	None	None	-	1B.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
aspleniifolius					
Lyonothamnus floribundus ssp. floribundus	Santa Catalina Island ironwood	None	None	-	1B.2
Potentilla multijuga	Ballona cinquefoil	None	None	-	1A
Galium angustifolium ssp. gabrielense	San Antonio Canyon bedstraw	None	None	-	4.3
Galium catalinense ssp. acrispum	San Clemente Island bedstraw	None	Endangered	-	1B.3
Galium catalinense ssp. catalinense	Santa Catalina Island bedstraw	None	None	-	1B.3
Galium cliftonsmithii	Santa Barbara bedstraw	None	None	-	4.3
Galium grande	San Gabriel bedstraw	None	None	-	1B.2
Galium jepsonii	Jepson's bedstraw	None	None	-	4.3
Galium johnstonii	Johnston's bedstraw	None	None	-	4.3
Galium nuttallii ssp. insulare	Nuttall's island bedstraw	None	None	-	4.3
Nolina cismontana	chaparral nolina	None	None	-	1B.2
Heuchera abramsii	Abrams' alumroot	None	None	-	4.3
Heuchera caespitosa	urn-flowered alumroot	None	None	-	4.3
Jepsonia malvifolia	island jepsonia	None	None	-	4.2
Lithophragma maximum	San Clemente Island woodland star	Endangered	Endangered	-	1B.1
Scrophularia villosa	Santa Catalina figwort	None	None	-	1B.2
Selaginella asprella	bluish spike-moss	None	None	-	4.3
Lycium brevipes var. hassei	Santa Catalina Island desert-thorn	None	None	-	3.1
Lycium californicum	California box-thorn	None	None	-	4.2
Lycium torreyi	Torrey's box-thorn	None	None	-	4.2
Solanum wallacei	Wallace's nightshade	None	None	-	1B.1
Thelypteris puberula var. sonorensis	Sonoran maiden fern	None	None	-	2B.2
Brodiaea filifolia	thread-leaved brodiaea	Threatened	Endangered	-	1B.1
Brodiaea kinkiensis	San Clemente Island brodiaea	None	None	-	1B.2
Muilla coronata	crowned muilla	None	None	-	4.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Triteleia clementina	San Clemente Island triteleia	None	None	-	1B.2
Viola pinetorum var. grisea	grey-leaved violet	None	None	-	1B.3

Notes: CDFW = California Department of Fish and Wildlife

[1] Status abbreviations: FP = fully protected; SSC = species of special concern; WL = watch list

[2] Rare plant rank:

1A: Presumed extirpated in California and either rare or extinct elsewhere
1B: Rare, threatened, or endangered in California and elsewhere
2A: Presumed extirpated in California, but common elsewhere
2B: Rare, threatened, or endangered in California, but more common elsewhere
3: More information is needed (review list)
4: Limited distribution (watch list)

Threat rank:

.1: Seriously threatened in California
.2: Moderately threatened in California
.3: Not very threatened in California

California Natural Diversity Database Species for Orange County

Available http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp
Accessed June 1, 2016

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Amphibians					
Anaxyrus californicus	arroyo toad	Endangered	None	SSC	-
Lithobates pipiens	northern leopard frog	None	None	SSC	-
Rana draytonii	California red-legged frog	Threatened	None	SSC	-
Taricha torosa	Coast Range newt	None	None	SSC	-
Spea hammondii	western spadefoot	None	None	SSC	-
Birds					
Accipiter cooperii	Cooper's hawk	None	None	WL	-
Accipiter striatus	sharp-shinned hawk	None	None	WL	-
Aquila chrysaetos	golden eagle	None	None	FP ; WL	-
Buteo regalis	ferruginous hawk	None	None	WL	-
Buteo swainsoni	Swainson's hawk	None	Threatened	-	-
Circus cyaneus	northern harrier	None	None	SSC	-
Elanus leucurus	white-tailed kite	None	None	FP	-
Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	FP	-
Pandion haliaetus	osprey	None	None	WL	-
Eremophila alpestris actia	California horned lark	None	None	WL	-
Synthliboramphus scrippsi	Scripps's murrelet	Candidate	Threatened	-	-
Bucephala islandica	Barrow's goldeneye	None	None	SSC	-
Chaetura vauxi	Vaux's swift	None	None	SSC	-
Cypseloides niger	black swift	None	None	SSC	-
Ardea alba	great egret	None	None	-	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Ardea herodias	great blue heron	None	None	-	-
Botaurus lentiginosus	American bittern	None	None	-	-
Egretta thula	snowy egret	None	None	-	-
Ixobrychus exilis	least bittern	None	None	SSC	-
Nycticorax nycticorax	black-crowned night heron	None	None	-	-
Charadrius alexandrinus nivosus	western snowy plover	Threatened	None	SSC	-
Charadrius montanus	mountain plover	None	None	SSC	-
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered	-	-
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None	None	WL	-
Ammodramus savannarum	grasshopper sparrow	None	None	SSC	-
Artemisiospiza belli belli	Bell's sage sparrow	None	None	WL	-
Chondestes grammacus	lark sparrow	None	None	-	-
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None	Endangered	-	-
Passerculus sandwichensis rostratus	large-billed savannah sparrow	None	None	SSC	-
Spizella atrogularis	black-chinned sparrow	None	None	-	-
Falco columbarius	merlin	None	None	WL	-
Falco mexicanus	prairie falcon	None	None	WL	-
Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	FP	-
Spinus lawrencei	Lawrence's goldfinch	None	None	-	-
Grus canadensis canadensis	lesser sandhill crane	None	None	SSC	-
Progne subis	purple martin	None	None	SSC	-
Riparia riparia	bank swallow	None	Threatened	-	-
Agelaius tricolor	tricolored blackbird	None	None	SSC	-
Xanthocephalus xanthocephalus	yellow-headed blackbird	None	None	SSC	-
Lanius ludovicianus	loggerhead shrike	None	None	SSC	-
Hydroprogne caspia	Caspian tern	None	None	-	-
Larus californicus	California gull	None	None	WL	-
Rynchops niger	black skimmer	None	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Sterna forsteri	Forster's tern	None	None	-	-
Sternula antillarum browni	California least tern	Endangered	Endangered	FP	-
Thalasseus elegans	elegant tern	None	None	WL	-
Baeolophus inornatus	oak titmouse	None	None	-	-
Icteria virens	yellow-breasted chat	None	None	SSC	-
Setophaga petechia	yellow warbler	None	None	SSC	-
Pelecanus erythrorhynchos	American white pelican	None	None	SSC	-
Pelecanus occidentalis californicus	California brown pelican	Delisted	Delisted	FP	-
Phalacrocorax auritus	double-crested cormorant	None	None	WL	-
Picoides nuttallii	Nuttall's woodpecker	None	None	-	-
Coturnicops noveboracensis	yellow rail	None	None	SSC	-
Laterallus jamaicensis coturniculus	California black rail	None	Threatened	FP	-
Rallus longirostris levipes	light-footed clapper rail	Endangered	Endangered	FP	-
Numenius americanus	long-billed curlew	None	None	WL	-
Asio flammeus	short-eared owl	None	None	SSC	-
Asio otus	long-eared owl	None	None	SSC	-
Athene cunicularia	burrowing owl	None	None	SSC	-
Strix occidentalis occidentalis	California spotted owl	None	None	SSC	-
Polioptila californica californica	coastal California gnatcatcher	Threatened	None	SSC	-
Polioptila melanura	black-tailed gnatcatcher	None	None	WL	-
Plegadis chihi	white-faced ibis	None	None	WL	-
Calypte costae	Costa's hummingbird	None	None	-	-
Selasphorus sasin	Allen's hummingbird	None	None	-	-
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	None	None	SSC	-
Cistothorus palustris clarkae	Clark's marsh wren	None	None	SSC	-
Contopus cooperi	olive-sided flycatcher	None	None	SSC	-
Empidonax traillii	willow flycatcher	None	Endangered	-	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Empidonax traillii extimus	southwestern willow flycatcher	Endangered	Endangered	-	-
Pyrocephalus rubinus	vermilion flycatcher	None	None	SSC	-
Vireo bellii pusillus	least Bell's vireo	Endangered	Endangered	-	-
Vireo huttoni unitti	Catalina Hutton's vireo	None	None	SSC	-
Fish					
Catostomus santaanae	Santa Ana sucker	Threatened	None	-	-
Gila orcuttii	arroyo chub	None	None	SSC	-
Rhinichthys osculus ssp.	Santa Ana speckled dace	None	None	SSC	-
Eucyclogobius newberryi	tidewater goby	Endangered	None	SSC	-
Oncorhynchus mykiss irideus	steelhead - southern California DPS	Endangered	None	-	-
Invertebrates					
Branchinecta sandiegonensis	San Diego fairy shrimp	Endangered	None	-	-
Streptocephalus woottoni	Riverside fairy shrimp	Endangered	None	-	-
Tryonia imitator	mimic tryonia (=California brackishwater snail)	None	None	-	-
Bombus crotchii	Crotch bumble bee	None	None	-	-
Cicindela gabbii	western tidal-flat tiger beetle	None	None	-	-
Cicindela hirticollis gravida	sandy beach tiger beetle	None	None	-	-
Cicindela latesignata latesignata	western beach tiger beetle	None	None	-	-
Cicindela senilis frosti	senile tiger beetle	None	None	-	-
Cicindela tranquebarica viridissima	greenest tiger beetle	None	None	-	-
Trigonoscuta dorothea dorothea	Dorothy's El Segundo Dune weevil	None	None	-	-
Euphyes vestris harbisoni	dun skipper	None	None	-	-
Panoquina errans	wandering (=saltmarsh) skipper	None	None	-	-
Danaus plexippus pop.	monarch - California overwintering population	None	None	-	-
Euphydryas editha quino	quino checkerspot butterfly	Endangered	None	-	-
Coelus globosus	globose dune beetle	None	None	-	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Mammals					
Chaetodipus californicus femoralis	Dulzura pocket mouse	None	None	SSC	-
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None	None	SSC	-
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	None	SSC	-
Perognathus longimembris pacificus	Pacific pocket mouse	Endangered	None	SSC	-
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	None	SSC	-
Eumops perotis californicus	western mastiff bat	None	None	SSC	-
Nyctinomops femorosaccus	pocketed free-tailed bat	None	None	SSC	-
Nyctinomops macrotis	big free-tailed bat	None	None	SSC	-
Microtus californicus stephensi	south coast marsh vole	None	None	SSC	-
Neotoma lepida intermedia	San Diego desert woodrat	None	None	SSC	-
Taxidea taxus	American badger	None	None	SSC	-
Choeronycteris mexicana	Mexican long-tongued bat	None	None	SSC	-
Sorex ornatus salicornicus	southern California saltmarsh shrew	None	None	SSC	-
Antrozous pallidus	pallid bat	None	None	SSC	-
Lasiurus blossevillii	western red bat	None	None	SSC	-
Lasiurus cinereus	hoary bat	None	None	-	-
Lasiurus xanthinus	western yellow bat	None	None	SSC	-
Myotis ciliolabrum	western small-footed myotis	None	None	-	-
Myotis yumanensis	Yuma myotis	None	None	-	-
Reptiles					
Anniella pulchra pulchra	silvery legless lizard	None	None	SSC	-
Charina trivirgata	rosy boa	None	None	-	-
Chelonia mydas	green turtle	Threatened	None	-	-
Arizona elegans occidentalis	California glossy snake	None	None	-	-
Diadophis punctatus modestus	San Bernardino ringneck snake	None	None	-	-
Diadophis punctatus similis	San Diego ringneck snake	None	None	-	-
Lampropeltis zonata (pulchra)	California mountain kingsnake (San Diego	None	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
	population)				
Salvadora hexalepis virgultea	coast patch-nosed snake	None	None	SSC	-
Emys marmorata	western pond turtle	None	None	SSC	-
Coleonyx variegatus abbotti	San Diego banded gecko	None	None	-	-
Thamnophis hammondii	two-striped garter snake	None	None	SSC	-
Phrynosoma blainvillii	coast horned lizard	None	None	SSC	-
Plestiodon skiltonianus interparietalis	Coronado Island skink	None	None	SSC	-
Aspidoscelis hyperythra	orangethroat whiptail	None	None	SSC	-
Aspidoscelis tigris stejnegeri	coastal whiptail	None	None	-	-
Crotalus ruber	red-diamond rattlesnake	None	None	SSC	-
Plants					
Eryngium aristulatum var. parishii	San Diego button-celery	Endangered	Endangered	-	1B.1
Asplenium vespertinum	western spleenwort	None	None	-	4.2
Baccharis malibuensis	Malibu baccharis	None	None	-	1B.1
Centromadia parryi ssp. australis	southern tarplant	None	None	-	1B.1
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	None	None	-	1B.1
Deinandra paniculata	paniculate tarplant	None	None	-	4.2
Helianthus nuttallii ssp. parishii	Los Angeles sunflower	None	None	-	1A
Holocarpha virgata ssp. elongata	curving tarplant	None	None	-	4.2
Isocoma menziesii var. decumbens	decumbent goldenbush	None	None	-	1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None	None	-	1B.1
Malacothrix saxatilis var. saxatilis	cliff malacothrix	None	None	-	4.2
Microseris douglasii ssp. platycarpha	small-flowered microseris	None	None	-	4.2
Pentachaeta aurea ssp. allenii	Allen's pentachaeta	None	None	-	1B.1
Pentachaeta aurea ssp. aurea	golden-rayed pentachaeta	None	None	-	4.2
Pseudognaphalium leucocephalum	white rabbit-tobacco	None	None	-	2B.2
Senecio aphanactis	chaparral ragwort	None	None	-	2B.2
Symphyotrichum defoliatum	San Bernardino aster	None	None	-	1B.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Verbesina dissita	big-leaved crownbeard	Threatened	Threatened	-	1B.1
Harpagonella palmeri	Palmer's grapplinghook	None	None	-	4.2
Nama stenocarpa	mud nama	None	None	-	2B.2
Phacelia hubbyi	Hubby's phacelia	None	None	-	4.2
Phacelia keckii	Santiago Peak phacelia	None	None	-	1B.3
Phacelia ramosissima var. austrolitoralis	south coast branching phacelia	None	None	-	3.2
Phacelia stellaris	Brand's star phacelia	None	None	-	1B.1
Caulanthus simulans	Payson's jewelflower	None	None	-	4.2
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	None	None	-	4.3
Nasturtium gambelii	Gambel's water cress	Endangered	Threatened	-	1B.1
Aphanisma blitoides	aphanisma	None	None	-	1B.2
Atriplex coulteri	Coulter's saltbush	None	None	-	1B.2
Atriplex pacifica	south coast saltscale	None	None	-	1B.2
Atriplex parishii	Parish's brittlescale	None	None	-	1B.1
Atriplex serenana var. davidsonii	Davidson's saltscale	None	None	-	1B.2
Suaeda esteroa	estuary seablite	None	None	-	1B.2
Suaeda taxifolia	woolly seablite	None	None	-	4.2
Convolvulus simulans	small-flowered morning-glory	None	None	-	4.2
Dichondra occidentalis	western dichondra	None	None	-	4.2
Dudleya blochmaniae ssp. blochmaniae	Blochman's dudleya	None	None	-	1B.1
Dudleya cymosa ssp. ovatifolia	Santa Monica dudleya	Threatened	None	-	1B.1
Dudleya multicaulis	many-stemmed dudleya	None	None	-	1B.2
Dudleya stolonifera	Laguna Beach dudleya	Threatened	Threatened	-	1B.1
Dudleya viscida	sticky dudleya	None	None	-	1B.2
Hesperocyparis forbesii	Tecate cypress	None	None	-	1B.1
Hesperocyparis goveniana	Gowen cypress	Threatened	None	-	1B.2
Eleocharis parvula	small spikerush	None	None	-	4.3
Comarostaphylis diversifolia ssp.	summer holly	None	None	-	1B.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
diversifolia					
Euphorbia misera	cliff spurge	None	None	-	2B.2
Tetracoccus dioicus	Parry's tetracoccus	None	None	-	1B.2
Astragalus brauntonii	Braunton's milk-vetch	Endangered	None	-	1B.1
Astragalus pycnostachyus var. lanosissimus	Ventura Marsh milk-vetch	Endangered	Endangered	-	1B.1
Quercus dumosa	Nuttall's scrub oak	None	None	-	1B.1
Juglans californica	southern California black walnut	None	None	-	4.2
Juncus acutus ssp. leopoldii	southwestern spiny rush	None	None	-	4.2
Clinopodium chandleri	San Miguel savory	None	None	-	1B.2
Lepechinia cardiophylla	heart-leaved pitcher sage	None	None	-	1B.2
Lepechinia ganderi	Gander's pitcher sage	None	None	-	1B.3
Monardella hypoleuca ssp. intermedia	intermediate monardella	None	None	-	1B.3
Monardella macrantha ssp. hallii	Hall's monardella	None	None	-	1B.3
Calochortus catalinae	Catalina mariposa-lily	None	None	-	4.2
Calochortus plummerae	Plummer's mariposa-lily	None	None	-	4.2
Calochortus weedii var. intermedius	intermediate mariposa-lily	None	None	-	1B.2
Lilium humboldtii ssp. ocellatum	ocellated humboldt lily	None	None	-	4.2
Sidalcea neomexicana	Salt Spring checkerbloom	None	None	-	2B.2
Calandrinia breweri	Brewer's calandrinia	None	None	-	4.2
Cistanthe maritima	seaside cistanthe	None	None	-	4.2
Abronia maritima	red sand-verbena	None	None	-	4.2
Abronia villosa var. aurita	chaparral sand-verbena	None	None	-	1B.1
Camissoniopsis lewisii	Lewis' evening-primrose	None	None	-	3
Piperia cooperi	chaparral rein orchid	None	None	-	4.2
Piperia leptopetala	narrow-petaled rein orchid	None	None	-	4.3
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Endangered	Endangered	-	1B.2
Romneya coulteri	Coulter's matilija poppy	None	None	-	4.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Mimulus clevelandii	Cleveland's bush monkeyflower	None	None	-	4.2
Mimulus diffusus	Palomar monkeyflower	None	None	-	4.3
Penstemon californicus	California beardtongue	None	None	-	1B.2
Hordeum intercedens	vernal barley	None	None	-	3.2
Imperata brevifolia	California satintail	None	None	-	2B.1
Orcuttia californica	California Orcutt grass	Endangered	Endangered	-	1B.1
Collomia diversifolia	serpentine collomia	None	None	-	4.3
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Endangered	Endangered	-	1B.1
Navarretia prostrata	prostrate vernal pool navarretia	None	None	-	1B.1
Polygala cornuta var. fishiae	Fish's milkwort	None	None	-	4.3
Chorizanthe parryi var. fernandina	San Fernando Valley spineflower	Candidate	Endangered	-	1B.1
Chorizanthe polygonoides var. longispina	long-spined spineflower	None	None	-	1B.2
Nemacaulis denudata var. denudata	coast woolly-heads	None	None	-	1B.2
Horkelia cuneata var. puberula	mesa horkelia	None	None	-	1B.1
Nolina cismontana	chaparral nolina	None	None	-	1B.2
Lycium californicum	California box-thorn	None	None	-	4.2
Brodiaea filifolia	thread-leaved brodiaea	Threatened	Endangered	-	1B.1

Notes: CDFW = California Department of Fish and Wildlife

[1] Status abbreviations: FP = fully protected; SSC = species of special concern; WL = watch list

[2] Rare plant rank:

1A: Presumed extirpated in California and either rare or extinct elsewhere
1B: Rare, threatened, or endangered in California and elsewhere
2A: Presumed extirpated in California, but common elsewhere
2B: Rare, threatened, or endangered in California, but more common elsewhere
3: More information is needed (review list)
4: Limited distribution (watch list)

Threat rank:

.1: Seriously threatened in California
.2: Moderately threatened in California
.3: Not very threatened in California

California Natural Diversity Database Species for San Bernardino County

Available http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp
Accessed June 1, 2016

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Amphibians					
Anaxyrus californicus	arroyo toad	Endangered	None	SSC	-
Incilius alvarius	Sonoran desert toad	None	None	SSC	-
Batrachoseps gabrieli	San Gabriel slender salamander	None	None	-	-
Ensatina klauberi	large-blotched salamander	None	None	SSC	-
Rana draytonii	California red-legged frog	Threatened	None	SSC	-
Rana muscosa	southern mountain yellow-legged frog	Endangered	Endangered	SSC	-
Spea hammondii	western spadefoot	None	None	SSC	-
Birds					
Accipiter cooperii	Cooper's hawk	None	None	WL	-
Accipiter gentilis	northern goshawk	None	None	SSC	-
Accipiter striatus	sharp-shinned hawk	None	None	WL	-
Aquila chrysaetos	golden eagle	None	None	FP ; WL	-
Buteo regalis	ferruginous hawk	None	None	WL	-
Buteo swainsoni	Swainson's hawk	None	Threatened	-	-
Circus cyaneus	northern harrier	None	None	SSC	-
Elanus leucurus	white-tailed kite	None	None	FP	-
Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	FP	-
Pandion haliaetus	osprey	None	None	WL	-
Parabuteo unicinctus	Harris' hawk	None	None	WL	-
Eremophila alpestris actia	California horned lark	None	None	WL	-
Chaetura vauxi	Vaux's swift	None	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Cypseloides niger	black swift	None	None	SSC	-
Ardea alba	great egret	None	None	-	-
Ardea herodias	great blue heron	None	None	-	-
Botaurus lentiginosus	American bittern	None	None	-	-
Egretta thula	snowy egret	None	None	-	-
Ixobrychus exilis	least bittern	None	None	SSC	-
Nycticorax nycticorax	black-crowned night heron	None	None	-	-
Cardinalis cardinalis	northern cardinal	None	None	WL	-
Gymnogyps californianus	California condor	Endangered	Endangered	FP	-
Charadrius alexandrinus nivosus	western snowy plover	Threatened	None	SSC	-
Charadrius montanus	mountain plover	None	None	SSC	-
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered	-	-
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None	None	WL	-
Ammodramus savannarum	grasshopper sparrow	None	None	SSC	-
Artemisiospiza belli belli	Bell's sage sparrow	None	None	WL	-
Chondestes grammacus	lark sparrow	None	None	-	-
Junco hyemalis caniceps	gray-headed junco	None	None	WL	-
Melozone aberti	Abert's towhee	None	None	-	-
Passerculus sandwichensis alaudinus	Bryant's savannah sparrow	None	None	SSC	-
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None	Endangered	-	-
Passerculus sandwichensis rostratus	large-billed savannah sparrow	None	None	SSC	-
Spizella atrogularis	black-chinned sparrow	None	None	-	-
Spizella breweri	Brewer's sparrow	None	None	-	-
Spizella passerina	chipping sparrow	None	None	-	-
Falco columbarius	merlin	None	None	WL	-
Falco mexicanus	prairie falcon	None	None	WL	-
Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	FP	-
Spinus lawrencei	Lawrence's goldfinch	None	None	-	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Gavia immer	common loon	None	None	SSC	-
Grus canadensis canadensis	lesser sandhill crane	None	None	SSC	-
Progne subis	purple martin	None	None	SSC	-
Riparia riparia	bank swallow	None	Threatened	-	-
Agelaius tricolor	tricolored blackbird	None	None	SSC	-
Xanthocephalus xanthocephalus	yellow-headed blackbird	None	None	SSC	-
Lanius ludovicianus	loggerhead shrike	None	None	SSC	-
Chlidonias niger	black tern	None	None	SSC	-
Larus californicus	California gull	None	None	WL	-
Sterna forsteri	Forster's tern	None	None	-	-
Toxostoma bendirei	Bendire's thrasher	None	None	SSC	-
Toxostoma crissale	Crissal thrasher	None	None	SSC	-
Toxostoma lecontei	Le Conte's thrasher	None	None	SSC	-
Baeolophus inornatus	oak titmouse	None	None	-	-
Icteria virens	yellow-breasted chat	None	None	SSC	-
Oreothlypis luciae	Lucy's warbler	None	None	SSC	-
Oreothlypis virginiae	Virginia's warbler	None	None	WL	-
Setophaga occidentalis	hermit warbler	None	None	-	-
Setophaga petechia	yellow warbler	None	None	SSC	-
Setophaga petechia sonorana	Sonoran yellow warbler	None	None	SSC	-
Pelecanus erythrorhynchos	American white pelican	None	None	SSC	-
Phalacrocorax auritus	double-crested cormorant	None	None	WL	-
Colaptes chrysoides	gilded flicker	None	Endangered	-	-
Melanerpes lewis	Lewis' woodpecker	None	None	-	-
Melanerpes uropygialis	Gila woodpecker	None	Endangered	-	-
Picoides albolarvatus	White-headed woodpecker	None	None	-	-
Picoides nuttallii	Nuttall's woodpecker	None	None	-	-
Sphyrapicus ruber	red-breasted sapsucker	None	None	-	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Laterallus jamaicensis coturniculus	California black rail	None	Threatened	FP	-
Rallus longirostris yumanensis	Yuma clapper rail	Endangered	Threatened	FP	-
Asio flammeus	short-eared owl	None	None	SSC	-
Asio otus	long-eared owl	None	None	SSC	-
Athene cunicularia	burrowing owl	None	None	SSC	-
Micrathene whitneyi	elf owl	None	Endangered	-	-
Psiloscops flammeolus	flammulated owl	None	None	-	-
Strix occidentalis occidentalis	California spotted owl	None	None	SSC	-
Polioptila californica californica	coastal California gnatcatcher	Threatened	None	SSC	-
Polioptila melanura	black-tailed gnatcatcher	None	None	WL	-
Piranga flava	hepatic tanager	None	None	WL	-
Piranga rubra	summer tanager	None	None	SSC	-
Plegadis chihi	white-faced ibis	None	None	WL	-
Calypte costae	Costa's hummingbird	None	None	-	-
Selasphorus rufus	rufous hummingbird	None	None	-	-
Selasphorus sasin	Allen's hummingbird	None	None	-	-
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	None	None	SSC	-
Contopus cooperi	olive-sided flycatcher	None	None	SSC	-
Empidonax traillii	willow flycatcher	None	Endangered	-	-
Empidonax traillii brewsteri	little willow flycatcher	None	Endangered	-	-
Empidonax traillii extimus	southwestern willow flycatcher	Endangered	Endangered	-	-
Myiarchus tyrannulus	brown-crested flycatcher	None	None	WL	-
Pyrocephalus rubinus	vermilion flycatcher	None	None	SSC	-
Vireo bellii arizonae	Arizona bell's vireo	None	Endangered	-	-
Vireo bellii pusillus	least Bell's vireo	Endangered	Endangered	-	-
Vireo vicinior	gray vireo	None	None	SSC	-
Fish					

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Catostomus latipinnis	flannelmouth sucker	None	None	-	-
Catostomus santaanae	Santa Ana sucker	Threatened	None	-	-
Xyrauchen texanus	razorback sucker	Endangered	Endangered	FP	-
Gila elegans	bonytail	Endangered	Endangered	-	-
Gila orcuttii	arroyo chub	None	None	SSC	-
Ptychocheilus lucius	Colorado pikeminnow	Endangered	Endangered	FP	-
Rhinichthys osculus ssp.	Amargosa Canyon speckled dace	None	None	SSC	-
Rhinichthys osculus ssp.	Santa Ana speckled dace	None	None	SSC	-
Siphateles bicolor mohavensis	Mohave tui chub	Endangered	Endangered	FP	-
Cyprinodon nevadensis amargosae	Amargosa pupfish	None	None	SSC	-
Cyprinodon nevadensis nevadensis	Saratoga Springs pupfish	None	None	SSC	-
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	Endangered	Endangered	FP	-
Oncorhynchus mykiss irideus	steelhead - southern California DPS	Endangered	None	-	-
Invertebrates					
Texella kokoweef	Kokoweef Crystal Cave harvestman	None	None	-	-
Assiminea infima	Badwater snail	None	None	-	-
Eremarionta morongoana	Morongo (=Colorado) desertsnail	None	None	-	-
Eremarionta rowelli bakerensis	Baker's desertsnail	None	None	-	-
Helminthoglypta mohaveana	Victorville shoulderband	None	None	-	-
Helminthoglypta taylori	westfork shoulderband	None	None	-	-
Anodonta californiensis	California floater	None	None	-	-
Gonidea angulata	western ridged mussel	None	None	-	-
Paranomada californica	California cuckoo bee	None	None	-	-
Bombus caliginosus	obscure bumble bee	None	None	-	-
Bombus crotchii	Crotch bumble bee	None	None	-	-
Bombus morrisoni	Morrison bumble bee	None	None	-	-
Bombus occidentalis	western bumble bee	None	None	-	-
Rhopalolemma robertsi	Roberts' rhopalolemma bee	None	None	-	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Belostoma saratogae	Saratoga Springs belostoman bug	None	None	-	-
Parnopes borregoensis	Borrego parnopes cuckoo wasp	None	None	-	-
Carolella busckana	Busck's gallmoth	None	None	-	-
Miloderes nelsoni	Nelson's miloderes weevil	None	None	-	-
Trigonoscuta brunnotesselata	brown tassel trigonoscuta weevil	None	None	-	-
Hydroporus simplex	simple hydroporus diving beetle	None	None	-	-
Psychomastax deserticola	desert monkey grasshopper	None	None	-	-
Halictus harmonius	haromonius halictid bee	None	None	-	-
Diplectrona californica	California diplectronan caddisfly	None	None	-	-
Oliarces clara	cheeseweed owlfly (cheeseweed moth lacewing)	None	None	-	-
Callophrys mossii hidakupa	San Gabriel Mountains elfin butterfly	None	None	-	-
Plebejus saepiolus aureolus	San Gabriel Mountains blue butterfly	None	None	-	-
Plebulina emigdionis	San Emigdio blue butterfly	None	None	-	-
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	Endangered	None	-	-
Pelocoris shoshone	Amargosa naucorid bug	None	None	-	-
Euphydryas editha quino	quino checkerspot butterfly	Endangered	None	-	-
Euchloe hyantis andrewsi	Andrew's marble butterfly	None	None	-	-
Macrobaenetes kelsoensis	Kelso giant sand treader cricket	None	None	-	-
Glaresis arenata	Kelso Dunes scarab glaresis beetle	None	None	-	-
Polyphylla erratica	Death Valley June beetle	None	None	-	-
Ammopelmatus kelsoensis	Kelso jerusalem cricket	None	None	-	-
Mammals					
Ovis canadensis nelsoni	desert bighorn sheep	None	None	FP	-
Canis lupus	gray wolf	Endangered	Endangered	-	-
Vulpes macrotis mutica	San Joaquin kit fox	Endangered	Threatened	-	-
Chaetodipus californicus femoralis	Dulzura pocket mouse	None	None	SSC	-
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None	None	SSC	-
Dipodomys merriami parvus	San Bernardino kangaroo rat	Endangered	None	SSC	-
Dipodomys stephensi	Stephens' kangaroo rat	Endangered	Threatened	-	-
Perognathus alticolus alticolus	white-eared pocket mouse	None	None	SSC	-
Perognathus longimembris bangsi	Palm Springs pocket mouse	None	None	SSC	-
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	None	SSC	-
Perognathus longimembris pacificus	Pacific pocket mouse	Endangered	None	SSC	-
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	None	SSC	-
Eumops perotis californicus	western mastiff bat	None	None	SSC	-
Nyctinomops femorosaccus	pocketed free-tailed bat	None	None	SSC	-
Microtus californicus mohavensis	Mohave river vole	None	None	SSC	-
Microtus californicus scirpensis	Amargosa vole	Endangered	Endangered	-	-
Neotoma albigula venusta	Colorado Valley woodrat	None	None	-	-
Neotoma lepida intermedia	San Diego desert woodrat	None	None	SSC	-
Onychomys torridus ramona	southern grasshopper mouse	None	None	SSC	-
Sigmodon arizonae plenus	Colorado River cotton rat	None	None	SSC	-
Lontra canadensis sonora	southwestern river otter	None	None	SSC	-
Taxidea taxus	American badger	None	None	SSC	-
Leptonycteris yerbabuenae	lesser long-nosed bat	Endangered	None	-	-
Macrotus californicus	California leaf-nosed bat	None	None	SSC	-
Glaucomys sabrinus californicus	San Bernardino flying squirrel	None	None	SSC	-
Neotamias panamintinus acrus	Kingston Mountain chipmunk	None	None	-	-
Neotamias speciosus speciosus	lodgepole chipmunk	None	None	-	-
Xerospermophilus mohavensis	Mohave ground squirrel	None	Threatened	-	-
Xerospermophilus tereticaudus chlorus	Palm Springs round-tailed ground squirrel	None	None	SSC	-
Antrozous pallidus	pallid bat	None	None	SSC	-
Corynorhinus townsendii	Townsend's big-eared bat	None	Candidate Threatened	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Euderma maculatum	spotted bat	None	None	SSC	-
Lasionycteris noctivagans	silver-haired bat	None	None	-	-
Lasiurus blossevillii	western red bat	None	None	SSC	-
Lasiurus cinereus	hoary bat	None	None	-	-
Lasiurus xanthinus	western yellow bat	None	None	SSC	-
Myotis ciliolabrum	western small-footed myotis	None	None	-	-
Myotis evotis	long-eared myotis	None	None	-	-
Myotis lucifugus	little brown bat	None	None	-	-
Myotis thysanodes	fringed myotis	None	None	-	-
Myotis velifer	cave myotis	None	None	SSC	-
Myotis volans	long-legged myotis	None	None	-	-
Myotis yumanensis	Yuma myotis	None	None	-	-
Reptiles					
Anniella pulchra pulchra	silvery legless lizard	None	None	SSC	-
Charina trivirgata	rosy boa	None	None	-	-
Charina umbratica	southern rubber boa	None	Threatened	-	-
Arizona elegans occidentalis	California glossy snake	None	None	-	-
Diadophis punctatus modestus	San Bernardino ringneck snake	None	None	-	-
Lampropeltis zonata (parvirubra)	California mountain kingsnake (San Bernardino population)	None	None	SSC	-
Salvadora hexalepis virgultea	coast patch-nosed snake	None	None	SSC	-
Emys marmorata	western pond turtle	None	None	SSC	-
Coleonyx variegatus abbotti	San Diego banded gecko	None	None	-	-
Heloderma suspectum cinctum	banded gila monster	None	None	SSC	-
Thamnophis hammondii	two-striped garter snake	None	None	SSC	-
Thamnophis sirtalis ssp.	south coast garter snake	None	None	SSC	-
Phrynosoma blainvillii	coast horned lizard	None	None	SSC	-
Uma scoparia	Mojave fringe-toed lizard	None	None	SSC	-

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Aspidoscelis hyperythra	orangethroat whiptail	None	None	SSC	-
Aspidoscelis tigris stejnegeri	coastal whiptail	None	None	-	-
Gopherus agassizii	desert tortoise	Threatened	Threatened	-	-
Crotalus ruber	red-diamond rattlesnake	None	None	SSC	-
Plants					
Plagiobryoides vinosula	wine-colored tufa moss	None	None	-	4.2
Grimmia vaginulata	vaginulate grimmia	None	None	-	1B.1
Jaffueliobryum raui	Rau's jaffueliobryum moss	None	None	-	2B.3
Jaffueliobryum wrightii	Wright's jaffueliobryum moss	None	None	-	2B.3
Tortella alpicola	alpine crisp moss	None	None	-	2B.3
Solorina spongiosa	fringed chocolate chip lichen	None	None	-	2B.2
Agave utahensis var. nevadensis	Clark Mountain agave	None	None	-	4.2
Sagittaria sanfordii	Sanford's arrowhead	None	None	-	1B.2
Allium atrorubens var. atrorubens	Great Basin onion	None	None	-	2B.3
Allium atrorubens var. cristatum	Inyo onion	None	None	-	4.3
Allium marvinii	Yucaipa onion	None	None	-	1B.2
Allium nevadense	Nevada onion	None	None	-	2B.3
Allium parishii	Parish's onion	None	None	-	4.3
Amaranthus watsonii	Watson's amaranth	None	None	-	4.3
Cymopterus deserticola	desert cymopterus	None	None	-	1B.2
Cymopterus gilmanii	Gilman's cymopterus	None	None	-	2B.3
Cymopterus multinervatus	purple-nerve cymopterus	None	None	-	2B.2
Oreonana vestita	woolly mountain-parsley	None	None	-	1B.3
Perideridia parishii ssp. parishii	Parish's yampah	None	None	-	2B.2
Podistera nevadensis	Sierra podistera	None	None	-	4.3
Asclepias asperula ssp. asperula	antelope-horns	None	None	-	4.3
Asclepias nyctaginifolia	Mojave milkweed	None	None	-	2B.1
Funastrum utahense	Utah vine milkweed	None	None	-	4.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Matelea parvifolia	spear-leaf matelea	None	None	-	2B.3
Asplenium vespertinum	western spleenwort	None	None	-	4.2
Ageratina herbacea	desert ageratina	None	None	-	2B.3
Ambrosia monogyra	singlewhorl burrobrush	None	None	-	2B.2
Antennaria marginata	white-margined everlasting	None	None	-	2B.3
Artemisia palmeri	San Diego sagewort	None	None	-	4.2
Bahia neomexicana	many-flowered bahia	None	None	-	2B.3
Centromadia pungens ssp. laevis	smooth tarplant	None	None	-	1B.1
Cirsium arizonicum var. tenuisectum	desert mountain thistle	None	None	-	1B.2
Deinandra mohavensis	Mojave tarplant	None	Endangered	-	1B.3
Deinandra paniculata	paniculate tarplant	None	None	-	4.2
Enceliopsis nudicaulis var. nudicaulis	naked-stemmed daisy	None	None	-	4.3
Ericameria albida	white-flowered rabbitbrush	None	None	-	4.2
Ericameria nana	dwarf goldenbush	None	None	-	4.3
Erigeron breweri var. jacinteus	San Jacinto Mountains daisy	None	None	-	4.3
Erigeron oxyphyllus	wand-like fleabane daisy	None	None	-	2B.3
Erigeron parishii	Parish's daisy	Threatened	None	-	1B.1
Erigeron uncialis var. uncialis	limestone daisy	None	None	-	1B.2
Erigeron utahensis	Utah daisy	None	None	-	2B.3
Eriophyllum lanatum var. obovatum	southern Sierra woolly sunflower	None	None	-	4.3
Eriophyllum mohavense	Barstow woolly sunflower	None	None	-	1B.2
Helianthus nuttallii ssp. parishii	Los Angeles sunflower	None	None	-	1A
Hulsea vestita ssp. gabrielensis	San Gabriel Mountains hulsea	None	None	-	4.3
Hulsea vestita ssp. parryi	Parry's hulsea	None	None	-	4.3
Hulsea vestita ssp. pygmaea	pygmy hulsea	None	None	-	1B.3
Hymenopappus filifolius var. eriopodus	hairy-podded fine-leaf hymenopappus	None	None	-	2B.3
Hymenoxys odorata	bitter hymenoxys	None	None	-	2B.1
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None	None	-	1B.1

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Packera bernardina	San Bernardino ragwort	None	None	-	1B.2
Packera ionophylla	Tehachapi ragwort	None	None	-	4.3
Petradoria pumila ssp. pumila	rock goldenrod	None	None	-	4.3
Pyrrocoma uniflora var. gossypina	Bear Valley pyrrocoma	None	None	-	1B.2
Sanvitalia abertii	Abert's sanvitalia	None	None	-	2B.2
Senecio aphanactis	chaparral ragwort	None	None	-	2B.2
Senecio astephanus	San Gabriel ragwort	None	None	-	4.3
Symphyotrichum defoliatum	San Bernardino aster	None	None	-	1B.2
Symphyotrichum greatae	Greata's aster	None	None	-	1B.3
Syntrichopappus lemmonii	Lemmon's syntrichopappus	None	None	-	4.3
Taraxacum californicum	California dandelion	Endangered	None	-	1B.1
Tetradymia argyraea	striped horsebrush	None	None	-	4.3
Xanthisma gracile	annual bristleweed	None	None	-	4.3
Azolla microphylla	Mexican mosquito fern	None	None	-	4.2
Berberis fremontii	Fremont barberry	None	None	-	2B.3
Berberis harrisoniana	Kofa barberry	None	None	-	1B.2
Berberis nevinii	Nevin's barberry	Endangered	Endangered	-	1B.1
Cryptantha clokeyi	Clokey's cryptantha	None	None	-	1B.2
Cryptantha costata	ribbed cryptantha	None	None	-	4.3
Cryptantha holoptera	winged cryptantha	None	None	-	4.3
Cryptantha tumulosa	New York Mountains cryptantha	None	None	-	4.3
Eriodictyon angustifolium	narrow-leaved yerba santa	None	None	-	2B.3
Lithospermum incisum	plains stoneseed	None	None	-	2B.3
Nama dichotoma var. dichotoma	forked purple mat	None	None	-	2B.3
Phacelia anelsonii	Aven Nelson's phacelia	None	None	-	2B.3
Phacelia barnebyana	Barneby's phacelia	None	None	-	2B.3
Phacelia coerulea	sky-blue phacelia	None	None	-	2B.3
Phacelia exilis	Transverse Range phacelia	None	None	-	4.3

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Phacelia mohavensis	Mojave phacelia	None	None	-	4.3
Phacelia mustelina	Death Valley round-leaved phacelia	None	None	-	1B.3
Phacelia parishii	Parish's phacelia	None	None	-	1B.1
Phacelia perityloides var. jaegeri	Jaeger's phacelia	None	None	-	1B.3
Phacelia pulchella var. gooddingii	Goodding's phacelia	None	None	-	2B.3
Phacelia stellaris	Brand's star phacelia	None	None	-	1B.1
Pholistoma auritum var. arizonicum	Arizona pholistoma	None	None	-	2B.3
Plagiobothrys parishii	Parish's popcornflower	None	None	-	1B.1
Tiquilia canescens var. pulchella	Chocolate Mountains tiquilia	None	None	-	3.2
Boechera dispar	pinyon rockcress	None	None	-	2B.3
Boechera lincolnensis	Lincoln rockcress	None	None	-	2B.3
Boechera parishii	Parish's rockcress	None	None	-	1B.2
Boechera peirsonii	San Bernardino rockcress	None	None	-	1B.2
Boechera shockleyi	Shockley's rockcress	None	None	-	2B.2
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	None	None	-	4.3
Nasturtium gambelii	Gambel's water cress	Endangered	Threatened	-	1B.1
Physaria chambersii	Chambers' physaria	None	None	-	2B.3
Physaria kingii ssp. bernardina	San Bernardino Mountains bladderpod	Endangered	None	-	1B.1
Sibara deserti	desert winged-rockcress	None	None	-	4.3
Streptanthus bernardinus	Laguna Mountains jewelflower	None	None	-	4.3
Streptanthus campestris	southern jewelflower	None	None	-	1B.3
Thelypodium stenopetalum	slender-petaled thelypodium	Endangered	Endangered	-	1B.1
Thysanocarpus rigidus	rigid fringepod	None	None	-	1B.2
Carnegiea gigantea	saguaro	None	None	-	2B.2
Coryphantha alversonii	Alverson's foxtail cactus	None	None	-	4.3
Coryphantha chlorantha	desert pincushion	None	None	-	2B.1
Coryphantha vivipara var. rosea	viviparous foxtail cactus	None	None	-	2B.2
Echinocereus engelmannii var. howei	Howe's hedgehog cactus	None	None	-	1B.1

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Grusonia parishii	Parish's club-cholla	None	None	-	2B.2
Mammillaria grahamii var. grahamii	Graham fishhook cactus	None	None	-	2B.2
Opuntia basilaris var. brachyclada	short-joint beavertail	None	None	-	1B.2
Opuntia wigginsii	Wiggins' cholla	None	None	-	3.3
Opuntia xcurvispina	curved-spine beavertail	None	None	-	2B.2
Sclerocactus johnsonii	Johnson's bee-hive cactus	None	None	-	2B.2
Sclerocactus polyancistrus	Mojave fish-hook cactus	None	None	-	4.2
Nemacladus gracilis	graceful nemacladus	None	None	-	4.3
Wislizenia refracta ssp. refracta	jackass-clover	None	None	-	2B.2
Arenaria lanuginosa var. saxosa	rock sandwort	None	None	-	2B.3
Arenaria paludicola	marsh sandwort	Endangered	Endangered	-	1B.1
Eremogone congesta var. charlestonensis	Charleston sandwort	None	None	-	1B.3
Eremogone ursina	Big Bear Valley sandwort	Threatened	None	-	1B.2
Loeflingia squarrosa var. artemisiarum	sagebrush loeflingia	None	None	-	2B.2
Minuartia obtusiloba	alpine sandwort	None	None	-	4.3
Mortonia utahensis	Utah mortonia	None	None	-	4.3
Atriplex coulteri	Coulter's saltbush	None	None	-	1B.2
Atriplex parishii	Parish's brittlescale	None	None	-	1B.1
Cleomella brevipes	short-pedicelled cleomella	None	None	-	4.2
Calystegia felix	lucky morning-glory	None	None	-	3.1
Convolvulus simulans	small-flowered morning-glory	None	None	-	4.2
Dudleya abramsii ssp. affinis	San Bernardino Mountains dudleya	None	None	-	1B.2
Dudleya multicaulis	many-stemmed dudleya	None	None	-	1B.2
Sedum niveum	Davidson's stonecrop	None	None	-	4.2
Glossopetalon pungens	pungent glossopetalon	None	None	-	1B.2
Cuscuta californica var. apiculata	pointed dodder	None	None	-	3
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	None	None	-	2B.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Carex comosa	bristly sedge	None	None	-	2B.1
Carex occidentalis	western sedge	None	None	-	2B.3
Carex scirpoidea ssp. pseudoscirpoidea	western single-spiked sedge	None	None	-	2B.2
Cladium californicum	California saw-grass	None	None	-	2B.2
Fimbristylis thermalis	hot springs fimbristylis	None	None	-	2B.2
Schoenus nigricans	black bog-rush	None	None	-	2B.2
Dryopteris filix-mas	male fern	None	None	-	2B.3
Polystichum kruckebergii	Kruckeberg's sword fern	None	None	-	4.3
Woodsia plummerae	Plummer's woodsia	None	None	-	2B.3
Arctostaphylos glandulosa ssp. gabrielensis	San Gabriel manzanita	None	None	-	1B.2
Arctostaphylos parryana ssp. tumescens	interior manzanita	None	None	-	4.3
Arctostaphylos refugioensis	Refugio manzanita	None	None	-	1B.2
Ditaxis claryana	glandular ditaxis	None	None	-	2B.2
Euphorbia abramsiana	Abrams' spurge	None	None	-	2B.2
Euphorbia exstipulata var. exstipulata	Clark Mountain spurge	None	None	-	2B.1
Euphorbia jaegeri	Orocopia Mountains spurge	None	None	-	1B.1
Euphorbia parryi	Parry's spurge	None	None	-	2B.3
Euphorbia platysperma	flat-seeded spurge	None	None	-	1B.2
Euphorbia revoluta	revolute spurge	None	None	-	4.3
Euphorbia vallis-mortae	Death Valley sandmat	None	None	-	4.2
Tetracoccus hallii	Hall's tetracoccus	None	None	-	4.3
Tragia ramosa	desert tragia	None	None	-	4.3
Acmispon argyraeus var. multicaulis	scrub lotus	None	None	-	1B.3
Acmispon argyraeus var. notitius	Providence Mountains lotus	None	None	-	1B.3
Astragalus albens	Cushenbury milk-vetch	Endangered	None	-	1B.1
Astragalus allochrous var. playanus	playa milk-vetch	None	None	-	2B.2
Astragalus bernardinus	San Bernardino milk-vetch	None	None	-	1B.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Astragalus bicristatus	crested milk-vetch	None	None	-	4.3
Astragalus cimae var. cimae	Cima milk-vetch	None	None	-	1B.2
Astragalus hornii var. hornii	Horn's milk-vetch	None	None	-	1B.1
Astragalus insularis var. harwoodii	Harwood's milk-vetch	None	None	-	2B.2
Astragalus jaegerianus	Lane Mountain milk-vetch	Endangered	None	-	1B.1
Astragalus lentiginosus var. antonius	San Antonio milk-vetch	None	None	-	1B.3
Astragalus lentiginosus var. borreganus	Borrego milk-vetch	None	None	-	4.3
Astragalus lentiginosus var. sierrae	Big Bear Valley milk-vetch	None	None	-	1B.2
Astragalus leucolobus	Big Bear Valley woollypod	None	None	-	1B.2
Astragalus nutans	Providence Mountains milk-vetch	None	None	-	4.3
Astragalus preussii var. preussii	Preuss' milk-vetch	None	None	-	2B.3
Astragalus tidestromii	Tidestrom's milk-vetch	None	None	-	2B.2
Astragalus tricarinatus	triple-ribbed milk-vetch	Endangered	None	-	1B.2
Lupinus elatus	silky lupine	None	None	-	4.3
Oxytropis oreophila var. oreophila	rock-loving oxytrope	None	None	-	2B.3
Parkinsonia microphylla	little-leaved palo verde	None	None	-	4.3
Pediomelum castoreum	Beaver Dam breadroot	None	None	-	1B.2
Psorothamnus arborescens var. arborescens	Mojave indigo-bush	None	None	-	4.3
Psorothamnus fremontii var. attenuatus	narrow-leaved psorothamnus	None	None	-	2B.3
Robinia neomexicana	New Mexico locust	None	None	-	2B.3
Rupertia rigida	Parish's rupertia	None	None	-	4.3
Senna covesii	Cove's cassia	None	None	-	2B.2
Quercus turbinella	shrub live oak	None	None	-	4.3
Frasera albomarginata var. albomarginata	desert green-gentian	None	None	-	2B.2
Frasera albomarginata var. induta	Clark Mountain green-gentian	None	None	-	1B.2
Frasera neglecta	pine green-gentian	None	None	-	4.3

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Gentiana fremontii	Fremont's gentian	None	None	-	2B.3
Ribes divaricatum var. parishii	Parish's gooseberry	None	None	-	1A
Fendlerella utahensis	yerba desierto	None	None	-	4.3
Sisyrinchium longipes	timberland blue-eyed grass	None	None	-	2B.2
Juglans californica	southern California black walnut	None	None	-	4.2
Juncus cooperi	Cooper's rush	None	None	-	4.3
Juncus duranii	Duran's rush	None	None	-	4.3
Juncus interior	inland rush	None	None	-	2B.2
Juncus nodosus	knotted rush	None	None	-	2B.3
Hedeoma drummondii	Drummond's false pennyroyal	None	None	-	2B.2
Hedeoma nana ssp. californica	California mock pennyroyal	None	None	-	4.3
Lepechinia fragrans	fragrant pitcher sage	None	None	-	4.2
Monarda pectinata	plains bee balm	None	None	-	2B.3
Monardella australis ssp. cinerea	gray monardella	None	None	-	4.3
Monardella australis ssp. jokerstii	Jokerst's monardella	None	None	-	1B.1
Monardella boydii	Boyd's monardella	None	None	-	1B.2
Monardella eremicola	Clark Mountain monardella	None	None	-	1B.3
Monardella macrantha ssp. hallii	Hall's monardella	None	None	-	1B.3
Monardella pringlei	Pringle's monardella	None	None	-	1A
Monardella robisonii	Robison's monardella	None	None	-	1B.3
Monardella saxicola	rock monardella	None	None	-	4.2
Poliomintha incana	frosted mint	None	None	-	2A
Salvia funerea	Death Valley sage	None	None	-	4.3
Scutellaria bolanderi ssp. austromontana	southern mountains skullcap	None	None	-	1B.2
Teucrium glandulosum	desert germander	None	None	-	2B.3
Trichostema micranthum	small-flowered bluecurls	None	None	-	4.3
Calochortus catalinae	Catalina mariposa-lily	None	None	-	4.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Calochortus palmeri var. palmeri	Palmer's mariposa-lily	None	None	-	1B.2
Calochortus plummerae	Plummer's mariposa-lily	None	None	-	4.2
Calochortus striatus	alkali mariposa-lily	None	None	-	1B.2
Calochortus weedii var. intermedius	intermediate mariposa-lily	None	None	-	1B.2
Fritillaria pinetorum	pine fritillary	None	None	-	4.3
Lilium humboldtii ssp. ocellatum	ocellated humboldt lily	None	None	-	4.2
Lilium parryi	lemon lily	None	None	-	1B.2
Linum puberulum	plains flax	None	None	-	2B.3
Mentzelia eremophila	solitary blazing star	None	None	-	4.2
Mentzelia polita	polished blazing star	None	None	-	1B.2
Mentzelia pterosperma	wing-seed blazing star	None	None	-	2B.2
Mentzelia puberula	Darlington's blazing star	None	None	-	2B.2
Mentzelia tricuspis	spiny-hair blazing star	None	None	-	2B.1
Mentzelia tridentata	creamy blazing star	None	None	-	1B.3
Petalonyx thurberi ssp. gilmanii	Death Valley sandpaper-plant	None	None	-	1B.3
Abutilon parvulum	dwarf abutilon	None	None	-	2B.3
Ayenia compacta	California ayenia	None	None	-	2B.3
Malacothamnus parishii	Parish's bush-mallow	None	None	-	1A
Sidalcea hickmanii ssp. parishii	Parish's checkerbloom	None	Rare	-	1B.2
Sidalcea malviflora ssp. dolosa	Bear Valley checkerbloom	None	None	-	1B.2
Sidalcea neomexicana	Salt Spring checkerbloom	None	None	-	2B.2
Sidalcea pedata	bird-foot checkerbloom	Endangered	Endangered	-	1B.1
Sphaeralcea rusbyi var. eremicola	Rusby's desert-mallow	None	None	-	1B.2
Calyptridium pygmaeum	pygmy pussypaws	None	None	-	1B.2
Claytonia lanceolata var. peirsonii	Peirson's spring beauty	None	None	-	3.1
Lewisia brachycalyx	short-sepaled lewisia	None	None	-	2B.2
Abronia nana var. covillei	Coville's dwarf abronia	None	None	-	4.2
Abronia villosa var. aurita	chaparral sand-verbena	None	None	-	1B.1

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Acleisanthes nevadensis	desert wing-fruit	None	None	-	2B.3
Mirabilis coccinea	red four o'clock	None	None	-	2B.3
Mirabilis tenuiloba	slender-lobed four o'clock	None	None	-	4.3
Tripterocalyx micranthus	small-flowered sand-verbena	None	None	-	2B.3
Menodora scabra var. scabra	rough menodora	None	None	-	2B.3
Menodora spinescens var. mohavensis	Mojave menodora	None	None	-	1B.2
Chylismia arenaria	sand evening-primrose	None	None	-	2B.2
Eremothera boothii ssp. boothii	Booth's evening-primrose	None	None	-	2B.3
Eremothera boothii ssp. intermedia	Booth's hairy evening-primrose	None	None	-	2B.3
Oenothera cavernae	cave evening-primrose	None	None	-	2B.1
Oenothera cespitosa ssp. crinita	caespitose evening-primrose	None	None	-	4.2
Oenothera longissima	long-stem evening-primrose	None	None	-	2B.2
Botrychium crenulatum	scalloped moonwort	None	None	-	2B.2
Botrychium minganense	Mingan moonwort	None	None	-	2B.2
Malaxis monophyllos var. brachypoda	white bog adder's-mouth	None	None	-	2B.1
Piperia leptopetala	narrow-petaled rein orchid	None	None	-	4.3
Castilleja cinerea	ash-gray paintbrush	Threatened	None	-	1B.2
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	None	None	-	1B.2
Castilleja montigena	Heckard's paintbrush	None	None	-	4.3
Castilleja plagiotoma	Mojave paintbrush	None	None	-	4.3
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Endangered	Endangered	-	1B.2
Chloropyron tecopense	Tecopa bird's-beak	None	None	-	1B.2
Cordylanthus eremicus ssp. eremicus	desert bird's-beak	None	None	-	4.3
Cordylanthus parviflorus	small-flowered bird's-beak	None	None	-	2B.3
Orobanche valida ssp. valida	Rock Creek broomrape	None	None	-	1B.2
Arctomecon merriamii	white bear poppy	None	None	-	2B.2
Canbya candida	white pygmy-poppy	None	None	-	4.2
Eschscholzia androuxii	Joshua Tree poppy	None	None	-	4.3

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Eschscholzia minutiflora ssp. twisselmannii	Red Rock poppy	None	None	-	1B.2
Parnassia cirrata var. cirrata	San Bernardino grass-of-Parnassus	None	None	-	1B.3
Proboscidea althaeifolia	desert unicorn-plant	None	None	-	4.3
Mimulus exiguus	San Bernardino Mountains monkeyflower	None	None	-	1B.2
Mimulus johnstonii	Johnston's monkeyflower	None	None	-	4.3
Mimulus mohavensis	Mojave monkeyflower	None	None	-	1B.2
Mimulus purpureus	little purple monkeyflower	None	None	-	1B.2
Pinus edulis	two-needle pinyon pine	None	None	-	3.3
Penstemon albomarginatus	white-margined beardtongue	None	None	-	1B.1
Penstemon bicolor ssp. roseus	rosy two-toned beardtongue	None	None	-	1B.1
Penstemon calcareus	limestone beardtongue	None	None	-	1B.3
Penstemon fruticiformis var. amargosae	Amargosa beardtongue	None	None	-	1B.3
Penstemon stephensii	Stephens' beardtongue	None	None	-	1B.3
Penstemon thompsoniae	Thompson's beardtongue	None	None	-	2B.3
Penstemon thurberi	Thurber's beardtongue	None	None	-	4.2
Penstemon utahensis	Utah beardtongue	None	None	-	2B.3
Blepharidachne kingii	King's eyelash grass	None	None	-	2B.3
Bouteloua eriopoda	black grama	None	None	-	4.2
Bouteloua trifida	three-awned grama	None	None	-	2B.3
Digitaria californica var. californica	Arizona cottontop	None	None	-	2B.3
Elymus salina	Salina Pass wild-rye	None	None	-	2B.3
Enneapogon desvauxii	nine-awned pappus grass	None	None	-	2B.2
Erioneuron pilosum	hairy erioneuron	None	None	-	2B.3
Imperata brevifolia	California satintail	None	None	-	2B.1
Muhlenbergia alopecuroides	wolftail	None	None	-	2B.2
Muhlenbergia appressa	appressed muhly	None	None	-	2B.2
Muhlenbergia arsenei	tough muhly	None	None	-	2B.3

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Muhlenbergia californica	California muhly	None	None	-	4.3
Muhlenbergia fragilis	delicate muhly	None	None	-	2B.3
Muhlenbergia pauciflora	few-flowered muhly	None	None	-	2B.3
Munroa squarrosa	false buffalo-grass	None	None	-	2B.2
Panicum hirticaule ssp. hirticaule	roughstalk witch grass	None	None	-	2B.1
Poa atropurpurea	San Bernardino blue grass	Endangered	None	-	1B.2
Puccinellia parishii	Parish's alkali grass	None	None	-	1B.1
Puccinellia simplex	California alkali grass	None	None	-	1B.2
Scleropogon brevifolius	burro grass	None	None	-	2B.3
Sphenopholis obtusata	prairie wedge grass	None	None	-	2B.2
Stipa arida	Mormon needle grass	None	None	-	2B.3
Stipa divaricata	small-flowered rice grass	None	None	-	2B.3
Aliciella ripleyi	Ripley's aliciella	None	None	-	2B.3
Aliciella triodon	coyote gilia	None	None	-	2B.2
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Endangered	Endangered	-	1B.1
Eriastrum harwoodii	Harwood's eriastrum	None	None	-	1B.2
Eriastrum sparsiflorum	few-flowered eriastrum	None	None	-	4.3
Gilia interior	inland gilia	None	None	-	4.3
Gilia leptantha ssp. leptantha	San Bernardino gilia	None	None	-	1B.3
Gilia leptantha ssp. pinetorum	pine gilia	None	None	-	4.3
Linanthus bernardinus	Pioneertown linanthus	None	None	-	1B.2
Linanthus concinnus	San Gabriel linanthus	None	None	-	1B.2
Linanthus killipii	Baldwin Lake linanthus	None	None	-	1B.2
Linanthus maculatus ssp. maculatus	Little San Bernardino Mtns. linanthus	None	None	-	1B.2
Linanthus orcuttii	Orcutt's linanthus	None	None	-	1B.3
Navarretia peninsularis	Baja navarretia	None	None	-	1B.2
Navarretia prostrata	prostrate vernal pool navarretia	None	None	-	1B.1
Phlox dolichantha	Big Bear Valley phlox	None	None	-	1B.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Saltugilia latimeri	Latimer's woodland-gilia	None	None	-	1B.2
Polygala acanthoclada	thorny milkwort	None	None	-	2B.3
Polygala intermontana	intermountain milkwort	None	None	-	2B.1
Acanthoscyphus parishii var. cienegensis	Cienega Seca oxytheca	None	None	-	1B.3
Acanthoscyphus parishii var. goodmaniana	Cushenbury oxytheca	Endangered	None	-	1B.1
Acanthoscyphus parishii var. parishii	Parish's oxytheca	None	None	-	4.2
Chorizanthe leptotheca	Peninsular spineflower	None	None	-	4.2
Chorizanthe parryi var. parryi	Parry's spineflower	None	None	-	1B.1
Chorizanthe spinosa	Mojave spineflower	None	None	-	4.2
Chorizanthe xanti var. leucotheca	white-bracted spineflower	None	None	-	1B.2
Dodecahema leptoceras	slender-horned spineflower	Endangered	Endangered	-	1B.1
Eriogonum bifurcatum	forked buckwheat	None	None	-	1B.2
Eriogonum contiguum	Reveal's buckwheat	None	None	-	2B.3
Eriogonum evanidum	vanishing wild buckwheat	None	None	-	1B.1
Eriogonum heermannii var. floccosum	Clark Mountain buckwheat	None	None	-	4.3
Eriogonum kennedyi var. alpigenum	southern alpine buckwheat	None	None	-	1B.3
Eriogonum kennedyi var. austromontanum	southern mountain buckwheat	Threatened	None	-	1B.2
Eriogonum microthecum var. alpinum	northern limestone buckwheat	None	None	-	4.3
Eriogonum microthecum var. johnstonii	Johnston's buckwheat	None	None	-	1B.3
Eriogonum microthecum var. lacus-ursi	Bear Lake buckwheat	None	None	-	1B.1
Eriogonum microthecum var. lapidicola	Inyo Mountains buckwheat	None	None	-	4.3
Eriogonum ovalifolium var. vineum	Cushenbury buckwheat	Endangered	None	-	1B.1
Eriogonum thornei	Thorne's buckwheat	None	Endangered	-	1B.2
Eriogonum umbellatum var. juniporinum	juniper sulphur-flowered buckwheat	None	None	-	2B.3
Eriogonum umbellatum var. minus	alpine sulphur-flowered buckwheat	None	None	-	4.3
Nemacaulis denudata var. gracilis	slender cottonheads	None	None	-	2B.2

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Sidotheca caryophylloides	chickweed oxytheca	None	None	-	4.3
Portulaca halimoides	desert portulaca	None	None	-	4.2
Androsace elongata ssp. acuta	California androsace	None	None	-	4.2
Argyrochosma limitanea ssp. limitanea	southwestern false cloak-fern	None	None	-	2B.1
Astrolepis cochisensis ssp. cochisensis	scaly cloak fern	None	None	-	2B.3
Myriopteris wootonii	Wooton's lace fern	None	None	-	2B.3
Pellaea truncata	spiny cliff-brake	None	None	-	2B.3
Delphinium parishii ssp. subglobosum	Colorado Desert larkspur	None	None	-	4.3
Delphinium parryi ssp. purpureum	Mt. Pinos larkspur	None	None	-	4.3
Delphinium scaposum	bare-stem larkspur	None	None	-	2B.3
Myosurus minimus ssp. apus	little mousetail	None	None	-	3.1
Drymocallis cuneifolia var. cuneifolia	wedgeleaf woodbeauty	None	None	-	1B.1
Horkelia cuneata var. puberula	mesa horkelia	None	None	-	1B.1
Horkelia wilderae	Barton Flats horkelia	None	None	-	1B.1
Ivesia argyrocoma var. argyrocoma	silver-haired ivesia	None	None	-	1B.2
Ivesia jaegeri	Jaeger's ivesia	None	None	-	1B.3
Ivesia patellifera	Kingston Mountains ivesia	None	None	-	1B.3
Prunus eremophila	Mojave Desert plum	None	None	-	1B.2
Galium angustifolium ssp. gabrielense	San Antonio Canyon bedstraw	None	None	-	4.3
Galium angustifolium ssp. gracillimum	slender bedstraw	None	None	-	4.2
Galium californicum ssp. primum	Alvin Meadow bedstraw	None	None	-	1B.2
Galium hilendiae ssp. kingstonense	Kingston Mountains bedstraw	None	None	-	1B.3
Galium jepsonii	Jepson's bedstraw	None	None	-	4.3
Galium johnstonii	Johnston's bedstraw	None	None	-	4.3
Galium munzii	Munz's bedstraw	None	None	-	4.3
Galium proliferum	desert bedstraw	None	None	-	2B.2
Galium wrightii	Wright's bedstraw	None	None	-	2B.3
Heuchera abramsii	Abrams' alumroot	None	None	-	4.3

Scientific Name	Common Name	Federal Status	State Status	CDFW Status[1]	CA Rare Plant Rank[2]
Heuchera caespitosa	urn-flowered alumroot	None	None	-	4.3
Heuchera parishii	Parish's alumroot	None	None	-	1B.3
Maurandella antirrhiniflora	violet twining snapdragon	None	None	-	2B.3
Penstemon pseudospectabilis ssp. pseudospectabilis	desert beardtongue	None	None	-	2B.2
Selaginella asprella	bluish spike-moss	None	None	-	4.3
Selaginella leucobryoides	Mojave spike-moss	None	None	-	4.3
Castela emoryi	Emory's crucifixion-thorn	None	None	-	2B.2
Lycium parishii	Parish's desert-thorn	None	None	-	2B.3
Lycium torreyi	Torrey's box-thorn	None	None	-	4.2
Physalis lobata	lobed ground-cherry	None	None	-	2B.3
Thelypteris puberula var. sonorensis	Sonoran maiden fern	None	None	-	2B.2
Androstephium breviflorum	small-flowered androstephium	None	None	-	2B.2
Brodiaea filifolia	thread-leaved brodiaea	Threatened	Endangered	-	1B.1
Muilla coronata	crowned muilla	None	None	-	4.2
Aloysia wrightii	Wright's beebrush	None	None	-	4.3
Viola pinetorum var. grisea	grey-leaved violet	None	None	-	1B.3
Kallstroemia parviflora	warty caltrop	None	None	-	4.2

Notes: CDFW = California Department of Fish and Wildlife

[1] Status abbreviations: FP = fully protected; SSC = species of special concern; WL = watch list

[2] Rare plant rank:

1A: Presumed extirpated in California and either rare or extinct elsewhere
1B: Rare, threatened, or endangered in California and elsewhere
2A: Presumed extirpated in California, but common elsewhere
2B: Rare, threatened, or endangered in California, but more common elsewhere
3: More information is needed (review list)
4: Limited distribution (watch list)

Threat rank:

.1: Seriously threatened in California
.2: Moderately threatened in California
.3: Not very threatened in California

Appendix E
California Register Eligibility of PCCP Segments of Program Pipelines

California Register Eligibility of PCCP Segments of Program Pipelines

None of the PCCP portions of the Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, or Sepulveda Feeder appear to be eligible for listing on the California Register of Historical Resources (CRHR). Consequently, none of these water conveyance resources appear to qualify as historical resources for the purposes of CEQA.

Water conveyance systems and features that clearly demonstrable historic significance are apt to be found eligible for CRHR listing under Criterion 1, for association with important events that have made a significant contribution to the broad patterns of our history, and/or Criterion 3, as resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master. When water conveyance systems or features represent the work of a master, it typically means that a historically significant engineer or builder designed them and managed their construction. It is extremely rare for a historic-period water conveyance system or feature to be found eligible for listing under Criterion 2, for association with the lives of persons important to our past other than individuals who designed and/or built those systems or features. Individual features of a water conveyance system determined not to possess sufficient historical significance to qualify for individual CRHR listing can be found eligible for CRHR listing if they contribute to a larger historically significant system that qualifies for CRHR listing as a historic district.

It is sometimes argued that water conveyance systems have historical significance as a result of contributing to the growth of a city. However, the construction of new water facilities to increase or otherwise improve a city's water supply is too commonplace an event to meet the significance threshold under Criterion 1. All historic-period water conveyance systems constructed to supply water for a town or city were developed in anticipation of, or as a response to, growth. The construction of water conveyance systems and other infrastructure does not generally or necessarily cause growth. However, there are instances in which water infrastructure can reasonably qualify for CRHR listing under Criterion 1. Water facilities that historically made the settlement of a town or locality possible have the potential to meet the significance threshold under Criterion 1. For example, the Mill Creek Zanja, an irrigation ditch completed in 1819 and constructed through today's Redlands and Mentone by Native American laborers, was listed on the National Register of Historic Places (NRHP) in 1977 with no significance criteria specified. As a resource listed on the NRHP, it was automatically listed on the CRHR as well. Known locally as "the Zanja," the resource was later determined to meet NRHP Criterion A/CRHR Criterion 1 and NRHP Criterion C/CRHR Criterion 3. The Zanja was constructed to provide irrigation water for agriculture at and around the Mission San Gabriel Assistencia. Under Criteria A/1, the resource is significant as the first irrigation ditch constructed in the San Bernardino Valley, where the Zanja and subsequent irrigation development provided the basis for both settlement and agricultural enterprise, the latter of which dominated the region's economy into the twentieth century (Van Boven 1976; California SHPO 2015).

Extensive inter-basin conveyance systems developed as major public works, according to long-term municipal, regional, or state plans, are also reasonable candidates for CRHR listing under Criterion 1. When determined eligible for listing under Criterion 1, such systems, or components of such systems, are also often determined eligible under Criterion 3, for association with historically

significant hydraulic engineers and/or for engineering or technological significance. Although portions of the original Los Angeles Aqueduct constructed between 1907 and 1913 have been found eligible for the NRHP and the CRHR, the entire resource has not been formally evaluated for listing on the NRHP or the CRHR. However, it has been designated a National Historic Civil Engineering Landmark, and has been recommended for designation as a National Historic Landmark. If designated as a National Historic Landmark, the Los Angeles Aqueduct would automatically be listed on the NRHP and the CRHR. The Los Angeles Aqueduct would likely meet NRHP Criterion A/CRHR Criterion 1 for the significance of its construction as a formative event in Southern California history, and NRHP Criterion C/CRHR Criterion 3, as the work of master engineer William Mulholland, and as the world's largest aqueduct for urban water supply at the time of its completion.

The five subject feeders and pipelines are not components of the seminal inter-basin systems constructed over great distances to transport Sierra Nevada or Colorado River water to the emerging San Francisco Bay Area and greater Los Angeles-era metropolises during the first half of the twentieth century. Those systems include the Los Angeles Department of Water and Power's Los Angeles Aqueduct (1913), East Bay Municipal Utility District's Mokelumne River Aqueducts (1929), San Francisco Public Utilities Commission's Hetch Hetchy Project (1934), and Metropolitan's Colorado River Aqueduct (1941). Although the five subject feeders and pipelines were developed to distribute increased water supplies to Metropolitan's Southern California distribution system from the State Water Project (SWP) (1973), they were not constructed as part of the SWP's California Aqueduct. Instead, they were built as additions to Metropolitan's pre-existing urban distribution network in Southern California. That system began distributing water from the Colorado River Aqueduct in the early 1940s. The first four of the five subject feeders and pipelines (Second Lower Feeder, Sepulveda Feeder, Rialto Pipeline, and Calabasas Feeder) were constructed incrementally over the period from 1966–1975, and the Allen-McColloch Pipeline was completed 5 years later. The event or events of their construction represent the kind of commonplace expansion of urban water-distribution networks that occurred with new supply and population growth in numerous American cities during the second half of the twentieth century, particularly cities in the arid West. In none of the five cases does the singular event of constructing one of the five subject feeders and pipelines appear to meet the threshold of significance necessary for CRHR listing under Criterion 1. The incremental expansion of the Metropolitan distribution system to accommodate new SWP water supply does not appear to represent a historically significant pattern of events qualifying any of these resources for CRHR listing under Criterion 1 individually or as part of a historic district.

The first of the five subject resources to be built, the Second Lower Feeder, and the four subsequently completed feeders and pipelines included in the proposed PCCP Rehabilitation Program do not appear to have technological or engineering significance. The five subject resources were constructed too late to have associations with the master engineers—Mulholland and others—who designed the first systems to convey water in open-air aqueducts, tunnels, siphons, and pipelines across great distances during the first half the twentieth century. Research has yielded no evidence that the five pipelines are associated with historically significant hydraulic engineers. None of the five subject resources appear to be the product of major technological innovation in the arena of hydraulic engineering. When construction work began on the Second Lower Feeder in 1966, the technology of PCCP was over 20 years old. As stated above, in 1961 AWWA estimated that 3,030 miles of PCCP had been installed in the United States for water conveyance purposes. PCCP was subject to modest design variation as its use evolved over time, including the 1964, 1972, and 1979 revisions to the AWWA standards (PCCPC301) discussed above. However, PCCP had become a commonplace water-conveyance technology before those revisions, which provided for limited

modification (mostly upper and lower size limits) of well-established design elements constituting PCCP and differentiation from other types of water-conveyance pipe. Additionally, as a distribution system feeder constructed from 1966 to 1970, the pipelines are not considered eligible under CRHR criteria because they do not meet the special consideration for historical resources achieving significance within the past 50 years (14 CCR Section 4852(d)(2)). For these reasons, none of the five subject resources included in the proposed PCCP Rehabilitation Program appear to meet the significance threshold for CRHR listing under Criterion 3.

References

California Office of Historic Preservation (SHPO). 2015. California Historical Resources Inventory (MS Access Database). On file at ICF International.

Van Boven, Alice. 1976. Mill Creek Zanja National Register Nomination Form (No. 77000329). Available: http://pdfhost.focus.nps.gov/docs/nrhp/text/77000329.PDF. Accessed April 20, 2015.

Appendix F
Greenhouse Gas Calculations

Program Buildout Assumptions for Greenhouse Gases Analysis

Anticipated Service Life of Relined PCCP and Program Components	30 years	SCAQMD Guidance, 2008: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2	

Typical Excavation Site

Length of PCCP Segments				
AMP	9 miles			27
Calabasas Feeder	9 miles		Average number of	27
Rialto Pipeline	16 miles	3	excavation sites per mile of	48
Second Lower Feeder	30 miles		PCCP	90
Sepulveda Feeder	37 miles			111
			Total Excavation Sites	**303**

Typical New Valve/Meter Vault Structure

Assumption: 1 new valve/meter vault structure per 5 miles of PCCP

Total PCCP Length	101 miles	**Total Excavation Sites**	**20**

Typical Below Grade AV/VV Relocation 1,000-foot segment assumed

The Second Lower Feeder has 34 below-grade AR/VV over its 30-mile length of PCCP.
Assumption: 1 AV/VV relocation per mile

	101 miles	**Total Sites**	**101**

Pipeline Replacement/Parallel Piping

Assumption: 1,000 feet of pipeline replacement per 10 miles of PCCP

	101 miles	**Total Sites**	**10**

GHG EMISSIONS

	Days	Daily Emissions (lbs) Off-Road CO2	Off-Road CH4	Off-Road N2O	On-Road Idle CO2E	On-Road Run CO2E	Sub-Phase Total (lbs)	Program Component Total (MT)	Assumed Program Buildout (MT)
1.0 Typical Excavation Site									
1.1 Mobilize and Site Setup	5	1,538	12	12	14	249	9,127		
1.2 Excavation, Shoring, Dewatering	20	4,715	24	36	29	636	108,796		
1.3 Pipe Removal/Pipe Relining	80	9,305	25	71	21	298	777,521		
1.4 Backfill and Asphalt Replacement	15	1,377	10	11	36	780	33,217		
1.5 Site Restoration and Clean Up	5	208	2	2	11	152	1,871	**422**	**127,891**
2.0 Typical New Valve/Meter Vault Structure									
2.1 Mobilize and Site Setup	5	1,107	9	8	14	249	6,940		
2.2 Excavation, Shoring, Dewatering	20	4,284	20	33	36	777	103,009		
2.3 Construct New Valve Structure	30	9,863	24	75	14	249	306,786		
2.4 Install New Equipment	25	8,774	23	67	21	298	229,571		
2.5 Backfill and Asphalt Replacement	15	1,645	12	13	15	261	29,190		
2.6 Demolition of Old Vault Structure, Backfill and Asphalt Replacement	20	10,132	30	77	36	768	220,872		
2.7 Site Restoration and Clean Up	5	208	2	2	11	152	1,871	**407**	**8,149**
3.0 Typical Below Grade AV/VV Relocation									
3.1 Mobilize and Site Setup	1	-	-	-	10	149	159		
3.2 Remove Existing AV and Appurtenances	1	1,055	8	8	7	107	1,186		
3.3 Trench Excavation	2	11,172	19	85	11	253	23,083		
3.4 Install New AV and Equipment	1	1,075	7	8	7	107	1,205		
3.5 Backfill and Asphalt Replacement	1	2,321	10	18	19	398	2,765		
3.6 Site Restoration and Clean Up	1	-	-	-	8	128	135	**13**	**1,307**
4.0 Pipeline Replacement/Parallel Piping									
4.1 Mobilize and Site Setup	5	1,107	9	8	33	395	7,766		
4.2 Trench Excavation, Shoring	30	2,071	16	16	270	5,579	238,541		
4.3 Install Pipe	30	9,433	21	72	27	347	296,966		
4.4 Backfill and Asphalt Replacement	30	1,377	10	11	201	4,169	173,060		
4.5 Site Restoration and Clean Up	5	208	2	2	30	298	2,697	**326**	**3,261**

Factors

Global Warming Potential	
CO2	1
CH4	25
N2O	298

Source: Greenhouse Gas Protocols (http://www.ghgprotocol.org/files/ghgp/tools/Global-Warming-Potential-Values.pdf)

lbs/MT 2204.62

TOTAL PROGRAM BUILDOUT	**140,609**	MT
Service Life	30	years
Amortized Emissions	**4,687**	MT

Unmitigated GHG	**% Reduction**
141,759	0.8%

Appendix G
Energy Use Calculations

MWD PCCP Program
Energy Calculations

A	B	C	D	E	F
			Unit/Factor	**Formula**	**Source**
3	**TOTAL PROGRAM BUILDOUT**	140,608.5	MT CO2		Soure: Calculations by ICF 2016
4					
5		2,204.6	pounds/MT		Source: Conversion factor
6		22.4	pounds CO2/gallon diesel		Source: Oak Ridge National Laboratory. 2015. Transportation Energy Data Book. Edition 34. Table 11.12.
7		13,838,767	gallons diesel	C3*C5/C6	

Appendix H
Notices of Availability/Notices of Completion

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
700 NORTH ALAMEDA STREET
LOS ANGELES, CALIFORNIA 90012

NOTICE OF AVAILABILITY

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE Prestressed Concrete Cylinder Pipe Rehabilitation Program

Pursuant to the California Environmental Quality Act (CEQA), The Metropolitan Water District of Southern California (Metropolitan), as Lead Agency, prepared a Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (proposed Program). This Notice of Availability is to inform you that the Draft PEIR is being released for a 45-day public review period. The Draft PEIR is also being sent to responsible, trustee, and interested agencies as part of the review process required under CEQA (Section 21092 of the Public Resources Code) and the State CEQA Guidelines (Section 15087 of the California Code of Regulations).

PROGRAM DESCRIPTION: Metropolitan Water District proposes to rehabilitate portions of five existing subsurface water delivery pipelines within its service area. Approximately 100 miles of prestressed concrete cylinder pipe (PCCP) with diameters varying from 54 to 201 inches would be rehabilitated either by relining the existing pipe with steel or replacing existing pipe with new welded steel pipe. These five existing pipelines (also known as feeders) are: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder.

LOCATION: The five pipelines that would be rehabilitated extend primarily in existing public roads and on Metropolitan-owned rights-of-way in the following cities and counties:

Allen-McColloch Pipeline

- Anaheim
- Irvine
- Lake Forest
- Mission Viejo
- Orange
- Tustin
- Yorba Linda

Calabasas Feeder

- Calabasas
- Hidden Hills
- Los Angeles

Rialto Pipeline

- Claremont
- Fontana
- La Verne
- Rancho Cucamonga
- Rialto
- San Bernardino
- San Dimas
- Upland
- Unincorporated San Bernardino County

Second Lower Feeder

- Anaheim
- Buena Park
- Carson
- Cypress
- Lakewood
- Lomita
- Long Beach
- Los Alamitos
- Los Angeles
- Placentia
- Rolling Hills Estates
- Torrance
- Yorba Linda
- Unincorporated Los Angeles County
- Unincorporated Orange County

Sepulveda Feeder

- Culver City
- Gardena
- Hawthorne
- Inglewood
- Los Angeles
- Torrance

DRAFT PEIR: The Draft PEIR describes the proposed Program, existing environmental conditions, significant impacts (e.g., air quality, greenhouse gas emissions), potential significant impacts (e.g., biological resources, noise, traffic), and proposed mitigation measures.

PUBLIC REVIEW PERIOD: Due to the time limits mandated by State law (Section 15087 of the CEQA Guidelines), written comments must be received by Metropolitan not later than 45 days after the start of the review period which **begins September 1, 2016** and **ends on October 17, 2016**. Comments received by close of the public review period will be considered in the Final PEIR. All comments should be submitted in writing and include point of contact information.

Please send comments and responses to:

Hans Vandenberg
Program Management Unit
The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, California 90054-0153
Phone: (213) 217-5683

Comments can also be submitted via e-mail to EPT@mwdh2o.com. Comments sent via e-mail should state "PCCP Rehabilitation Program Draft PEIR" in the subject line.

Copies of the Draft PEIR are available for public review at the following location:

The Metropolitan Water District of Southern California
Engineering Resource Center
700 North Alameda Street
Los Angeles, California 90012

Please contact Hans Vandenberg to make arrangements for viewing. Additionally, copies of the Draft PEIR are available for public review at the following locations:

Lomita Library
24200 Narbonne Avenue
Lomita, CA 90717

Carter Branch Library
2630 Linden A venue
Rialto, CA 92377

El Toro Library
24672 Raymond Way
Lake Forest, CA 92630

San Fernando Library
217 N. Malay Avenue
San Fernando, CA 91340

Brea Library
1 Civic Center Circle
Brea, CA 92821

La Verne Library
3640 D Street
La Verne, CA 91750

Los Angeles Public Library –
Central Library Branch
630 W 5th St.
Los Angeles, CA 90071

Or online at Metropolitan's website:
http://mwdh2o.com/AboutYourWater/CapitalProjects/Pages/Environmental%20Quality%20Act.aspx

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 1, 2016

Mr. Scott Morgan, Director
Office of Planning and Research
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

Dear Mr. Morgan:

Notice of Availability of a Draft Program Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program

Enclosed please find one original Notice of Completion (NOC) for the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. Also enclosed are 15 Executive Summaries and electronic copies on compact disc (CD) of the Draft PEIR for this project. The Metropolitan Water District of Southern California is acting as the Lead Agency pursuant to the California Environmental Quality Act (CEQA).

In accordance with Section 21161 and 21092 of the California Public Resources Code (PRC) and Sections 15085 and 15087 of the State CEQA Guidelines, this NOC is submitted to your office for a public review period of 45 days, ending on October 17, 2016. The Draft PEIR is available on Metropolitan's website at: http://mwdh2o.com/AboutYourWater/CapitalProjects/Pages/Environmental%20Quality%20Act.aspx

We appreciate your assistance on this matter. If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours,

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosures: Original Notice of Completion
Hardcopies of Executive Summary (15)
CDs containing the Draft PEIR (15)

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

October 18, 2016

Hans Vandenberg
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Subject: Prestressed Concrete Cylinder Pipe Rehabilitation Program
SCH#: 2014121055

Dear Hans Vandenberg:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on October 17, 2016, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH#	**2014121055**
Project Title	Prestressed Concrete Cylinder Pipe Rehabilitation Program
Lead Agency	Metropolitan Water District of Southern California

Type	**EIR** Draft EIR
Description	Metropolitan Water District proposes to rehabilitate portions of five existing subsurface water delivery pipelines within its service area. Approximately 100 miles of prestressed concrete cylinder pipe with diameters varying from 54 to 201 inches would be rehabilitated either by relining the existing pipe with steel or replacing existing pipe with new welded steel pipe. These five existing pipelines (also known as feeders) are: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder.

Lead Agency Contact

Name	Hans Vandenberg		
Agency	Metropolitan Water District of Southern California		
Phone	(213) 217-5683	**Fax**	
email			
Address	P.O. Box 54153		
City	Los Angeles	**State** CA	**Zip** 90054-0153

Project Location

County	Los Angeles			
City				
Region				
Lat / Long				
Cross Streets	multiple			
Parcel No.				
Township	**Range**	**Section**	**Base**	

Proximity to:

Highways	101, 405, 110, 710, et al.
Airports	Van Nuys & Long Beach
Railways	
Waterways	LA River, San Gabriel River, et al.
Schools	Multiple
Land Use	Mostly within public ROW

Project Issues	Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Public Services; Recreation/Parks; Schools/Universities; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Wetland/Riparian; Landuse; Cumulative Effects
Reviewing Agencies	Resources Agency; Department of Fish and Wildlife, Region 5; Department of Fish and Wildlife, Region 6; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, Division of Transportation Planning; State Water Resources Control Board, Divison of Financial Assistance; Regional Water Quality Control Board, Region 8; Regional Water Quality Control Board, Region 4; Regional Water Quality Control Bd., Region 6 (Victorville); Native American Heritage Commission

Date Received	09/01/2016	**Start of Review**	09/01/2016	**End of Review**	10/17/2016

Note: Blanks in data fields result from insufficient information provided by lead agency.

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2014121055

Project Title: Prestressed Concrete Cylinder Pipe Rehabilitation Program
Lead Agency: The Metropolitan Water District of Southern California
Contact Person: Hans Vandenberg
Mailing Address: P.O. Box 54153
Phone: (213) 217-5683
City: Los Angeles
Zip: 90054-0153
County: Los Angeles

Project Location: County: Orange, San Bernardino, L.A. City/Nearest Community: Multiple cities/communities
Cross Streets: Multiple
Zip Code: Multiple
Longitude/Latitude (degrees, minutes and seconds): n/a ° ' " N / n/a ° ' " W Total Acres: n/a
Assessor's Parcel No.: n/a
Section: n/a Twp.: n/a Range: n/a Base: n/a
Within 2 Miles: State Hwy #: 101, 405, 110, 710, et al.
Waterways: LA River, San Gabriel River, et al.
Airports: Van Nuys & Long Beach
Railways: n/a
Schools: Multiple

Document Type:
CEQA: ☐ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec ☒ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Other:
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI Other: ☐ Joint Document ☐ Final Document ☐ Other:

Governor's Office of Planning & Research
SEP 01 2016
STATE CLEARINGHOUSE

Local Action Type:
☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan ☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan ☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.) ☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other:

Development Type:
☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational:
☐ Recreational:
☒ Water Facilities: Type Distribution pipe MGD ____
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type MW
☐ Waste Treatment: Type MGD
☐ Hazardous Waste: Type
☐ Other:

Project Issues Discussed in Document:
☒ Aesthetic/Visual ☒ Agricultural Land ☒ Air Quality ☒ Archeological/Historical ☒ Biological Resources ☐ Coastal Zone ☐ Drainage/Absorption ☐ Economic/Jobs ☐ Fiscal ☐ Flood Plain/Flooding ☒ Forest Land/Fire Hazard ☒ Geologic/Seismic ☒ Minerals ☒ Noise ☐ Population/Housing Balance ☒ Public Services/Facilities ☒ Recreation/Parks ☒ Schools/Universities ☐ Septic Systems ☐ Sewer Capacity ☒ Soil Erosion/Compaction/Grading ☒ Solid Waste ☒ Toxic/Hazardous ☒ Traffic/Circulation ☒ Vegetation ☒ Water Quality ☐ Water Supply/Groundwater ☒ Wetland/Riparian ☐ Growth Inducement ☒ Land Use ☒ Cumulative Effects ☐ Other:

Present Land Use/Zoning/General Plan Designation:
Mostly within public right of way

Project Description: *(please use a separate page if necessary)*

Metropolitan Water District proposes to rehabilitate portions of five existing subsurface water delivery pipelines within its service area. Approximately 100 miles of prestressed concrete cylinder pipe (PCCP) with diameters varying from 54 to 201 inches would be rehabilitated either by relining the existing pipe with steel or replacing existing pipe with new welded steel pipe. These five existing pipelines (also known as feeders) are: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder.

State Clearinghouse Contact:
(916) 445-0613
State Review Began: 9 - 1 - 2016
SCH COMPLIANCE 10 - 17 - 2016
SD

Please note State Clearinghouse Number (SCH#) on all Comments
SCH#: 2014121055
Please forward late comments directly to the Lead Agency

AQMD/APCD 33/26
(Resources: 9 / 3)

Project Sent to the following State Agencies

- ___ X ___ Resources
- ___ Boating & Waterways
- ___ Coastal Comm
- ___ Colorado Ryr Bd
- ___ Conservation
- XX CDFW # 5, 6
- ___ Delta Protection Comm
- ___ Cal Fire
- ___ Historic Preservation
- ___ X ___ Parks & Rec
- ___ Central Valley Flood Prot.
- ___ Bay Cons & Dev Comm.
- ___ X ___ DWR
- ___ OES
- ___ Resources, Recycl. & Recovery

CalSTA
- ___ Aeronautics
- ___ X ___ CHP
- ___ Caltrans # ____
- ___ X ___ Trans Planning

Other
- ___ HCD
- ___ Food & Agriculture

State/Consumer Svcs
- ___ General Services

Cal EPA
- ___ ARB: Airport & Freight
- ___ ARB: Transportation Projects
- ___ ARB: Major Industrial/Energy
- SWRCB: Div. of Drinking Water
- ___ SWRCB: Div. Drinking Wtr #____
- ___ X ___ SWRCB: Div. Financial Assist.
- ___ SWRCB: Wtr Quality
- ___ SWRCB: Wtr Rights
- XXX Reg. WQCB # 8, 4, 6
- ___ Toxic Sub Ctrl-CTC

Yth/Adlt Corrections
- ___ Corrections

Independent Comm
- ___ Energy Commission
- ___ X ___ NAHC
- ___ Public Utilities Comm
- ___ State Lands Comm
- ___ Tahoe Rgl Plan Agency
- ___ ____ Conservancy
- ___ Other: ____

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 1, 2016 **Via Federal Express**

Mr. Hugh Nguyen
Orange County Clerk
12 Civic Center Plaza Room 101
Santa Ana, California 92701

Dear Mr. Nguyen:

Notice of Availability of a Draft Program Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program

Enclosed please find two originals of the Notice of Availability (Notice) for the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. The Metropolitan Water District of Southern California is acting as the Lead Agency pursuant to the California Environmental Quality Act (CEQA).

In accordance with Section 21092 of the California Public Resources Code and Section 15087 of the State CEQA Guidelines, this Notice is provided for posting in your office for a public review period of 45 days, ending on October 17, 2016. We respectfully request that you post this Notice as soon as possible. Please stamp the originals of the Notice and return one of the copies to Metropolitan in the enclosed self-addressed postage paid envelope for our files. The Draft PEIR is also available on Metropolitan's website at:

http://mwdh2o.com/AboutYourWater/CapitalProjects/Pages/Environmental%20Quality%20Act.aspx

We appreciate your assistance on this matter. If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours,

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosure: Notice of Availability (2)
Self-addressed stamped envelope

Hugh Nguyen
Orange County Clerk - Recorder
P.O. Box 238 Santa Ana, CA 92702
12 Civic Center Plaza, Room 106 Santa Ana, CA 92701
Phone: (714) 834-2500
www.ocrecorder.com

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
700 NORTH ALAMEDA STREET
LOS ANGELES, CA 90012

Office of the Orange County Clerk-Recorder
Memorandum

SUBJECT: PUBLIC NOTICE

The attached notice was received, filed and a copy was posted on 09/02/2016

It remained posted for 30 (thirty) days.

Hugh Nguyen
Clerk - Recorder
In and for the County of Orange

By: Trejo, Ernesto Deputy

Public Resource Code 21092.3

The notice required pursuant to Sections 21080.4 and 21092 for an environmental impact report shall be posted in the office of the County Clerk of each county *** in which the project will be located and shall remain posted for a period of 30 days. The notice required pursuant to Section 21092 for a negative declaration shall be so posted for a period of 20 days, unless otherwise required by law to be posted for 30 days. The County Clerk shall post notices within 24 hors of receipt.

Public Resource Code 21152

All notices filed pursuant to this section shall be available for public inspection, and shall be posted ***within 24 hours of receipt*** in the office of the County Clerk. Each notice shall remain posted for a period of 30 days.
*** Thereafter, the clerk shall return the notice to the local **lead** agency *** within a notation of the period it was posted. The local **lead** agency shall retain the notice for not less than nine months.

Additions or changes by underline; deletions by ***

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
700 NORTH ALAMEDA STREET
LOS ANGELES, CALIFORNIA 90012

NOTICE OF AVAILABILITY

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE Prestressed Concrete Cylinder Pipe Rehabilitation Program

Pursuant to the California Environmental Quality Act (CEQA), The Metropolitan Water District of Southern California (Metropolitan), as Lead Agency, prepared a Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (proposed Program). This Notice of Availability is to inform you that the Draft PEIR is being released for a 45-day public review period. The Draft PEIR is also being sent to responsible, trustee, and interested agencies as part of the review process required under CEQA (Section 21092 of the Public Resources Code) and the State CEQA Guidelines (Section 15087 of the California Code of Regulations).

PROGRAM DESCRIPTION: Metropolitan Water District proposes to rehabilitate portions of five existing subsurface water delivery pipelines within its service area. Approximately 100 miles of prestressed concrete cylinder pipe (PCCP) with diameters varying from 54 to 201 inches would be rehabilitated either by relining the existing pipe with steel or replacing existing pipe with new welded steel pipe. These five existing pipelines (also known as feeders) are: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder.

LOCATION: The five pipelines that would be rehabilitated extend primarily in existing public roads and on Metropolitan-owned rights-of-way in the following cities and counties:

Allen-McColloch Pipeline
- Anaheim
- Irvine
- Lake Forest
- Mission Viejo
- Orange
- Tustin
- Yorba Linda

POSTED
SEP 02 2016
ORANGE COUNTY CLERK-RECORDER DEPARTMENT
BY: _____ DEPUTY

Calabasas Feeder
- Calabasas
- Hidden Hills
- Los Angeles

Rialto Pipeline
- Claremont
- Fontana
- La Verne
- Rancho Cucamonga
- Rialto
- San Bernardino
- San Dimas
- Upland
- Unincorporated San Bernardino County

Second Lower Feeder
- Anaheim
- Buena Park
- Carson
- Cypress
- Lakewood
- Lomita
- Long Beach
- Los Alamitos
- Los Angeles
- Placentia
- Rolling Hills Estates
- Torrance
- Yorba Linda
- Unincorporated Los Angeles County
- Unincorporated Orange County

Sepulveda Feeder
- Culver City
- Gardena
- Hawthorne
- Inglewood
- Los Angeles
- Torrance

DRAFT PEIR: The Draft PEIR describes the proposed Program, existing environmental conditions, significant impacts (e.g., air quality, greenhouse gas emissions), potential significant impacts (e.g., biological resources, noise, traffic), and proposed mitigation measures.

PUBLIC REVIEW PERIOD: Due to the time limits mandated by State law (Section 15087 of the CEQA Guidelines), written comments must be received by Metropolitan not later than 45 days after the start of the review period which **begins September 1, 2016** and **ends on October 17, 2016.** Comments received by close of the public review period will be considered in the Final PEIR. All comments should be submitted in writing and include point of contact information.

Please send comments and responses to:

Hans Vandenberg
Program Management Unit
The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, California 90054-0153
Phone: (213) 217-5683

Comments can also be submitted via e-mail to EPT@mwdh2o.com. Comments sent via e-mail should state "PCCP Rehabilitation Program Draft PEIR" in the subject line.

Copies of the Draft PEIR are available for public review at the following location:

The Metropolitan Water District of Southern California
Engineering Resource Center
700 North Alameda Street
Los Angeles, California 90012

Please contact Hans Vandenberg to make arrangements for viewing. Additionally, copies of the Draft PEIR are available for public review at the following locations:

Lomita Library
24200 Narbonne Avenue
Lomita, CA 90717

Carter Branch Library
2630 Linden A venue
Rialto, CA 92377

El Toro Library
24672 Raymond Way
Lake Forest, CA 92630

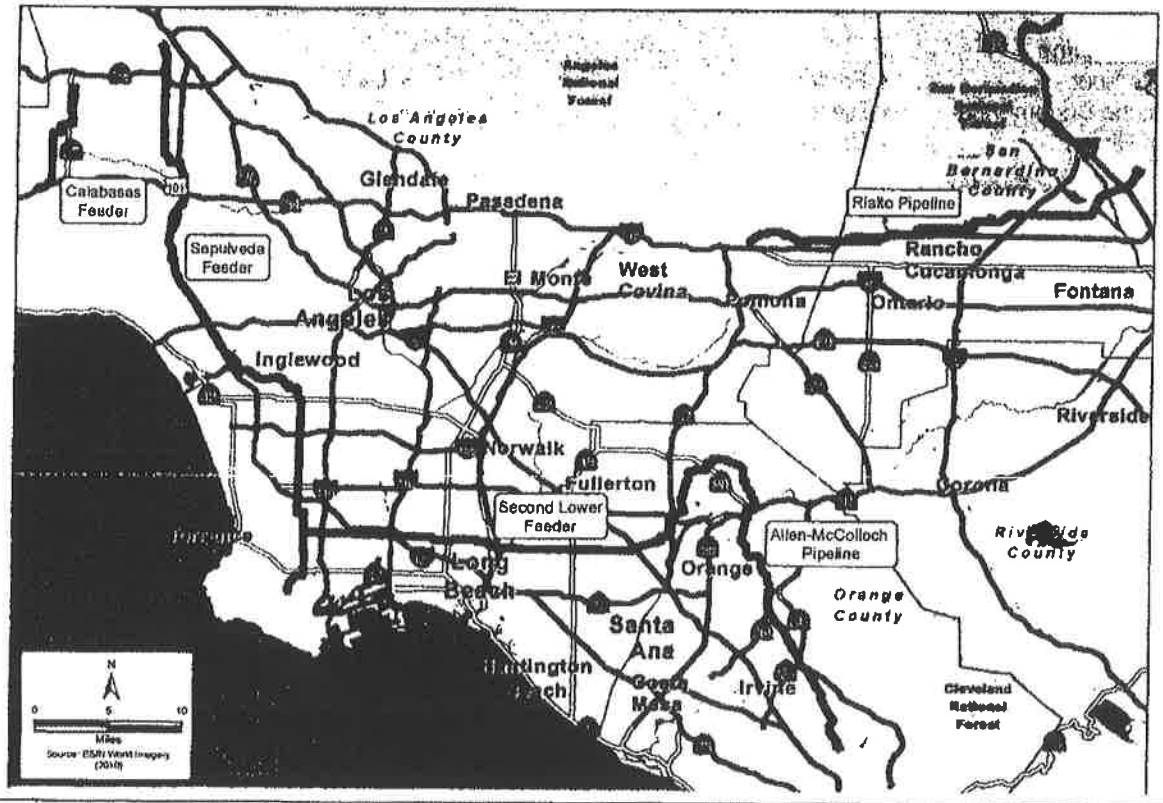
San Fernando Library
217 N. Malay Avenue
San Fernando, CA 91340

Brea Library
1 Civic Center Circle
Brea, CA 92821

La Verne Library
3640 D Street
La Verne, CA 91750

Los Angeles Public Library –
Central Library Branch
630 W 5th St.
Los Angeles, CA 90071

Or online at Metropolitan's website:
http://mwdh2o.com/AboutYourWater/CapitalProjects/Pages/Environmental%20Quality%20Act.aspx



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 7, 2016 **Via Federal Express**

Ms. Laura Welch
Clerk of the Board
San Bernardino County
385 N. Arrowhead Avenue, 2nd Floor
San Bernardino, California 92415-0130

Dear Ms. Welch:

Notice of Availability of a Draft Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program

Enclosed please find two originals of the Notice of Availability (Notice) for the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. The Metropolitan Water District of Southern California is acting as the Lead Agency pursuant to the California Environmental Quality Act (CEQA).

In accordance with Section 21092 of the California Public Resources Code and Section 15087 of the State CEQA Guidelines, this Notice is provided for posting in your office for a public review period of 45 days, ending on October 17, 2016. Please stamp the originals of the Notice and return one of the copies to Metropolitan in the enclosed self-addressed postage paid envelope for our files. The Draft PEIR is also available on Metropolitan's website at:
http://mwdh2o.com/AboutYourWater/CapitalProjects/Pages/Environmental%20Quality%20Act.aspx

We appreciate your assistance on this matter. If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours,

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosure: Notice of Availability (2)
Self-addressed stamped envelope

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
700 NORTH ALAMEDA STREET
LOS ANGELES, CALIFORNIA 90012

NOTICE OF AVAILABILITY

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE Prestressed Concrete Cylinder Pipe Rehabilitation Program

Pursuant to the California Environmental Quality Act (CEQA), The Metropolitan Water District of Southern California (Metropolitan), as Lead Agency, prepared a Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (proposed Program). This Notice of Availability is to inform you that the Draft PEIR is being released for a 45-day public review period. The Draft PEIR is also being sent to responsible, trustee, and interested agencies as part of the review process required under CEQA (Section 21092 of the Public Resources Code) and the State CEQA Guidelines (Section 15087 of the California Code of Regulations).

PROGRAM DESCRIPTION: Metropolitan Water District proposes to rehabilitate portions of five existing subsurface water delivery pipelines within its service area. Approximately 100 miles of prestressed concrete cylinder pipe (PCCP) with diameters varying from 54 to 201 inches would be rehabilitated either by relining the existing pipe with steel or replacing existing pipe with new welded steel pipe. These five existing pipelines (also known as feeders) are: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder.

LOCATION: The five pipelines that would be rehabilitated extend primarily in existing public roads and on Metropolitan-owned rights-of-way in the following cities and counties:

Allen-McColloch Pipeline
- Anaheim
- Irvine
- Lake Forest
- Mission Viejo
- Orange
- Tustin
- Yorba Linda

Calabasas Feeder
- Calabasas
- Hidden Hills
- Los Angeles

Rialto Pipeline
- Claremont
- Fontana
- La Verne
- Rancho Cucamonga
- Rialto
- San Bernardino
- San Dimas
- Upland
- Unincorporated San Bernardino County

Second Lower Feeder
- Anaheim
- Buena Park
- Carson
- Cypress
- Lakewood
- Lomita
- Long Beach
- Los Alamitos
- Los Angeles
- Placentia
- Rolling Hills Estates
- Torrance
- Yorba Linda
- Unincorporated Los Angeles County
- Unincorporated Orange County

Sepulveda Feeder
- Culver City
- Gardena
- Hawthorne
- Inglewood
- Los Angeles
- Torrance

DRAFT PEIR: The Draft PEIR describes the proposed Program, existing environmental conditions, significant impacts (e.g., air quality, greenhouse gas emissions), potential significant impacts (e.g., biological resources, noise, traffic), and proposed mitigation measures.

PUBLIC REVIEW PERIOD: Due to the time limits mandated by State law (Section 15087 of the CEQA Guidelines), written comments must be received by Metropolitan not later than 45 days after the start of the review period which **begins September 1, 2016** and **ends on October 17, 2016**. Comments received by close of the public review period will be considered in the Final PEIR. All comments should be submitted in writing and include point of contact information.

Please send comments and responses to:

Hans Vandenberg
Program Management Unit
The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, California 90054-0153
Phone: (213) 217-5683

Comments can also be submitted via e-mail to EPT@mwdh2o.com. Comments sent via e-mail should state "PCCP Rehabilitation Program Draft PEIR" in the subject line.

Copies of the Draft PEIR are available for public review at the following location:

The Metropolitan Water District of Southern California
Engineering Resource Center
700 North Alameda Street
Los Angeles, California 90012

Please contact Hans Vandenberg to make arrangements for viewing. Additionally, copies of the Draft PEIR are available for public review at the following locations:

Lomita Library
24200 Narbonne Avenue
Lomita, CA 90717

Carter Branch Library
2630 Linden A venue
Rialto, CA 92377

El Toro Library
24672 Raymond Way
Lake Forest, CA 92630

San Fernando Library
217 N. Malay Avenue
San Fernando, CA 91340

Brea Library
1 Civic Center Circle
Brea, CA 92821

La Verne Library
3640 D Street
La Verne, CA 91750

Los Angeles Public Library –
Central Library Branch
630 W 5th St.
Los Angeles, CA 90071

Or online at Metropolitan's website:
http://mwdh2o.com/AboutYourWater/CapitalProjects/Pages/Environmental%20Quality%20Act.aspx

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 1, 2016 **Via Federal Express**

Los Angeles County Clerk/Recorder
12400 E. Imperial Highway, Room 2001
Norwalk, California 90650

Attn: County Clerk/Recorder

Notice of Availability of a Draft Program Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program

Enclosed please find two originals of the Notice of Availability (Notice) for the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. The Metropolitan Water District of Southern California is acting as the Lead Agency pursuant to the California Environmental Quality Act (CEQA).

In accordance with Section 21092 of the California Public Resources Code and Section 15087 of the State CEQA Guidelines, this Notice is provided for posting in your office for a public review period of 45 days, ending on October 17, 2016. We respectfully request that you post this Notice as soon as possible. Please stamp the originals of the Notice and return one of the copies to Metropolitan in the enclosed self-addressed postage paid envelope for our files. A check in the amount of $75.00 is also enclosed to cover administrative fees. The Draft PEIR is also available on Metropolitan's website at:

http://mwdh2o.com/AboutYourWater/CapitalProjects/Pages/Environmental%20Quality%20Act.aspx

We appreciate your assistance on this matter. If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours,

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosure: Notice of Availability (2)
Self-addressed stamped envelope
Filing Fee

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
700 NORTH ALAMEDA STREET
LOS ANGELES, CALIFORNIA 90012

NOTICE OF AVAILABILITY

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE Prestressed Concrete Cylinder Pipe Rehabilitation Program

Pursuant to the California Environmental Quality Act (CEQA), The Metropolitan Water District of Southern California (Metropolitan), as Lead Agency, prepared a Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (proposed Program). This Notice of Availability is to inform you that the Draft PEIR is being released for a 45-day public review period. The Draft PEIR is also being sent to responsible, trustee, and interested agencies as part of the review process required under CEQA (Section 21092 of the Public Resources Code) and the State CEQA Guidelines (Section 15087 of the California Code of Regulations).

PROGRAM DESCRIPTION: Metropolitan Water District proposes to rehabilitate portions of five existing subsurface water delivery pipelines within its service area. Approximately 100 miles of prestressed concrete cylinder pipe (PCCP) with diameters varying from 54 to 201 inches would be rehabilitated either by relining the existing pipe with steel or replacing existing pipe with new welded steel pipe. These five existing pipelines (also known as feeders) are: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder.

LOCATION: The five pipelines that would be rehabilitated extend primarily in existing public roads and on Metropolitan-owned rights-of-way in the following cities and counties:

Allen-McColloch Pipeline

- Anaheim
- Irvine
- Lake Forest
- Mission Viejo
- Orange
- Tustin
- Yorba Linda

ORIGINAL FILED
SEP 02 2016
LOS ANGELES, COUNTY CLERK

Calabasas Feeder

- Calabasas
- Hidden Hills
- Los Angeles

Rialto Pipeline

- Claremont
- Fontana
- La Verne
- Rancho Cucamonga
- Rialto
- San Bernardino
- San Dimas
- Upland
- Unincorporated San Bernardino County

Second Lower Feeder

- Anaheim
- Buena Park
- Carson
- Cypress
- Lakewood
- Lomita
- Long Beach
- Los Alamitos
- Los Angeles
- Placentia
- Rolling Hills Estates
- Torrance
- Yorba Linda
- Unincorporated Los Angeles County
- Unincorporated Orange County

Sepulveda Feeder

- Culver City
- Gardena
- Hawthorne
- Inglewood
- Los Angeles
- Torrance

DRAFT PEIR: The Draft PEIR describes the proposed Program, existing environmental conditions, significant impacts (e.g., air quality, greenhouse gas emissions), potential significant impacts (e.g., biological resources, noise, traffic), and proposed mitigation measures.

PUBLIC REVIEW PERIOD: Due to the time limits mandated by State law (Section 15087 of the CEQA Guidelines), written comments must be received by Metropolitan not later than 45 days after the start of the review period which **begins September 1, 2016** and **ends on October 17, 2016**. Comments received by close of the public review period will be considered in the Final PEIR. All comments should be submitted in writing and include point of contact information.

Please send comments and responses to:

Hans Vandenberg
Program Management Unit
The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, California 90054-0153
Phone: (213) 217-5683

Comments can also be submitted via e-mail to EPT@mwdh2o.com. Comments sent via e-mail should state "PCCP Rehabilitation Program Draft PEIR" in the subject line.

Copies of the Draft PEIR are available for public review at the following location:

The Metropolitan Water District of Southern California
Engineering Resource Center
700 North Alameda Street
Los Angeles, California 90012

Please contact Hans Vandenberg to make arrangements for viewing. Additionally, copies of the Draft PEIR are available for public review at the following locations:

Lomita Library
24200 Narbonne Avenue
Lomita, CA 90717

Carter Branch Library
2630 Linden A venue
Rialto, CA 92377

El Toro Library
24672 Raymond Way
Lake Forest, CA 92630

San Fernando Library
217 N. Malay Avenue
San Fernando, CA 91340

Brea Library
1 Civic Center Circle
Brea, CA 92821

La Verne Library
3640 D Street
La Verne, CA 91750

Los Angeles Public Library –
Central Library Branch
630 W 5th St.
Los Angeles, CA 90071

Or online at Metropolitan's website:
http://mwdh2o.com/AboutYourWater/CapitalProjects/Pages/Environmental%20Quality%20Act.aspx

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

Date: September 1, 2016

To: Distribution List

From: Arleen A. Arita, PCCP Rehabilitation Program Manager

Subject: Notice of Availability of a Draft Program Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program

The Metropolitan Water District of Southern California, acting as Lead Agency under the California Environmental Quality Act (CEQA), has prepared a Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH #2014121055). Enclosed is a Notice of Availability of the Draft PEIR, which provides a brief description of the project and information on the public review period for this Program, and where the Draft PEIR can be found. Please note the 45-day review and comment period will end on October 17, 2016.

If you have any questions, please contact Mr. Hans Vandenberg by email or mail at:

The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153
EPT@mwdh2o.com

Please reference the Prestressed Concrete Cylinder Pipe Rehabilitation Program in the subject line and include your name, address, email address and/or a contact phone number.

CA Division Of Occupational Safety And Health, Tunnel Safety Order Compliance
California Air Resources Board
Caltrans, District 12
City of Anaheim, Department of Public Works
City of Buena Park, Department of Public Works
City of Calabasas, Department of Public Works
City of Carson, Department of Public Works
City of Claremont, Department of Public Works
City of Culver City, Department of Public Works
City of Cypress, Department of Public Works
City of Fontana, Department of Public Works
City of Gardena, Department of Public Works
City of Hawthorne, Department of Public Works
City of Hidden Hills, Department of Public Works
City of Inglewood, Department of Public Works
City of Irvine, Department of Public Works
City of La Verne, Department of Public Works
City of Lake Forest, Department of Public Works
City of Lakewood, Department of Public Works
City of Lomita, Department of Public Works
City of Long Beach, Department of Public Works
City of Los Alamitos, Department of Public Works
City of Los Angeles, Department of Public Works
City of Mission Viejo, Department of Public Works
City of Orange, Department of Public Works
City of Placentia, Department of Public Works
City of Rancho Cucamonga, Department of Public Works
City of Rialto, Department of Public Works
City of Rolling Hills Estates, Department of Public Works
City of San Bernardino, Department of Public Works
City of San Dimas, Department of Public Works
City of Torrance, Department of Public Works
City of Tustin, Department of Public Works
City of Upland, Department of Public Works
City of Yorba Linda, Department of Public Works
County of Los Angeles, Department of Public Works
County of Orange, Department of Public Works
Long Beach Airport, Airport Advisory Commission
Regional Water Quality Control Board, Los Angeles Region
Santa Ana Regional Water Quality Control Board
South Coast AQMD
Torrance Airport, Airport Advisory Commission

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 1, 2016 **Via Federal Express**

Brea Library
1 Civic Center Circle
Brea, CA 92821

To Whom It May Concern:

Draft Program Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH # 2014121055)

Enclosed is a hardcopy with a CD containing the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. Also enclosed is a copy of the Notice of Availability (Notice) for this Project. The Metropolitan Water District of Southern California is providing the Draft PEIR for public review pursuant to the Public Resources Code §21092 and the California Environmental Quality Act (CEQA) Guidelines §15087.

Please make the enclosed Draft PEIR available to your patrons for review within the library premises until October 17, 2016. We also kindly request that these materials only be reviewed by the public in the library and not be available for check-out. After October 17, 2016, the Draft PEIR may be discarded. Your assistance in this matter is appreciated.

If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosures: (1) Hardcopy and CD of the Draft PEIR
(1) Copy of the Notice

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 1, 2016 **Via Federal Express**

Carter Branch Library
2630 Linden Avenue
Rialto, CA 92377

To Whom It May Concern:

Draft Program Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH # 2014121055)

Enclosed is a hardcopy with a CD containing the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. Also enclosed is a copy of the Notice of Availability (Notice) for this Project. The Metropolitan Water District of Southern California is providing the Draft PEIR for public review pursuant to the Public Resources Code §21092 and the California Environmental Quality Act (CEQA) Guidelines §15087.

Please make the enclosed Draft PEIR available to your patrons for review within the library premises until October 17, 2016. We also kindly request that these materials only be reviewed by the public in the library and not be available for check-out. After October 17, 2016, the Draft PEIR may be discarded. Your assistance in this matter is appreciated.

If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosures: (1) Hardcopy and CD of the Draft PEIR
(1) Copy of the Notice

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 1, 2016 **Via Federal Express**

El Toro Library
24672 Raymond Way
Lake Forest, CA 92630

To Whom It May Concern:

Draft Program Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH # 2014121055)

Enclosed is a hardcopy with a CD containing the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. Also enclosed is a copy of the Notice of Availability (Notice) for this Project. The Metropolitan Water District of Southern California is providing the Draft PEIR for public review pursuant to the Public Resources Code §21092 and the California Environmental Quality Act (CEQA) Guidelines §15087.

Please make the enclosed Draft PEIR available to your patrons for review within the library premises until October 17, 2016. We also kindly request that these materials only be reviewed by the public in the library and not be available for check-out. After October 17, 2016, the Draft PEIR may be discarded. Your assistance in this matter is appreciated.

If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosures: (1) Hardcopy and CD of the Draft PEIR
(1) Copy of the Notice

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 1, 2016 **Via Federal Express**

La Verne Library
3640 D Street
La Verne, CA 91750

To Whom It May Concern:

Draft Program Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH # 2014121055)

Enclosed is a hardcopy with a CD containing the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. Also enclosed is a copy of the Notice of Availability (Notice) for this Project. The Metropolitan Water District of Southern California is providing the Draft PEIR for public review pursuant to the Public Resources Code §21092 and the California Environmental Quality Act (CEQA) Guidelines §15087.

Please make the enclosed Draft PEIR available to your patrons for review within the library premises until October 17, 2016. We also kindly request that these materials only be reviewed by the public in the library and not be available for check-out. After October 17, 2016, the Draft PEIR may be discarded. Your assistance in this matter is appreciated.

If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours

Arleen A. Arita

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosures: (1) Hardcopy and CD of the Draft PEIR
(1) Copy of the Notice

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 1, 2016 **Via Federal Express**

Lomita Library
24200 Narbonne Avenue
Lomita, CA 90717

To Whom It May Concern:

Draft Program Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH # 2014121055)

Enclosed is a hardcopy with a CD containing the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. Also enclosed is a copy of the Notice of Availability (Notice) for this Project. The Metropolitan Water District of Southern California is providing the Draft PEIR for public review pursuant to the Public Resources Code §21092 and the California Environmental Quality Act (CEQA) Guidelines §15087.

Please make the enclosed Draft PEIR available to your patrons for review within the library premises until October 17, 2016. We also kindly request that these materials only be reviewed by the public in the library and not be available for check-out. After October 17, 2016, the Draft PEIR may be discarded. Your assistance in this matter is appreciated.

If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosures: (1) Hardcopy and CD of the Draft PEIR
(1) Copy of the Notice

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 1, 2016 **Via Federal Express**

Los Angeles Public Library – Central Library Branch
630 W 5th St.
Los Angeles, CA 90071

To Whom It May Concern:

Draft Program Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH # 2014121055)

Enclosed is a hardcopy with a CD containing the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. Also enclosed is a copy of the Notice of Availability (Notice) for this Project. The Metropolitan Water District of Southern California is providing the Draft PEIR for public review pursuant to the Public Resources Code §21092 and the California Environmental Quality Act (CEQA) Guidelines §15087.

Please make the enclosed Draft PEIR available to your patrons for review within the library premises until October 17, 2016. We also kindly request that these materials only be reviewed by the public in the library and not be available for check-out. After October 17, 2016, the Draft PEIR may be discarded. Your assistance in this matter is appreciated.

If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosures: (1) Hardcopy and CD of the Draft PEIR
(1) Copy of the Notice

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 1, 2016 **Via Federal Express**

San Fernando Library
217 N. Malay Avenue
San Fernando, CA 91340

To Whom It May Concern:

Draft Program Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH # 2014121055)

Enclosed is a hardcopy with a CD containing the Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe Rehabilitation Program. Also enclosed is a copy of the Notice of Availability (Notice) for this Project. The Metropolitan Water District of Southern California is providing the Draft PEIR for public review pursuant to the Public Resources Code §21092 and the California Environmental Quality Act (CEQA) Guidelines §15087.

Please make the enclosed Draft PEIR available to your patrons for review within the library premises until October 17, 2016. We also kindly request that these materials only be reviewed by the public in the library and not be available for check-out. After October 17, 2016, the Draft PEIR may be discarded. Your assistance in this matter is appreciated.

If you have any questions, please contact Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com or Tiffany White at (213) 217-6261.

Very truly yours

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosures: (1) Hardcopy and CD of the Draft PEIR
(1) Copy of the Notice

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

August 29, 2016 **Transmitted Via E-mail**

Beatriz Cueva
California Newspaper Service Bureau, Inc.
915 East First Street
Los Angeles, California 90012

Dear Ms. Cueva:

Notice of Availability of a Draft Program Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program

Please provide advertising for the enclosed Notice of Availability (NOA) of a Draft Program Environmental Impact Report by The Metropolitan Water District of Southern California. We request that the Notice appear in the "Public Notices" section of The Los Angeles Daily Journal, The Yorba Linda Star, and the Orange County Register on September 1, 2016.

We request affidavits of publication at the earliest possible date. Please submit the invoice and affidavits to Mr. Hans Vandenberg, P.O. Box 54153, Los Angeles, CA 90054. Any questions should be directed to Mr. Hans Vandenberg at (213) 217-5683 or hvandenberg@mwdh2o.com, or Tiffany White at (213) 217-6261.

Very truly yours,

Arleen A. Arita

Arleen A. Arita
PCCP Rehabilitation Program Manager

HV/trw

Enclosure: Notice of Availability

(When required)
RECORDING REQUESTED BY AND MAIL TO:

LOS ANGELES DAILY JOURNAL
~ SINCE 1888 ~

915 E FIRST ST, LOS ANGELES, CA 90012
Mailing Address: P.O. Box 54026, Los Angeles, California 90054-0026
Telephone (213) 229-5300 / Fax (213) 229-5481

This space for filing stamp only

TIFFANY WHITE
METRO WATER DIST/ENVIRONMENTAL PLANNING
PO BOX 54153
LOS ANGELES, CA - 90054

PROOF OF PUBLICATION

(2015.5 C.C.P.)

State of California)
County of Los Angeles) ss

Notice Type: GPN - GOVT PUBLIC NOTICE

Ad Description:
NOTICE OF AVAILABILITY (SCH#2014121055)

I am a citizen of the United States and a resident of the State of California; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer and publisher of the LOS ANGELES DAILY JOURNAL, a newspaper published in the English language in the city of LOS ANGELES, county of LOS ANGELES, and adjudged a newspaper of general circulation as defined by the laws of the State of California by the Superior Court of the County of LOS ANGELES, State of California, under date 04/26/1954, Case No. 599,382. That the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

09/01/2016

Executed on: 09/01/2016
At Los Angeles, California

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Signature

* A 0 0 0 0 0 0 4 2 0 8 3 6 2 *

DJ#: 2920873

Notice of Availability of a Draft Program Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH # 2014121055)

Pursuant to the California Environmental Quality Act (CEQA), The Metropolitan Water District of Southern California (Metropolitan), as Lead Agency, has prepared a Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (proposed Program). The proposed Program would involve rehabilitating five existing pipelines.

PROGRAM LOCATION: The five pipelines that would be rehabilitated extend primarily within existing public roads and on Metropolitan-owned rights-of-way in the listed cities and counties: 1) Allen-McColloch Pipeline (Anaheim, Irvine, Lake Forest, Mission Viejo, Orange, Tustin, Yorba Linda); 2) Calabasas Feeder (Calabasas, Hidden Hills, Los Angeles); 3) Rialto Pipeline (Claremont, Fontana, La Verne, Rancho Cucamonga, Rialto, San Bernardino, unincorporated San Bernardino County, San Dimas, Upland); 4) Second Lower Feeder (Anaheim, Buena Park, Carson, Cypress, Lakewood, Lomita, Long Beach, Los Alamitos, Los Angeles, Placentia, Rolling Hills Estates, Torrance, Yorba Linda, unincorporated Los Angeles County, unincorporated Orange County); 5) Sepulveda Feeder (Culver City, Gardena, Hawthorne, Inglewood, Los Angeles, Torrance).

PROGRAM DESCRIPTION: Metropolitan proposes to rehabilitate portions of five existing subsurface water delivery pipelines within its service area. Approximately 100 miles of prestressed concrete cylinder pipe (PCCP) with diameters ranging from 54 to 201 inches would be rehabilitated either by relining the existing pipe with steel liner or replacing existing pipe with new welded steel pipe. Relining the pipeline requires cutting an access portal into the existing pipeline, inserting the new liner into place, and welding together the new steel liner segments. New pipe replacement requires excavating an open trench, placing sand bedding, installing new welded steel pipe, and backfilling the trench.

This Notice of Availability is to inform you that the Draft PEIR is being released for a 45-day public review period. The Draft PEIR is also being sent to responsible, trustee, and interested agencies as part of the review process required under CEQA (Section 21092 of the Public Resources Code) and the State CEQA Guidelines (Section 15087).

This document is being made available for public review and comment during the period beginning September 2, 2016 and ending on October 17, 2016 (45-day public review period). All comments should be submitted in writing and include point-of-contact information. Comments received by close of the public review period will be considered in the Final PEIR. Please send comments and responses to:

Mr. Hans Vandenberg
The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

The Draft PEIR describes the proposed Program, existing environmental conditions, significant impacts (e.g., air quality, greenhouse gas emissions), potential significant impacts (e.g., biological, noise, traffic), and proposed mitigation measures. Due to the time limits mandated by state law, written comments must be sent to Metropolitan during the public review period, which begins September 1, 2016 and ends October 17, 2016. Comments can also be submitted electronically to EPT@mwdh2o.com. Comments sent via e-mail should state Prestressed Concrete Cylinder Pipe Rehabilitation Program EIR in the subject line. Should you have any questions, please contact Mr. Salvador Vazquez at 213-217-6752 or by email svazquez@mwdh2o.com.

Copies of the Draft PEIR are available for public review at the following locations:

The Metropolitan Water District of Southern California
Engineering Resource Center
700 North Alameda Street
Los Angeles, CA 90012Los Angeles Public Library – Central Library Branch
630 W 5th St.
Los Angeles, CA 90071
Carter Branch Library
2630 Linden A venue
Rialto, CA 92377
Lomita Library
24200 Narbonne Avenue
Lomita, CA 90717
Brea Library
1 Civic Center Circle
Brea, CA 92821
El Toro Library
24672 Raymond Way
Lake Forest, CA 92630
La Verne Library
3640 D Street
La Verne, CA 91750
San Fernando Library
217 N. Malay Avenue
San Fernando, CA 91340
Or online at Metropolitan's website:

http://mwdh2o.com/AboutYourWater/CapitalProjects/Pages/Environmental%20Quality%20Act.aspx
9/1/16

DJ-2920873#

Los Angeles Times
MEDIA GROUP

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF ILLINOIS
County of Cook

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the action for which the attached notice was published.

I am a principal clerk of the Los Angeles Times, which was adjudged a newspaper of general circulation on May 21, 1952, Cases 598599 for the City of Los Angeles, County of Los Angeles, and State of California. Attached to this Affidavit is a true and complete copy as was printed and published on the following date(s):

Sep 01, 2016

I certify (or declare) under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Dated at Chicago, Illinois
on this 01 day of 09, 20 16.

[signature]

435 N. Michigan Ave.
Chicago, IL 60611

Los Angeles Times
MEDIA GROUP

Sold To:
Metropolitan Water District of Southern California - CU00559113
PO Box 54153
Los Angeles,CA 90054-0153

Bill To:
Metropolitan Water District of Southern California - CU00559113
PO Box 54153
Los Angeles,CA 90054-0153

Notice of Availability of a Draft Program Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program (SCH # 2014121055)

Pursuant to the California Environmental Quality Act (CEQA), The Metropolitan Water District of Southern California (Metropolitan), as Lead Agency, has prepared a Draft Program Environmental Impact Report (Draft PEIR) for the Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program (proposed Program). The proposed Program would involve rehabilitating five existing pipelines.

PROGRAM LOCATION: The five pipelines that would be rehabilitated extend primarily within existing public roads and on Metropolitan-owned rights-of-way in the listed cities and counties: 1) Allen-McColloch Pipeline (Anaheim, Irvine, Lake Forest, Mission Viejo, Orange, Tustin, Yorba Linda); 2) Calabasas Feeder (Calabasas, Hidden Hills, Los Angeles); 3) Rialto Pipeline (Claremont, Fontana, La Verne, Rancho Cucamonga, Rialto, San Bernardino, unincorporated San Bernardino County, San Dimas, Upland); 4) Second Lower Feeder (Anaheim, Buena Park, Carson, Cypress, Lakewood, Lomita, Long Beach, Los Alamitos, Los Angeles, Placentia, Rolling Hills Estates, Torrance, Yorba Linda, unincorporated Los Angeles County, unincorporated Orange County); 5) Sepulveda Feeder (Culver City, Gardena, Hawthorne, Inglewood, Los Angeles, Torrance).

PROGRAM DESCRIPTION: Metropolitan proposes to rehabilitate portions of five existing subsurface water delivery pipelines within its service area. Approximately 100 miles of prestressed concrete cylinder pipe (PCCP) with diameters ranging from 54 to 201-inches would be rehabilitated either by relining the existing pipe with steel liner or replacing existing pipe with new welded steel pipe. Relining the pipeline requires cutting an access portal into the existing pipeline, inserting the new liner into place, and welding together the new steel liner segments. New pipe replacement requires excavating an open trench, placing sand bedding, installing new welded steel pipe, and backfilling the trench.

This Notice of Availability is to inform you that the Draft PEIR is being released for a 45-day public review period. The Draft PEIR is also being sent to responsible, trustee, and interested agencies as part of the review process required under CEQA (Section 21092 of the Public Resources Code) and the State CEQA Guidelines (Section 15087).

This document is being made available for public review and comment during the period beginning September 1, 2016 and ending on October 17, 2016 (45 day public review period). All comments should be submitted in writing and include point of contact information. Comments received by close of the public review period will be considered in the Final EIR. Please send comments and responses to:

Los Angeles Times
MEDIA GROUP

Mr. Hans Vandenberg
The Metropolitan Water District of Southern California
Environmental Planning Team
P.O. Box 54153
Los Angeles, CA 90054-0153

The Draft PEIR describes the proposed Program, existing environmental conditions, significant impacts (e.g., air quality, greenhouse gas emissions), potential significant impacts (e.g., biological, noise, traffic), and proposed mitigation measures. Due to the time limits mandated by state law, written comments must be sent to Metropolitan during the public review period, which begins September 1, 2016 and ends October 17, 2016. Comments can also be submitted electronically to EPT@mwdh2o.com. Comments sent via e-mail should state Prestressed Concrete Cylinder Pipe Rehabilitation Program EIR in the subject line. Should you have any questions, please contact Mr. Salvador Vazquez at 213-217-6752 or by email svazquez@mwdh2o.com.

Copies of the Draft PEIR are available for public review at the following locations:
The Metropolitan Water District of Southern California
Engineering Resource Center
700 North Alameda Street
Los Angeles, CA 90012

Carter Branch Library
2630 Linden A venue
Rialto, CA 92377

Brea Library
1 Civic Center Circle
Brea, CA 92821

La Verne Library
3640 D Street
La Verne, CA 91750

Los Angeles Public Library – Central Library Branch
630 W 5th St.
Los Angeles, CA 90071

Lomita Library
24200 Narbonne Avenue
Lomita, CA 90717

El Toro Library
24672 Raymond Way
Lake Forest, CA 92630

San Fernando Library
217 N. Malay Avenue
San Fernando, CA 91340

Or online at Metropolitan's website:
http://mwdh2o.com/AboutYourWater/CapitalProjects/Pages/Environmental%20Quality%20Act.aspx

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

October 18, 2016

Hans Vandenberg
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Subject: Prestressed Concrete Cylinder Pipe Rehabilitation Program
SCH#: 2014121055

Dear Hans Vandenberg:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on October 17, 2016, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Document Details Report
State Clearinghouse Data Base

SCH#	**2014121055**
Project Title	Prestressed Concrete Cylinder Pipe Rehabilitation Program
Lead Agency	Metropolitan Water District of Southern California

Type	**EIR** Draft EIR
Description	Metropolitan Water District proposes to rehabilitate portions of five existing subsurface water delivery pipelines within its service area. Approximately 100 miles of prestressed concrete cylinder pipe with diameters varying from 54 to 201 inches would be rehabilitated either by relining the existing pipe with steel or replacing existing pipe with new welded steel pipe. These five existing pipelines (also known as feeders) are: Allen-McColloch Pipeline, Calabasas Feeder, Rialto Pipeline, Second Lower Feeder, and Sepulveda Feeder.

Lead Agency Contact

Name	Hans Vandenberg		
Agency	Metropolitan Water District of Southern California		
Phone	(213) 217-5683	**Fax**	
email			
Address	P.O. Box 54153		
City	Los Angeles	**State** CA	**Zip** 90054-0153

Project Location

County	Los Angeles			
City				
Region				
Lat / Long				
Cross Streets	multiple			
Parcel No.				
Township	**Range**	**Section**	**Base**	

Proximity to:

Highways	101, 405, 110, 710, et al.
Airports	Van Nuys & Long Beach
Railways	
Waterways	LA River, San Gabriel River, et al.
Schools	Multiple
Land Use	Mostly within public ROW

Project Issues	Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Public Services; Recreation/Parks; Schools/Universities; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Wetland/Riparian; Landuse; Cumulative Effects
Reviewing Agencies	Resources Agency; Department of Fish and Wildlife, Region 5; Department of Fish and Wildlife, Region 6; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, Division of Transportation Planning; State Water Resources Control Board, Divison of Financial Assistance; Regional Water Quality Control Board, Region 8; Regional Water Quality Control Board, Region 4; Regional Water Quality Control Bd., Region 6 (Victorville); Native American Heritage Commission

Date Received	09/01/2016	**Start of Review**	09/01/2016	**End of Review**	10/17/2016

Note: Blanks in data fields result from insufficient information provided by lead agency.

ADDENDUM #5
to the
Programmatic Environmental Impact Report for the
Prestressed Concrete Cylinder Pipe Rehabilitation Program
Second Lower Feeder Reach 3

January 2022

The Metropolitan Water District of
Southern California
700 North Alameda Street
Los Angeles, California 90012

Metropolitan Report No. 1527-5

1086

PRESTRESSED CONCRETE CYLINDER PIPE REHABILITATION PROGRAM FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT REPORT

VOLUME 2: FINDINGS OF FACT, MITIGATION MONITORING AND REPORTING PROGRAM, AND STATEMENT OF OVERRIDING CONSIDERATIONS

PREPARED FOR:

Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, California 90012
Contact: Arleen Arita
Manager, Program Management Unit, Engineering Services Section
(213) 217-6460

PREPARED BY:

ICF International
1 Ada, Suite 100
Irvine, CA 92618
Contact: Donna McCormick
(714) 949-6611

December 2016

ICF International. 2016. Prestressed Concrete Cylinder Pipe Rehabilitation Program Final Programmatic Environmental Impact Report. December. (ICF 52.14.) Irvine, CA. Prepared for Metropolitan Water District of Southern California, Los Angeles, California.

Contents

Tables

Table

Chapter 1
Findings of Fact in Support of the Proposed Program

1.1 Findings on Significant Impacts of the Proposed Program

The California Environmental Quality Act (CEQA) requires the lead agency, the Metropolitan Water District of Southern California (Metropolitan), to make written findings when deciding to approve a project for which an environmental impact report (EIR) was certified (California Public Resources Code, Section 21081). Specifically, Section 15091 of the State CEQA Guidelines states that:

(a) No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:

(1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.

(2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

(3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

(b) The findings required by subsection (a) shall be supported by substantial evidence in the record (14 CCR 15091).

Section 15092 of the State CEQA Guidelines further stipulates that:

(b) A public agency shall not decide to approve or carry out a project for which an EIR was prepared unless either:

(1) The project as approved will not have a significant effect on the environment, or

(2) The agency has:

(A) Eliminated or substantially lessened all significant effects on the environment where feasible as shown in findings under Section 15091, and

(B) Determined that any remaining significant effects on the environment found to be unavoidable under Section 15091 are acceptable due to overriding concerns as described in Section 15093 (14 CCR 15092).

A Programmatic Environmental Impact Report (PEIR) was prepared for the Prestressed Concrete Cylinder Pipe Rehabilitation Program (proposed program). The PEIR identifies certain significant impacts that may occur as a result of the implementation of the proposed program, either alone or on a cumulative basis in conjunction with other past, present, and reasonably foreseeable projects.

Metropolitan is the lead agency with respect to the proposed program pursuant to State CEQA Guidelines Section 15367. As the lead agency, Metropolitan is required by CEQA to make findings with respect to each significant effect of the proposed program. The following sections make detailed findings with respect to the potential effects of the proposed program and refer, where appropriate, to the mitigation measures set forth in the Final PEIR.

The Final PEIR and the administrative record concerning the proposed program provide additional facts in support of the findings herein. Changes to the Draft PEIR are shown in strikeout/underline of this Final PEIR. Furthermore, the mitigation measures set forth in the Final PEIR and the Mitigation Monitoring and Reporting Program (MMRP) are incorporated by reference in these findings. The MMRP was developed in compliance with California Public Resources Code Section 21081.6.

1.1.1 Impacts Related to Aesthetics

1.1.1.1 Potentially Significant Impacts Related to Aesthetics

As discussed in Section 4.1 (Aesthetics), during the construction period, nighttime lighting may be required in construction work areas and staging areas for safety and security purposes. During construction and at staging areas, lighting may spill over into adjacent light-sensitive areas, especially residential land uses. Though temporary, this spillover light may result in significant impacts. With the implementation of Mitigation Measure MM AES-1, impacts related to nighttime lighting would be less than significant.

Impacts related to scenic vistas, scenic resources (including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway), and visual character/quality would be less than significant.

1.1.1.2 Mitigation

MM AES-1

In order to prevent impacts related to spillover lighting into light-sensitive land uses, all safety and security lighting at construction work areas and staging areas will be directed downward and shielded to avoid light spilling over into residential areas.

1.1.1.3 Findings per State CEQA Guidelines

Consistent with State CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts described above. The feasible measure is listed above as MM AES-1. Metropolitan finds that the above mitigation measure is feasible, is adopted, and will reduce the potential aesthetic impacts of the proposed program to less-than-significant levels. Accordingly, Metropolitan finds that, pursuant to California Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed program that will mitigate or avoid any potentially significant impacts related to aesthetics.

1.1.1.4 Facts in Support of Findings Related to Aesthetics

Implementation of Mitigation Measure MM AES-1 would reduce potentially significant program impacts related to aesthetics to a less-than-significant level. There would be no significant, unavoidable impacts related to aesthetics after implementation of this mitigation measure.

1.1.2 Impacts Related to Agriculture and Forestry Resources

As discussed in Section 4.2 (Agriculture and Forestry Resources), the proposed program would not permanently convert any farmland to non-agricultural use. The proposed program would rehabilitate existing pipelines, usually located in existing roadway rights-of-way. Even where the pipelines cross agricultural lands, they are existing underground facilities. During construction, agricultural lands may be temporarily used for access to the pipeline or for staging construction equipment. However, all land would be restored to its pre-construction condition once rehabilitation is completed. Therefore, the proposed program would not permanently convert Important Farmland to non-agricultural use and impacts would be less than significant.

Impacts related to the potential for the proposed program to conflict with existing zoning for agricultural use, areas under a Williamson Act contract, forest land, or timberland, or the potential for the proposed program to result in the loss or conversion of forest land were determined to result in less-than-significant impacts in the Initial Study and are not discussed in the PEIR.

1.1.3 Impacts Related to Air Quality

1.1.3.1 Potentially Significant Impacts Related to Air Quality

As discussed in Section 4.3 (Air Quality), air pollutants would be emitted as a result of rehabilitation activities stemming from the use of construction equipment (primarily diesel-powered), haul and materials vehicle trips, and fugitive dust. Pollutants would exceed the daily regional mass emissions thresholds as well as the localized significance thresholds identified by the South Coast Air Quality Management District (SCAQMD) and would be significant. Following the implementation of Mitigation Measure MM AIR-1, the regional mass emissions would still exceed the SCAQMD regional mass emissions thresholds, but would no longer exceed the localized significance thresholds. Thus, the program would violate an air quality standard or contribute substantially to an existing or projected air quality violation, result in a cumulatively considerable net increase in any criteria pollutant for which the region is in non-attainment, and expose sensitive receptors to substantial pollutant concentrations, and impacts would be significant and unavoidable.

The proposed program would not conflict with, or obstruct, implementation of the applicable air quality plan, or create objectionable odors that would affect a substantial number of people; impacts related to these factors would be less than significant.

1.1.3.2 Mitigation

MM AIR-1

All off-road diesel-powered construction equipment greater than 50 horsepower will meet Tier 4 emission standards. All construction equipment will be outfitted with ARB best available control technology devices. Any emissions-control device used by the contractor will achieve

emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by ARB regulations. A copy of each unit's certified tier specification, best available control technology documentation, and ARB or SCAQMD operating permit will be provided to Metropolitan's Construction Inspector at the time of mobilization of each applicable unit of equipment.

1.1.3.3 Findings per State CEQA Guidelines

Consistent with State CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts described above. The feasible measure is listed above as MM AIR-1. Metropolitan finds that the above mitigation measure is feasible, is adopted, and will substantially reduce the potential air quality impacts. Nonetheless, the impacts would not be reduced to a less-than-significant level. Specific economic, legal, social, technological, or other considerations make mitigation measures or alternatives that would reduce air quality impacts to a less-than-significant level infeasible.

1.1.3.4 Facts in Support of Findings Related to Air Quality

Implementation of Mitigation Measure MM AIR-1 would reduce potentially significant program impacts related to air quality, but not to a less-than-significant level. There would be significant and unavoidable impacts related to air quality after implementation of this mitigation measure.

1.1.4 Impacts Related to Biological Resources

1.1.4.1 Potentially Significant Impacts Related to Biological Resources

As discussed in Section 4.4 (Biological Resources), rehabilitation activities have the potential to result in impacts on protected species. Migratory birds, including most birds that nest in the study area, are protected by the federal Migratory Bird Treaty Act, which forbids most forms of harm to birds, including to their active nests. In addition, California Fish and Game Code Section 3503 makes it unlawful to destroy nests or eggs of any bird. Where vegetation, and especially trees, is removed as part of construction, there is the potential for violations under the Migratory Bird Treaty Act and Section 3503 of the California Fish and Game Code, which would be a significant impact, but the level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measure MM BIO-2 may reduce this impact, but potentially not to a less-than-significant level.

Various rehabilitation activities could affect riparian habitats and other sensitive natural communities. Vegetation clearing, excavation, materials storage, traffic, and other activities could remove habitat, result in impacts on runoff and/or water quality, potentially affecting habitat; air quality impacts (dust, exhaust) could affect adjacent habitat; and construction-related traffic could introduce hazardous materials into habitats. These effects could result in significant impacts on riparian habitats or sensitive natural communities, but the level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measures MM BIO-3 and MM BIO-4 may reduce these impacts, but potentially not to less-than-significant levels.

Various rehabilitation activities could affect wetlands if present near work areas. Any of these effects could result in significant impacts on wetlands, but the level of impact would need to be

determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measure MM BIO-5 may reduce these impacts, but potentially not to less-than-significant levels.

Various rehabilitation activities could also affect wildlife movement and dispersal in the vicinity of construction. Any of these effects could result in significant impacts on wildlife movement, but the level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measure MM BIO-6 may reduce these impacts, but potentially not to less-than-significant levels.

Certain construction and maintenance activities are allowed under the Shell E&P and Metropolitan Habitat Conservation Plan (HCP) and Central and Coastal Natural Communities Conservation Plan (NCCP)/HCP, and would be allowed under the proposed North Fontana Multiple Species Habitat Conservation Plan (covered activities). However, the types of construction for the proposed program that would occur within the covered lands are not known at this time. Therefore, construction could potentially be inconsistent with the requirements of these plans, which would be a significant impact. Without knowing the location or type of rehabilitation activities in the covered lands, the level of impact and mitigation measures to address these impacts cannot be determined at this time. Also, it cannot be determined if impacts could be reduced to less-than-significant levels with mitigation. Therefore, impacts related to conflicts with the adopted Shell E&P and Metropolitan HCP and Central and Coastal NCCP/HCP and the proposed North Fontana Multiple Species Habitat Conservation Plan may be potentially significant and unavoidable. Additional project-specific analysis will be required for rehabilitation activities within the covered lands for these plans.

Many of the cities and counties along the pipelines in the proposed program have tree preservation policies or ordinances requiring permits for removal of trees or replacement of trees, or other protection for vegetation within their jurisdictions. Rehabilitation activities would require removal of some trees and other vegetation throughout the pipelines, including street trees and other landscaping. Although the program would require contractors to restore construction areas to pre-construction conditions after rehabilitation activities are completed, in some cases this restoration may not be consistent with local tree preservation policies or ordinances, which would be a significant impact. Implementation of Mitigation Measure MM BIO-7 would reduce these impacts to less-than-significant levels.

1.1.4.2 Mitigation

MM BIO-1 Take of Special-Status Species.

For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 300 feet of unpaved areas (except for landscaped developed areas) and that contain special-status species, a qualified biologist will visit the site. If the biologist determines that special-status species may occur, preconstruction surveys for special-status plants and/or wildlife will be completed prior to any construction and consultation with the appropriate resource agency will occur (U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife), if necessary, to determine measures to address impacts such as avoidance, minimization, restoration, or compensation.

MM BIO-2 Impacts on Nesting Birds.

For any projects within the program that require vegetation removal during the nesting season for sensitive species protected by the Migratory Bird Treaty Act and California Fish and Game Code Section 3513, including street trees and other landscaping, a qualified biologist will inspect the vegetation to be removed no more than 10 days prior to tree/vegetation removal to determine whether nesting birds are present. If a nest is found, the biologist will determine the site-specific measures necessary to avoid disturbing the nest until nesting activity has ceased. Nothing in this mitigation measure precludes the use of deterrent measures to prevent bird nesting.

MM BIO-3 Adverse Impacts on Riparian Habitat.

For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (except for landscaped developed areas) which contain riparian vegetation, a qualified biologist will visit the site to conduct pre-construction surveys. If the biologist determines that riparian vegetation is present, then habitat areas will be mapped and flagged for avoidance, or other measures will be taken, including applying for appropriate regulatory permits, as required.

MM BIO-4 Adverse Impacts on Sensitive Natural Communities.

Removal of or adverse impacts on sensitive natural communities will be minimized for rehabilitation projects in the program, except in accordance with adopted HCPs/NCCPs to which Metropolitan is a party for covered areas and covered activities. For such covered activities, Metropolitan will coordinate with the appropriate resource agencies, and Metropolitan's contractors will adhere to all requirements in the applicable plan. For any activities not covered by an adopted HCP/NCCP, the following shall apply:

For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (except for landscaped developed areas) and that contain sensitive natural communities, a qualified biologist will conduct pre-construction surveys for sensitive natural communities prior to any construction. These surveys will be conducted by a qualified biologist within 100 feet of ground-disturbing activities. If sensitive natural communities are located during the surveys, then habitat areas will be mapped and flagged for avoidance, or other measures will be taken including applying for appropriate regulatory permits, as required.

MM BIO-5 Adverse Impacts on Wetlands.

For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (including large landscaped areas, parks, and golf courses), which contain wetlands, a qualified biologist will visit the site to conduct pre-construction surveys. If the biologist determines that wetlands may be present, preconstruction wetlands jurisdictional delineations will be required prior to any construction. These delineations will be conducted by a qualified biologist within 100 feet of ground-disturbing activities. Any jurisdictional wetlands located during the

delineations will be mapped and flagged for avoidance or other measures may be taken, including applying for appropriate regulatory permits, as required.

MM BIO-6 Impacts on Wildlife Movement.

For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 300 feet of unpaved areas (except for landscaped developed areas), a qualified biologist will visit the site to determine if any identifiable wildlife movement corridors are present at the site. If the biologist determines that such corridors are present, then wildlife movement corridors will be mapped, flagged, and avoided, or other measures will be taken to protect wildlife movement, as appropriate.

MM BIO-7 Conflicts with Local Policies Related to Biological Resources.

For any projects within the program that require vegetation removal, Metropolitan will determine if there are any applicable local policies related to biological resources and, if so, coordinate with the affected jurisdiction as necessary to determine appropriate requirements for vegetation removal and replacement. The contractor will be required to comply with any applicable requirements. Nothing in this mitigation will require the contractor to make improvements beyond the existing condition prior to construction.

1.1.4.3 Findings per State CEQA Guidelines

Consistent with State CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts described above. The feasible measures are listed above as MM BIO-1 through MM BIO-7. Metropolitan finds that the above mitigation measures are feasible, are adopted, and will substantially reduce the potential biological resource impacts. Nonetheless, the impacts would not be reduced to a less-than-significant level. Specific economic, legal, social, technological, or other considerations make mitigation measures or alternatives that would reduce biological resource impacts to a less-than-significant level infeasible.

1.1.4.4 Facts in Support of Findings Related to Biological Resources

Implementation of Mitigation Measures MM BIO-1 through MM BIO-7 would reduce potentially significant program impacts related to biological resources, but not to a less-than-significant level. There would be significant and unavoidable impacts related to biological resources after implementation of these mitigation measure.

1.1.5 Impacts Related to Cultural Resources

1.1.5.1 Potentially Significant Impacts Related to Cultural Resources

As discussed in Section 4.5 (Cultural Resources), during rehabilitation, there is the potential for construction to result in adverse impacts on built environment resources. Specifically, ground-borne vibration from excavation and concrete cutting could potentially adversely affect nearby resources, which would be a significant impact. Implementation of Mitigation Measure MM CUL-1 would reduce this impact to a less-than-significant level.

If construction were to occur in proximity to any of the previously recorded archaeological resources, there is a potential to damage the sites and undiscovered buried components of the sites. The sediments in proximity to the pipelines have been previously disturbed by installation of the pipelines, and therefore the potential for intact archaeological resources is low, but not precluded; consequently, potential significant impacts on archaeological resources could occur. Mitigation Measure MM CUL-2 would mitigate impacts on these known resources to less-than-significant levels.

Pipelines routes that do not cross known archaeological sites and have been disturbed by previous construction have a low potential to encounter unknown buried archaeological resources, although resources could still be found intact in trench walls and other excavation areas; therefore, potential significant impacts on archaeological resources could occur. Due to this low potential, archaeological monitoring is not required. Mitigation Measures MM CUL-3 and MM CUL-4 would mitigate impacts on unknown resources to less-than-significant levels.

Areas selected for staging areas or for other activities beyond the alignments of the existing pipeline routes have not been identified and may contain archaeological resources. Staging or other rehabilitation activities could result in significant impacts on these resources. Implementation of Mitigation Measure MM CUL-5 would mitigate impacts on archaeological resources to less-than-significant levels.

The proposed program has the potential to affect paleontological resources within the pipeline alignments or in staging areas during rehabilitation activities. Paleontological resources could be inadvertently unearthed during ground-disturbing activities. Implementation of Mitigation Measure MM CUL-6 would reduce impacts on paleontological resources to less-than-significant levels.

The proposed program has the potential to disturb human remains within the pipeline alignments or in staging areas during excavations or grading. Human remains could be inadvertently unearthed during ground-disturbing activities. This could result in damage to or destruction of these human remains, including those interred outside of formal cemeteries, which would be a significant impact under CEQA. However, California State Law in Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code requires specific procedures for identification and treatment of human remains, both Native American and non-Native American. Therefore, impacts on human remains from the proposed program would be less than significant.

1.1.5.2 Mitigation

MM CUL-1 Historic Resources Protection Program.

To avoid impacts on built environment (historic) resources, prior to any rehabilitation involving excavation or concrete cutting, a qualified cultural resource specialist will determine whether there are any identified or eligible historical resources present and whether proposed construction activities could adversely affect these resources. If any resources could be adversely affected by construction, measures will be taken to prevent adverse impacts on the resource, as determined by the qualified cultural resource specialist.

MM CUL-2 Avoidance or Monitoring of Archaeological Sites.

To avoid impacts on archaeological sites, prior to construction of any program element, such as pipeline alignments, construction staging areas, laydown areas, or relocation of pipelines in new

alignments, a new record search will be conducted to determine if additional sites or resources have been recorded on or adjacent to the proposed construction section. Reports will be examined to determine the condition of each site when recorded, if the site has been evaluated, and if destruction of the site is documented. Following this review, recorded archaeological sites that are within the pipeline route will be surveyed and their present conditions assessed (see MM CUL-4). Archaeological monitoring will be required during construction-related ground-disturbing activities if within the recorded area of a significant or potentially significant site and for a 50-foot buffer beyond the site boundary. A Native American monitor may be present if the site is prehistoric. If archaeological materials are discovered during monitoring, procedures outlined in MM CUL-4 will be implemented.

If it can be demonstrated that the site has been destroyed by previous construction or other actions and there is no potential for other buried parts of the site within the construction area, or if the site has been evaluated and determined not eligible for the California Register of Historical Resources (CRHR), then monitoring will not be required.

MM CUL-3 Preconstruction Meeting for Identifying Cultural Resources.

To avoid impacts on previously unidentified cultural resources, all construction personnel will attend a preconstruction meeting that includes a discussion of cultural resources. The meeting will inform construction personnel on how to identify potential cultural resources during ground-disturbing activities and what to do if such potential resources are encountered.

MM CUL-4 Previously Unidentified Resources Encountered during Ground-disturbing Activities.

In the event that any potentially significant cultural resources are unexpectedly encountered during construction, work will be immediately halted and the discovery shall be protected in place. The contractor will halt construction within 50 feet of the exposed resource until a qualified cultural resources specialist evaluates the discovery.

If the qualified cultural resources specialist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from project implementation. This additional work may include avoidance, testing, and evaluation or data recovery excavation. Work shall be prohibited in the restricted area until Metropolitan provides written authorization.

MM CUL-5 Archaeological Survey of Non-Pipeline Areas.

Prior to rehabilitation activities of any program element, each area will be subject to pedestrian survey for archaeological resources by a professional archaeologist retained by Metropolitan if ground-disturbing activities are slated to occur. If archaeological sites are recorded or found in these affected areas, the sites will be avoided to the greatest extent feasible. If a site cannot be avoided, site testing and evaluation by a professional archaeologist will be required. This may require test excavations, artifact analysis, evaluation for the CRHR and review by the State Historic Preservation Officer, and possibly data recovery excavation and reporting.

MM CUL-6 Develop a Program to Mitigate Impacts on Paleontological Resources for Each Contract Package

In order to avoid impacts on paleontological resources, the following mitigation program will be implemented for each contract package. This mitigation program will be conducted by a qualified professional paleontologist and will be consistent with the provisions of CEQA. This program will include the following:

1. Assessment of site-specific excavation areas to determine those that may be designated as highly sensitive for unique paleontological resources to be monitored during ground disturbance.
2. In these designated areas, if any, paleontological resources monitors qualified to Society of Vertebrate Paleontology standards will be equipped to salvage fossils as they are unearthed and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitoring may be reduced or eliminated if some of the potentially fossiliferous units are determined upon exposure and examination by qualified paleontological resources personnel to have low potential to contain fossil resources. Also in these designated areas, all unique paleontological resources, if any, will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates.
3. Unique paleontological resources, if any, will be identified and curated into an established, accredited museum repository will be required.
4. Preparation of a report of findings including a summary of field work and laboratory methods, an overview of the program work area geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. If the monitoring efforts produced fossils, a copy of the report will also be submitted to the designated museum repository.

1.1.5.3 Findings per State CEQA Guidelines

Consistent with State CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts described above. The feasible measures are listed above as MM CUL-1 through MM CUL-6. Metropolitan finds that the above mitigation measures are feasible, are adopted, and will reduce the potential cultural resources impacts of the proposed program to less-than-significant levels. Accordingly, Metropolitan finds that, pursuant to California Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed program that will mitigate or avoid any potentially significant impacts related to cultural resources.

1.1.5.4 Facts in Support of Findings Related to Cultural Resources

Implementation of Mitigation Measures MM CUL-1 through MM CUL-6 would reduce potentially significant program impacts related to cultural resources to a less-than-significant level. There would be no significant, unavoidable impacts related to cultural resources after implementation of these mitigation measures.

1.1.6 Impacts Related to Geology and Soils

As discussed in Section 4.6 (Geology and Soils), all of the feeders with the exception of the Calabasas Feeder would cross at least one Alquist-Priolo Earthquake Fault Zone. Fault rupture and seismic ground shaking, if it is to occur, could affect the integrity of a pipeline and damage could occur. Although there are designated Alquist-Priolo Earthquake Fault Zones within the study area for the proposed program, the proposed program would not include construction of structures intended for human occupancy. In addition, the hazard of fault rupture at a feeder/fault crossing would exist during program operation. However, similar to construction activities, this hazard is considered to pose an acceptable level of risk for operation of a water conveyance system and would not draw a significant amount of people to the area. Risks related to seismic ground failure, including liquefaction, landslides, soil erosion or topsoil loss, lateral spreading, subsidence, liquefaction, collapse, or expansive soil, would also be considered to pose an acceptable level of risk for operation of a water conveyance system. Therefore, implementation of the proposed program would not create a substantial risk to life or property involving rupture of a known earthquake fault, and impacts would be less than significant.

1.1.7 Impacts Related to Greenhouse Gas Emissions

1.1.7.1 Potentially Significant Impacts Related to Greenhouse Gas Emissions

As discussed in Section 4.7 (Greenhouse Gas Emissions), program-related rehabilitation activities would result in greenhouse gas (GHG) emissions from fuel combustion associated with on- and off-road construction equipment and vehicles. Emissions associated with construction would result in amortized annual emissions of just over 4,700 metric tons, which exceeds the SCAQMD threshold of 3,000 metric tons. As such, impacts would be significant. With the implementation of Mitigation Measure MM AIR-1, impacts would be reduced, but would remain significant.

Although the proposed program would generate GHG emissions, net increases in GHG emissions would occur only during the construction period and would not conflict with statewide GHG reduction goals. Impacts related to the potential for the proposed program to conflict with GHG reduction plans, policies, and regulations would be less than significant.

1.1.7.2 Mitigation

See MM AIR-1 above.

1.1.7.3 Findings per State CEQA Guidelines

Consistent with State CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts described above. The feasible measure is listed above as MM AIR-1. Metropolitan finds that the above mitigation measure is feasible, is adopted, and will reduce the potential GHG impacts. Nonetheless, the impacts would not be reduced to a less-than-significant level. Specific economic, legal, social, technological, or other considerations make mitigation measures or alternatives that would reduce GHG impacts to a less-than-significant level infeasible.

1.1.7.4 Facts in Support of Findings Related to Greenhouse Gas Emissions

Implementation of Mitigation Measure MM AIR-1 would reduce potentially significant program impacts related to GHG emissions, but not to a less-than-significant level. There would be significant and unavoidable impacts related to GHG emissions after implementation of this mitigation measure.

1.1.8 Impacts Related to Hazards and Hazardous Materials

1.1.8.1 Potentially Significant Impacts Related to Hazards and Hazardous Materials

As discussed in Section 4.8 (Hazards and Hazardous Materials), rehabilitation work would involve hazardous materials typical of a construction project, and it is expected that the proposed program would be operated in compliance with applicable federal, state, and local regulations. Any release of commonly used materials would be localized and immediately contained and cleaned up. It is possible that construction activities related to the proposed program may encounter contaminated media from nearby hazardous materials sites during excavations, potentially exposing the surrounding environment, including nearby schools, to hazardous conditions. These potential impacts would be significant. Implementation of Mitigation Measures MM HAZ-1 through MM HAZ-4 would reduce potential impacts on the surrounding environment, including school sites within 0.25 mile, to less-than-significant levels.

Rehabilitation activities would encounter numerous sites found in various environmental databases. In some cases, the existing pipelines traverse areas within or near National Priorities List sites. It is expected that most industrial and commercial facilities within 1 mile of the pipes that deal with storage, use, and disposal of hazardous materials comply with all appropriate federal, state, and local regulations to ensure safety of the surrounding public and environment. However, it is possible that construction activities may encounter contaminated media during excavations either at known or unknown sites, resulting in a significant hazard to the construction workers, the public, or the environment. This would be a significant impact. Implementation of Mitigation Measures MM HAZ-1 through MM HAZ-4 would reduce potential impacts to less-than-significant levels.

If any aboveground rehabilitation activities were to occur in airport runway protection zones, construction equipment and/or personnel could interfere with airport operations. Also, where pipelines cross under runway or taxiway areas, there is the potential for below-ground construction activities to affect or be affected by airport operations and safety. Impacts would be significant. Implementation of Mitigation Measure MM HAZ-5 would reduce potential impacts to less-than-significant levels.

No private airstrips are in the vicinity of any of the pipelines; therefore, the program would not result in safety hazards to workers involved in the rehabilitation activities associated with the proposed program.

In some cases the proposed program pipelines are within street rights-of-way that serve as emergency response routes and/or evacuation routes. If excavation were to take place in roadways that serve as emergency/excavation routes and capacity of the affected streets was reduced during construction (such as reducing four lanes to two lanes), the ability of these streets to serve as emergency/evacuation routes may be impaired. This would be a significant impact during

construction. Implementation of Mitigation Measure MM HAZ-7 would reduce these impacts to less-than-significant levels.

Implementation of the proposed program would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

1.1.8.2 Mitigation

MM HAZ-1 Project-Level Hazardous Materials Sites Assessment Prior to Construction Activities

To avoid exposure of construction workers, the public, or the environment to previously identified hazardous materials, during design, qualified Metropolitan staff or consultant(s) specializing in hazardous materials impact assessment will conduct a project-level analysis to determine if there are existing hazardous materials sites in the vicinity of the construction site and potential for existing hazardous materials sites to affect construction. This assessment will consist of a search for environmental-related information present in publicly accessible databases. The information will be reviewed to determine if the construction footprint or adjacent properties are listed in the databases. If the construction footprint or adjacent properties are listed in the databases, qualified Metropolitan staff or consultant(s) will determine the potential risk to construction workers, the public, or the environment from rehabilitation activities and identify all necessary avoidance, abatement, remediation, cleanup, disposal, monitoring, reporting, notifications, and/or other measures to prevent significant impacts.

MM HAZ-2 Encountering Unreported Hazardous Materials

To avoid exposure of construction workers, the public, or the environment to unreported hazardous materials in the soil, contractors will be required to inspect any site to be used for excavation, work zones, staging, or other rehabilitation-related activities prior to beginning construction. If odiferous, stained, or discolored soil is encountered, qualified Metropolitan staff or consultant(s) specializing in the identification and handling of hazardous materials will be retained to assess the site. Identification of possible hazardous materials would typically involve soil samples and laboratory analysis. The suspect soil will be isolated, covered, and avoided by construction personnel until analytical results are reviewed by qualified personnel. Soils identified as hazardous or contaminated will be handled, transported, and treated in accordance with all federal, state, and local existing hazardous materials regulations.

MM HAZ-3 Engineering Controls and Best Management Practices during Construction

To minimize human exposure to potential contaminants, during construction contractors will employ the use of engineering controls and best management practices (BMPs). Engineering controls and construction BMPs will include, but are not limited to, the following:

- Contractor employees working on site handling hazardous materials on contaminated media will be certified in the Occupational Health and Safety Administration's 40-hour Hazardous Waste Operations and Emergency Response training.
- Contractors will water or mist soil as it is being excavated and stockpiled or loaded onto transportation trucks.

MM HAZ-4 Encountering Contaminated Groundwater

To avoid exposure of construction workers, the public, or the environment to contaminated groundwater, suspect water removed from excavation areas (but not including dewatering of the pipelines themselves) will be tested by a qualified laboratory specializing in the identification of hazardous materials. If groundwater is considered hazardous, Metropolitan will notify the Regional Water Quality Control Board and local Environmental Health agencies regarding assessment and remediation requirements.

MM HAZ-5 Construction Activities within Runway Protection Zones

During the design phase for any projects in the program within the runway protection zones for Long Beach Municipal Airport or Van Nuys Airport (even where all construction would be accessed from outside the runway protection zones), project engineers will coordinate with the management of Long Beach Municipal Airport (Second Lower Feeder) or Van Nuys Airport (Sepulveda Feeder), as appropriate, to determine the methods of construction that will be necessary to avoid impacts on airport operations and safety. All operations and safety requirements of the airports will be incorporated into the construction design packages. All necessary requirements will be implemented during construction.

MM HAZ-6 Aboveground Elements in Runway Protection Zones

To avoid airport operations and safety impacts, no permanent aboveground elements of the proposed program, such as manhole covers, valve boxes, or electrical panels, will be located within runway protection zones (at Long Beach Municipal Airport for the Second Lower Feeder and Van Nuys Airport for the Sepulveda Feeder) without prior approval of the management of the appropriate airport.

MM HAZ-7: Maintaining Emergency/Evacuation Routes

To avoid impacts on emergency/evacuation routes, excavation sites will typically not be placed in roadways that serve as designated emergency/evacuation routes. If such streets cannot be avoided, the contractor will work with the local jurisdiction responsible for the emergency/evacuation routes to maintain adequate capacity. This will be accomplished by utilizing unused portions of the street right-of-way for travel lanes (such as temporarily prohibiting parking, restriping medians or parkway space, or detouring bike lanes) or by detouring the emergency/evacuation route to other roadways during construction. If detours are necessary, appropriate notification of emergency personnel and temporary signage will be used to direct emergency/evacuation traffic during construction.

1.1.8.3 Findings per State CEQA Guidelines

Consistent with State CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts described above. The feasible measures are listed above as MM HAZ-1 through MM HAZ-7. Metropolitan finds that the above mitigation measures are feasible, are adopted, and will reduce the potential hazards/hazardous materials impacts of the proposed program to less-than-significant levels. Accordingly, Metropolitan finds that, pursuant to California Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been

required in or incorporated into the proposed program that will mitigate or avoid any potentially significant impacts related to hazards/hazardous materials.

1.1.8.4 Facts in Support of Findings Related to Hazards and Hazardous Materials

Implementation of Mitigation Measures MM HAZ-1 through MM HAZ-7 would reduce potentially significant program impacts related to hazards/hazardous materials to a less-than-significant level. There would be no significant, unavoidable impacts related to hazards/hazardous materials after implementation of these mitigation measures.

1.1.9 Impacts Related to Hydrology and Water Quality

1.1.9.1 Potentially Significant Impacts Related to Hydrology and Water Quality

As discussed in Section 4.9 (Hydrology and Water Quality), implementation of the proposed program could alter existing drainage patterns at each project site as a result of the presence of new aboveground facilities at each project site. The new facilities may change the extent of permeable or impermeable surfaces, which could alter the direction and volume of overland flows during both wet and dry periods. Aboveground enclosures are typically located on sidewalk median strips and house back-flow preventer valves and air vents. With the implementation of Mitigation Measure MM HYD-1, a grading and drainage plan would be developed during project design for aboveground facilities within pervious areas and implemented to ensure no increase in flooding on or off site. Impacts would be less than significant with mitigation.

Construction of each excavation area would require the use of heavy equipment and construction-related chemicals, such as fuels, oils, grease, solvents, and paints that would be stored in limited quantities on site. In the absence of proper controls, these construction activities could result in accidental spills or disposal of potentially harmful materials used during construction that could wash into and pollute surface waters or groundwater. As construction of each of the projects under the proposed program is initiated, individual construction discharge permits would be acquired, and construction BMPs would be designed to minimize erosion and sedimentation and prevent spills such that significant impacts would not result.

The proposed program facilities would not alter the course of a stream or river. The proposed program would not involve the alteration of these channels, nor is it expected to increase the flow within these channels. As a result, there would be no increase in erosion or siltation along river or stream channels, nor would the proposed program expected to increase the flow within these channels.

With respect to the potential for the proposed program to create or contribute runoff that would exceed the capacity of stormwater systems, runoff could be generated during construction of the proposed program facilities during a storm event or from non-stormwater discharges, such as water used for dust control or hydrostatic testing of the pipelines. However, BMPs would be regularly inspected and monitored for performance during construction activities, and impacts would be less than significant.

The proposed program is not subject to tsunami, as no portion of the proposed program is within a coastal zone. Some areas in the program vicinity are adjacent to enclosed bodies of water that could be subject to seiche under extreme conditions. However, the flood inundation area is a pre-existing condition within the project area, and the placement of the proposed project facilities in the inundation area would not exacerbate this condition. The proposed program facilities consist of either subterranean improvements or low-profile features and the potential impact on structures subject to inundation by seiche would be less than significant. In general, the proposed program would be in relatively flat areas that are not susceptible to mudflows.

1.1.9.2 Mitigation

MM HYD-1 Implementation of a Grading and Drainage Plan.

Prior to construction of aboveground project facilities, Metropolitan will prepare a grading and drainage plan that identifies anticipated changes in flow that would occur on site and minimizes any potential increases in flooding, erosion, or sedimentation potential in accordance with applicable regulations and in coordination with the county and/or the city in which the facility would be located. The plan will identify and implement best management practices and other measures to ensure that potential increases in stormwater flows and erosion are minimized..

1.1.9.3 Findings per State CEQA Guidelines

Consistent with State CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts described above. The feasible measure is listed above as MM HYD-1. Metropolitan finds that the above mitigation measure is feasible, is adopted, and will reduce the potential hydrology/water quality impacts of the proposed program to less-than-significant levels. Accordingly, Metropolitan finds that, pursuant to California Public Resources Code Section 21081(a)(1) and State CEQA Guidelines Section 15091(a)(1), changes or alterations have been required in or incorporated into the proposed program that will mitigate or avoid any potentially significant impacts related to hydrology/water quality.

1.1.9.4 Facts in Support of Findings Related to Hydrology and Water Quality

Implementation of Mitigation Measure MM HYD-1 would reduce potentially significant program impacts related to hydrology/water quality to a less-than-significant level. There would be no significant, unavoidable impacts related to hydrology/water quality after implementation of this mitigation measure.

1.1.10 Impacts Related to Land Use and Planning

As discussed in Section 4.10 (Land Use), the proposed program would not physically divide an established community. In some cases, construction work areas, primarily for the excavation sites, may require access to certain facilities to be blocked or rerouted during construction. This could temporarily create barriers that would physically divide communities from the most direct access to community facilities. These changes would not be permanent and would only affect a given area for a duration between 6 and 9 months, and the contractors would be required to maintain access to facilities in some manner. The proposed program would not change land uses; the program's

consistency with land use plans would be the same as the existing condition. Impacts related to land use would be less than significant, and no mitigation measures are required.

1.1.11 Impacts Related to Mineral Resources

The Initial Study for the proposed program found no potential for significant impacts on mineral resources; therefore, mineral resources were not addressed in the PEIR. No mitigation would be required and no significant, unavoidable adverse impacts would occur.

1.1.12 Impacts Related to Noise

1.1.12.1 Significant Impacts Related to Noise

As discussed in Section 4.11 (Noise), noise levels during rehabilitation activities, specifically during excavation and concrete sawing, would be likely to reach very high levels, generally exceeding any noise-level restrictions set by some local jurisdictions. If construction were to occur in these jurisdictions, it is likely that noise levels would exceed local standards. Because of the type of construction and its location, there is no effective mitigation that would reduce this impact below a level of significance. Therefore, impacts would be significant, at least at some locations, related to exposing persons to, or generating, noise levels in excess of standards. Mitigation Measures MM NOI-2 through MM NOI-4 would reduce impacts, but not to a less-than-significant level.

For most locations, vibration from construction activities would not be great enough to result in impacts on vibration-sensitive receptors. However, at some locations, excavation, concrete-sawing, and other construction activities could generate vibration levels that could affect adjacent activities, such as near performing arts centers, hospitals, or where residences are close to the excavation site. Implementation of Mitigation Measure MM NOI-1 would reduce any impacts to less-than-significant levels.

The proposed program would not result in any permanent changes in noise levels after rehabilitation is complete. After construction is complete, the noise levels would be the same as the existing conditions. Therefore, there would be no impact.

Some portions of the existing pipelines are within airport land use plan areas or near airports. However, because the program would not change land uses, and construction workers would be wearing noise safety gear as required by the federal Occupational Safety and Health Administration, noise impacts related to nearby airports would be less than significant. There are no private airstrips in the vicinity of the existing pipelines. Therefore, there would be no impacts associated with noise from private airstrips.

1.1.12.2 Mitigation

MM NOI-1 Locate Excavation Sites Away From Vibration-Sensitive Uses

A noise and vibration consultant will be retained during excavation site planning to determine if there are vibration-sensitive land uses that could be affected by construction. Whenever possible, excavation sites will then be located so that vibration impacts would not affect vibration-sensitive land uses or mitigation would be included to reduce vibration levels at vibration-sensitive land uses to less-than-significant levels.

MM NOI-2 Locate Excavation Sites Away From Noise-Sensitive Receptors Where Feasible.

A noise consultant will be retained during excavation site planning to determine if there are sensitive receptors that could be affected by construction. Whenever possible, the excavation sites will be located in areas that would not affect sensitive receptors or where receptors can be shielded from construction noise.

MM NOI-3 Conduct Project-Level Noise Studies at Each Excavation Site Where Noise-Sensitive Receptors Are Present.

Project-level noise studies will be required at all excavation sites where sensitive receptors are present, as required in the planning stage by MM NOI-2. Such noise studies will identify the ambient noise levels, the receptors that would be affected, the noise levels the receptors will experience during construction, and any measures that can be used to reduce noise levels. All feasible mitigation measures identified in this noise study will be implemented.

MM NOI-4 Locate Staging Areas Away from Noise-Sensitive Receptors or Provide Noise Attenuation.

Whenever feasible, staging areas will be located in areas that would not affect sensitive receptors or where receptors can be shielded from staging-area noise. Where possible, noise screening will include temporary noise barriers with openings in the barriers kept to the minimum necessary for access.

1.1.12.3 Findings per State CEQA Guidelines

Consistent with State CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts described above. The feasible measures are listed above as MM NOI-1 through MM NOI-4. Metropolitan finds that the above mitigation measures are feasible, are adopted, and will reduce the potential noise impacts. Nonetheless, the impacts would not be reduced to a less-than-significant level. Specific economic, legal, social, technological, or other considerations make mitigation measures or alternatives that would reduce noise impacts to a less-than-significant level infeasible.

1.1.12.4 Facts in Support of Findings Related to Noise

Implementation of Mitigation Measures MM NOI-1 through MM NOI-4 would reduce potentially significant program impacts related to noise, but not to a less-than-significant level. There would be significant and unavoidable impacts related to noise after implementation of these mitigation measures.

1.1.13 Impacts Related to Population and Housing

The Initial Study for the proposed program found no potential for significant impacts on population and housing; therefore, population and housing were not addressed in the PEIR. No mitigation would be required and no significant, unavoidable adverse impacts would occur.

1.1.14 Impacts Related to Public Services

The Initial Study for the proposed program found no potential for significant impacts related to public services; therefore, public services were not addressed in the PEIR. No mitigation would be required and no significant, unavoidable adverse impacts would occur.

1.1.15 Impacts Related to Recreation

As discussed in Section 4.12 (Recreation), portions of the proposed program pipelines are located in rights-of-way or easements within recreational facilities, such as through parks, golf courses, or schoolyards. In these locations, excavation sites and work areas could result in part or all of the facility being unavailable during construction, for a maximum of approximately 6 months.[1] Also, construction staging areas may be located in parks, school yards, golf courses, or other recreational facilities for months or longer, depending on how many excavation sites the staging area is serving. Metropolitan would work with the local jurisdictions and schools to ensure that rehabilitation would not result in significant temporary impacts on recreational activities or permanent physical deterioration of recreational facilities. Because rehabilitation activities would not permanently preclude recreational uses and would not require them to be relocated elsewhere, rehabilitation activities would not lead to increased deterioration of recreational facilities. Impacts would be less than significant.

1.1.16 Impacts Related to Transportation and Traffic

1.1.16.1 Significant Impacts Related to Transportation and Traffic

During the course of the pipeline rehabilitation work, work zones would be established within existing roadways, requiring lane closures, temporary signage, traffic cones and delineators, fencing, and barriers (i.e., concrete trapezoidal "K rail," or Caltrans Temporary Type K railing). Where work zones are located within streets, temporary impacts on transportation would occur, including increased congestion and travel times, reduced access, and impacts on transit operations, bike routes, and pedestrian routes. The disruption of local and regional traffic caused by capacity reduction would be significant at some locations. Implementation of Mitigation Measure MM TRA-1 would reduce these impacts in some locations, but would not be feasible in all circumstances. Therefore, impacts on local and regional transportation are considered significant and unavoidable.

Because the proposed program would include rehabilitation of existing pipelines, which are underground, there would be minimal impacts related to long-term congestion management plans.

If any aboveground rehabilitation activities were to occur in airport runway protection zones, construction equipment and/or personnel could interfere with airport operations. However, impacts would be less than significant with the implementation of Mitigation Measures MM HAZ-5 and MM HAZ-6.

[1] Work areas may include access areas, staging areas, parking areas, safety areas, etc.

1.1.16.2 Mitigation

MM TRA-1 Excavation Siting to Minimize Traffic Impacts

Excavation sites would be located to avoid traffic impacts to the maximum extent feasible, considering the logistical requirements for pipeline rehabilitation (e.g., adequate spacing, pipeline logistics) and other impacts such as habitat and noise. To the maximum extent feasible, the following will be considered when locating excavation sites:

- Whenever feasible, where an off-road excavation site is available that would not result in other significant environmental impacts (e.g., to habitat, land uses), the off-road location will be used.
- Whenever feasible, excavation sites in roadways will be situated within medians where available, especially if the medians are not used for left-turn lanes and do not include large street trees or other features that would be difficult to restore after rehabilitation.
- Whenever feasible, excavation sites will be situated where the existing number of travel lanes can be maintained by temporarily removing parking (where adequate parking is available in the local area), temporarily relocating bike lanes to adjacent roadways, or temporarily restriping to provide narrower lanes (where they can be safely accommodated).
- Whenever feasible, excavation sites will be situated so that adequate access to adjacent properties can be maintained, including left-turn entrances.
- Whenever feasible, excavation sites will be situated so that bicycle and pedestrian circulation can be safely maintained, either by use of barriers or other safety features, or by providing alternative bicycle and pedestrian routes, with appropriate signage. Where feasible, siting excavation near heavily used pedestrian areas, such as around schools, hospitals, and transit stops, will be avoided. Where feasible, siting excavation in areas designated as safe routes to school will be avoided, or alternative routes will be developed in coordination with the local jurisdictions and school districts and providing appropriate signage, notification, and traffic controls.

MM TRA-2 Construction Traffic Control Plans

Metropolitan and/or its contractors will coordinate with the counties of Los Angeles, Orange, and San Bernardino as well as each local jurisdiction through which the pipelines travels (see tables above) to develop construction traffic control measures and procedures prior to the start of construction on each project. Measures to reduce temporary construction traffic and transportation impacts on city streets may include, but not be limited to, the following:

- Development of traffic control plans in coordination with local jurisdictions. The traffic control plans will be implemented and revised, as necessary and applicable.
- Provision of advance written notification of construction activities to residences and businesses around each construction site.
- Identification of travel routes and establishment of optimal arrival and departure times to minimize conflicts with residents, schools, and businesses, as feasible to minimize conflicts.
- Provisions to detour pedestrians and bicyclists from project near or on the sidewalks and bike lanes.

- Implementation of safety measures, such as signs, flaggers, cones, signage, and advance notice as appropriate.
- Covering of all open trenches when not in use or at the end of each work day, as applicable.

MM TRA-3 Maintaining Adequate Parking

Whenever feasible, excavation work zones and construction staging areas will not be sited in such a way that they result in inadequate availability of parking for adjacent land uses. If work zones or staging areas are planned for parking areas, a parking study will be completed by a qualified traffic consultant prior to construction to identify if adequate parking would be available locally.

See MM HAZ-5 and MM HAZ-6 above.

1.1.16.3 Findings per State CEQA Guidelines

Consistent with State CEQA Guidelines Section 15126.4(a)(1), feasible measures that can minimize significant adverse impacts were developed for the potentially significant impacts described above. The feasible measures are listed above as MM TRA-1 through MM TRA-3 and MM HAZ-5 and MM HAZ-6. Metropolitan finds that the above mitigation measures are feasible, are adopted, and will reduce the potential transportation impacts. Nonetheless, the impacts would not be reduced to a less-than-significant level. Specific economic, legal, social, technological, or other considerations make mitigation measures or alternatives that would reduce transportation/traffic impacts to a less-than-significant level infeasible.

1.1.16.4 Facts in Support of Findings Related to Transportation and Traffic

Implementation of Mitigation Measures MM TRA-1 through MM TRA-3 and MM HAZ-5 and MM HAZ-6 would reduce potentially significant program impacts related to transportation/traffic, but not to a less-than-significant level. There would be significant and unavoidable impacts related to transportation/traffic after implementation of these mitigation measures.

1.1.17 Impacts Related to Utilities and Service Systems

As discussed in Section 4.14 (Utilities and Service Systems), the proposed program would not generate any long-term or substantial quantities of wastewater, and it would not involve permanent structures with the potential to generate wastewater. In addition, the proposed program would not involve the construction of new water facilities or require new water supplies, and it would not increase the capacity of the Metropolitan water distribution system. The proposed program would also not generate substantial amounts of solid waste such that landfill capacity would be affected, or non-compliance with statutes and regulations related to solid waste would occur. Impacts related to utilities and service systems would be less than significant. No mitigation measures are required.

1.1.18 Impacts Related to Energy Conservation

As discussed in Section 4.15 (Energy Conservation), construction activities would require energy in the form of fuels for construction vehicles and equipment. Although the estimated fuel use would be substantial, the construction would occur over a long time horizon. As such, the annual fuel

consumption would represent a small portion of the total, a negligible increase in regional demand. In addition, all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised such that the inefficient use of fuel would result. Therefore, impacts related to energy use would be less than significant. No mitigation measures are required, but Mitigation Measure MM AIR-1 would reduce energy consumption.

1.2 Findings Regarding Alternatives to the Proposed Program

Section 15126.6(a) of the State CEQA Guidelines states that an EIR shall describe "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project," as well as provide an evaluation of "the comparative merits of the alternatives." Under Section 15126.6(a), an EIR does not need to consider alternatives that are not feasible, nor need it address every conceivable alternative to the project. The range of alternatives "is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice." The focus is on informed decision-making and public participation rather than providing a set of alternatives simply to satisfy format.

As described below, two types of alternatives to the proposed program were considered—alternative locations and alternative methods—along with a No Program Alternative. Except for the No Program Alternative, all of these potential alternatives have been rejected, as described below.

1.2.1 Alternatives Eliminated from Further Consideration

1.2.1 Alternative Locations

Potential alternative pipeline locations are program feeder improvements, including the Allen-McColloch Pipeline, the Calabasas Feeder, the Rialto Pipeline, the Second Lower Feeder, and the Sepulveda Feeder, and are substantially constrained by the need to connect the existing pipelines at their origins and terminations and to the existing service connections. Any alternative location would also be constrained by the width of the existing Metropolitan rights-of-way. Such constraints mean that there is no reasonable way to achieve the objectives of the proposed program by replacing the pipelines in other locations. Therefore, no alternative locations for the proposed program were developed.

1.2.2 Alternative Methods

The program description includes various methods for rehabilitation of the pipelines, including steel cylinder relining, steel pipe sliplining, and new pipe replacement. All of these methods were considered in the PEIR as variations within the program. There are no other feasible methods for rehabilitating the existing pipelines. Therefore, no alternative methods for the proposed program were developed.

1.2.3 Alternatives to the Proposed Program Evaluated in the Draft PEIR

The proposed program was compared to the No Program Alternative.

1.2.3.1 No Program Alternative

Under the No Program Alternative, repairs and improvements included in the proposed PCCP Rehabilitation Program would not be planned and scheduled. Because the pipelines and feeders would continue to age, there would be a continued risk for failure. Metropolitan would need to prevent failures through localized and as-needed improvements, but these activities would not occur as part of a planned program. Much of this rehabilitation would thus occur as "urgent repairs" because of the lack of a systematic planning offered by the proposed PCCP Rehabilitation Program.

1.2.3.2 Comparison of Impacts

If an alternative is considered clearly superior to the proposed project relative to identified impacts, Section 15126.6 of the State CEQA Guidelines requires that alternative to be identified as the environmentally superior alternative. By statute, if the environmentally superior alternative is the No Project Alternative, an EIR must also identify an environmentally superior alternative among the other alternatives.

Two alternatives to the proposed PCCP Rehabilitation Program, other than the No Program Alternative, were considered; however, these alternatives were not further considered and analyzed for the reasons stated in Section 1.2.1, *Alternatives Eliminated from Further Consideration*. Table 1-1 shows a comparison of the impacts of the proposed PCCP Rehabilitation Program and the No Program Alternative. As shown in the table, the impacts would have similar or worse impacts for the No Program Alternative compared with those that would occur as a result of implementation of the proposed PCCP Rehabilitation Program.

The proposed PCCP Rehabilitation Program would allow for rehabilitation of the existing water conveyance and distribution system and associated infrastructure in a streamlined manner, thus ensuring the continued reliability and security of the water supply system. The proposed PCCP Rehabilitation Program, therefore, is considered to be the environmentally superior alternative. The No Program Alternative would not meet any of the program objectives identified by Metropolitan.

Table 1-1. Summary of Impacts

Environmental Resource Area	PCCP Rehabilitation Program Impacts	No Program Alternative Impacts
Aesthetics		
Threshold AES-A: Have a Substantial Adverse Effect on a Scenic Vista	Less than significant	Similar
Threshold AES-B: Substantially Damage Scenic Resources, Including, but not Limited to, Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway	Less than significant	Similar

Environmental Resource Area	PCCP Rehabilitation Program Impacts	No Program Alternative Impacts
Threshold AES-C: Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings	Less than significant	Similar
Threshold AES-D: Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area	Less than significant with mitigation	Similar or worse, if urgent repairs required nighttime work with lighting
Agriculture & Forestry Resources		
Threshold AGR-A: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmland) to Non-Agricultural Use	Less than significant	Similar
Threshold AGR-E: Involve Other Changes in the Existing Environment that, Because of Their Location or Nature, Could Result in the Conversion of Farmland to Non-Agricultural Use	Less than significant	Similar
Air Quality		
Threshold AQ-A: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan	Significant and unavoidable	Similar
Threshold AQ-B: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation	Significant and unavoidable	Similar
Threshold AQ-C: Result in a Cumulatively Considerable Net Increase in Any Criteria Pollutant for Which the Region Is in Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard	Significant and unavoidable	Similar
Threshold AQ-D: Expose Sensitive Receptors to Substantial Pollutant Concentrations	Significant and unavoidable	Similar
Biological Resources		
Threshold BIO-A: Have a Substantial Adverse Effect, either Directly or through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-status Species in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	Potentially significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts either by location or season
Threshold BIO-B: Have a Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	Potentially significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location
Threshold BIO-C: Have a Substantial Adverse Effect on Federally Protected Wetlands, as Defined by Section 404 of the Clean Water Act, through Direct Removal, Filling, Hydrological Interruption, or Other Means	Potentially significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location

Environmental Resource Area	PCCP Rehabilitation Program Impacts	No Program Alternative Impacts
Threshold BIO-D: Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors or Impede the Use of Native Wildlife Nursery Sites	Potentially significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location
Threshold BIO-E: Conflict with Any Local Policies or Ordinances Protecting Biological Resources, Such as a Tree Preservation Policy or Ordinance	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location
Threshold BIO-F: Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan	Potentially significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts either by location or season
Cultural Resources		
Threshold CUL-A: Cause a Substantial Adverse Change in the Significance of a Historical Resource	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location or to fully implement mitigation to protect resources
Threshold CUL-B: Cause a Substantial Adverse Change in the Significance of an Archaeological Resource	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location or to fully implement mitigation to protect resources
Threshold CUL-C: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location or to fully implement mitigation to protect resources
Geology and Soils		
Threshold GEO-A.I: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Rupture of a Known Earthquake Fault	Less than significant	Similar
Threshold GEO-A.II: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Strong Seismic Groundshaking	Less than significant	Similar

Environmental Resource Area	PCCP Rehabilitation Program Impacts	No Program Alternative Impacts
Threshold GEO-A.III: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Seismically Related Ground Failure, Including Liquefaction	Less than significant	Similar
Threshold GEO-A.IV: Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Landslides	Less than significant	Similar
Threshold GEO-B: Result in Substantial Soil Erosion or the Loss of Topsoil	Less than significant	Similar
Threshold GEO-C: Be Located on a Geologic Unit or Soil that Is Unstable, or that Would Become Unstable as a Result of the Project, and Potentially Result in On- or Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse	Less than significant	Similar
Threshold GEO-D: Be Located on Expansive Soil, Creating Substantial Risks to Life or Property	Less than significant	Similar
Greenhouse Gas Emissions		
Threshold GHG-A: Generate Greenhouse Gas Emissions, either Directly or Indirectly, that May Have a Significant Impact on the Environment	Significant and unavoidable	Similar
Threshold GHG-B: Conflict with Any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases	Less than significant	Similar
Hazards and Hazardous Materials		
Threshold HAZ-A: Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Less than significant	Similar
Threshold HAZ-B: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment	Less than significant	Similar
Threshold HAZ-C: Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School	Less than significant with mitigation	Similar
Threshold HAZ-D: Be Located on a Site That Is Included on a List of Hazardous Materials Sites and, as a Result, Create a Significant Hazard to the Public or the Environment	Less than significant with mitigation	Similar
Threshold HAZ-E: For a Project Located within an Airport Land Use Plan or, Where Such Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Result in a Safety Hazard for People Residing or Working in the Project Area	Less than significant with mitigation	Similar

Environmental Resource Area	PCCP Rehabilitation Program Impacts	No Program Alternative Impacts
Threshold HAZ-F: For a Project within the Vicinity of a Private Airstrip, Result in a Safety Hazard for People Residing or Working in the Project Area	No impacts	Similar
Threshold HAZ-G: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	Less than significant with mitigation	Similar or worse if urgent repairs prevent implantation of mitigation to avoid or reroute emergency routes and make advance notifications
Threshold HAZ-H: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires, Including Areas where Wildlands Are Adjacent to Urbanized Areas or where Residences Are Intermixed with Wildlands	Less than significant	Similar
Hydrology and Water Quality		
Threshold WQ-A: Violate Any Water Quality Standards or Waste Discharge Requirements	Less than significant	Similar
Threshold WQ-C: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, in a Manner that Would Result in Substantial Erosion or Siltation On or Off Site	Less than significant	Similar
Threshold WQ-D: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Manner That Would Result in Flooding On or Off Site	Less than significant with mitigation	Similar
Threshold WQ-E: Create or Contribute Runoff Water that Would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff	Less than significant	Similar
Threshold WQ-J: Expose People or Structures to Inundation by Seiche, Tsunami, or Mudflow	Less than significant	Similar
Land Use		
Threshold LU-A: Physically Divide an Established Community	Less than significant	Similar
Threshold LU-B: Conflict with Applicable Land Use Plan, Policy, or Regulation of an Agency with Jurisdiction over the Project Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect	Less than significant	Similar

Environmental Resource Area	PCCP Rehabilitation Program Impacts	No Program Alternative Impacts
Noise		
Threshold NOI-A: Expose Persons to or Generate Noise Levels in Excess of Standards Established in the Local General Plan or Noise Ordinance or Applicable Standards of Other Agencies	Significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location or require nighttime work
Threshold NOI-B: Expose Persons to or Generate Excessive Groundborne Vibration or Groundborne Noise Levels	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location
Threshold NOI-C: Result in a Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity, Above Levels Existing without the Project	No impact	Similar
Threshold NOI-D: Result in a Substantial Temporary or Periodic Increase in Ambient Noise Levels in the Project Vicinity, Above Levels Existing without the Project	Significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location or require nighttime work
Threshold NOI-E: For a Project Located within an Airport Land Use Plan or, Where Such a Plan Has Not Been Adopted, within 2 Miles of a Public Airport or Public Use Airport, Expose People Residing or Working in the Project Area to Excessive Noise Levels	Less than significant	Similar
Threshold NOI-F: For a Project within the Vicinity of a Private Airstrip, Expose People Residing or Working in the Project Area to Excessive Noise Levels	No impact	Similar
Recreation		
Threshold REC-A: Increase the Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities Such That Substantial Physical Deterioration of the Facilities Would Occur or Be Accelerated	Less than significant	Similar or worse, if urgent repairs prevent ability to avoid impacts by location
Threshold REC-B: Include Recreational Facilities or Require the Construction or Expansion of Recreational Facilities, Which Might Have an Adverse Physical Effect on the Environment	No impact	Similar

Environmental Resource Area	PCCP Rehabilitation Program Impacts	No Program Alternative Impacts
Transportation and Traffic		
Threshold TRA-A: Conflict with an Applicable Plan, Ordinance, or Policy that Establishes Measures of Effectiveness for the Performance of the Circulation System, Taking into Account All Modes of Transportation, Including Mass Transit and Non-Motorized Travel, and Relevant Components of the Circulation System, Including, but not Limited to, Intersections, Streets, Highways and Freeways, and Pedestrian and Bicycle Paths	Significant and unavoidable	Similar or worse, if urgent repairs prevent ability to avoid impacts by location, planning and coordination with local jurisdictions, advance notifications, and provision of detours and adequate parking
Threshold TRA-B: Conflict with an Applicable Congestion Management Program, Including, but not Limited to, Level-of-Service Standards and Travel Demand Measures or Other Standards Established by the County Congestion Management Agency for Designated Roads or Highways	Less than significant	Similar
Threshold TRA-C: Result in a Change in Air Traffic Patterns, Including either an Increase in Traffic Levels or a Change in Location that Would Result in Substantial Safety Risks	Less than significant with mitigation	Similar or worse if urgent repairs occur in active runway areas
Threshold TRA-D: Substantially Increase Hazards Due to a Design Feature or Incompatible Uses	Less than significant with mitigation	Similar or worse if urgent repairs occur in locations resulting in hazardous condition
Threshold TRA-E: Result in Inadequate Emergency Access	Less than significant with mitigation	Similar or worse if urgent repairs affect emergency access
Threshold TRA-F: Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities or Otherwise Decrease the Performance or Safety of Such Facilities	Less than significant with mitigation	Similar or worse, if urgent repairs prevent ability to avoid impacts by location and provision of detours
Utilities and Service Systems		
Threshold UTIL-A: Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board	Less than significant	Similar
Threshold UTIL-B: Require or Result in the Construction of New Water or Wastewater Treatment Facilities or the Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects	No impact	Similar
Threshold UTIL-C: Require or Result in the Construction of New Stormwater Drainage Facilities or the Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects	No impact	Similar

Environmental Resource Area	PCCP Rehabilitation Program Impacts	No Program Alternative Impacts
Threshold UTIL-D: Have Sufficient Water Supplies Available to Serve the Project from Existing Entitlements and Resources, or Are New and Expanded Entitlements Needed	No impact	Similar
Threshold UTIL-E: Result in a Determination by the Wastewater Treatment Provider that Serves or May Serve the Project that it Has Adequate Capacity to Serve the Project's Projected Demand in Addition to its Existing Commitments	No impact	Similar
Threshold UTIL-F: Be Served by a Landfill with Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs	Less than significant	Similar
Threshold UTIL-G: Comply with Federal, State, and Local Statutes and Regulations Related to Solid Waste	Less than significant	Similar
Energy Conservation		
Threshold ENE-A: Use Energy in an Inefficient, Wasteful, or Unnecessary Manner	Less than significant	Similar

1.3 General Findings

1. The potential environmental impacts of the proposed program have been analyzed, and the public has been afforded the opportunity to submit comments pursuant to CEQA requirements.
2. Any significant impacts have been substantially lessened or avoided by the mitigation measures set forth in the Draft and Final PEIR.
3. No comments regarding the Draft PEIR were received during the public review period. One comment letter was received after the public review period. Responses to the comments in that letter were provided in Chapter 9 of the Final PEIR, *Responses to Comments.* No new significant effects were identified as a result of public comments, though minor changes to some mitigation measures were made to require consultation with the appropriate agencies. Impacts have been avoided or substantially lessened by the mitigation measures described in the Draft and Final PEIR.

1.4 Legal Effects of Findings

To the extent that these findings conclude that the proposed mitigation measures outlined in the Final PEIR are feasible and have not been modified, superseded, or withdrawn, Metropolitan hereby commits to implementing these measures. These findings, in other words, are not merely informational, but rather constitute a binding set of obligations that will come into effect when Metropolitan approves the proposed program.

The mitigation measures that are referenced in the MMRP and adopted concurrently with these findings will be effectuated through the process of construction and implementation of the proposed program.

1.5 Independent Review and Analysis

Under CEQA, the lead agency must (1) independently review and analyze the EIR; (2) circulate draft documents that reflect its independent judgment; (3) as part of the certification of an EIR, find that the report or declaration reflects the independent judgment of the lead agency; and (4) submit copies of the documents to the State Clearinghouse if there is state agency involvement or if the project is of statewide, regional, or area-wide significance (California Public Resources Code, Section 21082.1(c)).

Metropolitan independently reviewed and analyzed the PEIR and determined that it reflects its independent judgment. Moreover, upon completing this review and making this determination, Metropolitan circulated the Draft PEIR for public review. With the preparation of these findings for submittal to Metropolitan's Board of Directors for adoption, Metropolitan finds that this Final PEIR reflects its independent judgment.

1.6 References Cited

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act Guidelines, as amended.

California Public Resources Code, Sections 21000–21177. California Environmental Quality Act (CEQA), as amended.

Chapter 2
Mitigation Monitoring and Reporting Program

2.1 Introduction

The Mitigation Monitoring and Reporting Program (MMRP) for the proposed program has been prepared in accordance with Public Resources Code (PRC) Section 21081.6 and the California Environmental Quality Act (CEQA) Guidelines Section 15091(d). Metropolitan Water District (Metropolitan) will use this MMRP to track compliance with the program mitigation measures. Metropolitan's Board of Directors will consider the MMRP during the certification hearing for the Final Programmatic Environmental Impact Report (PEIR). The final MMRP will incorporate all mitigation measures adopted for the proposed program. Metropolitan makes the finding that the measures included in the MMRP constitute changes or alterations that avoid or substantially lessen the potentially significant environmental effects of the proposed project on the environment.

This MMRP summarizes mitigation commitments identified in the Prestressed Concrete Cylinder Pipe Rehabilitation Program Final PEIR. Table 2-1 provides the MMRP, which includes all mitigation measures, monitoring process, and monitoring timing. Metropolitan is the agency responsible for ensuring implementation of all mitigation measures. Impacts and mitigation measures are presented in the same order as in the Final PEIR. The columns in the table provide the following information:

- **Mitigation Measures:** The action(s) that will be taken to reduce the impact to a less-than-significant level or to the maximum extent feasible.
- **Timing of Implementation:** This column indicates the general schedule for conducting each monitoring task, either during the design phase, prior to construction, during construction, and/or after construction.
- **Implementation Party:** This column lists the party responsible for implementing the mitigation measure.

Table 2-1. Mitigation Monitoring and Reporting Program

Mitigation Measure(s)	Timing of Implementation	Implementing Party
4.1 Aesthetics		
MM AES-1: In order to prevent impacts related to spillover lighting into light-sensitive land uses, all safety and security lighting at construction work areas and staging areas will be directed downward and shielded to avoid light spilling over into residential areas.	Construction	Contractor
4.2 Agriculture and Forestry Resources[1]		
None required.		
4.3 Air Quality		
MM AIR-1: All off-road diesel-powered construction equipment greater than 50 horsepower will meet Tier 4 emission standards. All construction equipment will be outfitted with ARB best available control technology devices. Any emissions-control device used by the contractor will achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by ARB regulations. A copy of each unit's certified tier specification, best available control technology documentation, and ARB or SCAQMD operating permit will be provided to Metropolitan's Construction Inspector at the time of mobilization of each applicable unit of equipment.	Prior to Construction Construction	Contractor
4.4 Biological Resources		
MM BIO-1, Take of Special-Status Species: For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 300 feet of unpaved areas (except for landscaped developed areas) and that contain special-status species, a qualified biologist will visit the site. If the biologist determines that special-status species may occur, preconstruction surveys for special-status plants and/or wildlife will be completed prior to any construction and consultation with the appropriate resource agency will occur (U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife), if necessary, to determine measures to address impacts such as avoidance, minimization, restoration, or compensation.	Prior to Construction	Metropolitan Qualified Biologist

[1] Impacts under CEQA thresholds b, c, and d for agriculture and forestry resources were determined to be less than significant in the Initial Study and were not addressed in the Programmatic EIR.

Mitigation Measure(s)	Timing of Implementation	Implementing Party
MM BIO-2, Impacts on Nesting Birds: For any projects within the program that require vegetation removal during the nesting season for sensitive species protected by the Migratory Bird Treaty Act and California Fish and Game Code Section 3513, including street trees and other landscaping, a qualified biologist will inspect the vegetation to be removed no more than 10 days prior to tree/vegetation removal to determine whether nesting birds are present. If a nest is found, the biologist will determine the site-specific measures necessary to avoid disturbing the nest until nesting activity has ceased. Nothing in this mitigation measure precludes the use of deterrent measures to prevent bird nesting.	Prior to Construction	Metropolitan Qualified Biologist
MM BIO-3, Adverse Impacts on Riparian Habitat: For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (except for landscaped developed areas) which contain riparian vegetation, a qualified biologist will visit the site to conduct pre-construction surveys. If the biologist determines that riparian vegetation is present, then habitat areas will be mapped and flagged for avoidance, or other measures will be taken, including applying for appropriate regulatory permits, as required.	Prior to Construction	Metropolitan Qualified Biologist
MM BIO-4: Adverse Impacts on Sensitive Natural Communities: Removal of or adverse impacts on sensitive natural communities will be minimized for rehabilitation projects in the program, except in accordance with adopted HCPs/NCCPs to which Metropolitan is a party for covered areas and covered activities. For such covered activities, Metropolitan will coordinate with the appropriate resource agencies, and Metropolitan's contractors will adhere to all requirements in the applicable plan. For any activities not covered by an adopted HCP/NCCP, the following shall apply: For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (except for landscaped developed areas) and that contain sensitive natural communities, a qualified biologist will conduct pre-construction surveys for sensitive natural communities prior to any construction. These surveys will be conducted by a qualified biologist within 100 feet of ground-disturbing activities. If sensitive natural communities are located during the surveys, then habitat areas will be mapped and flagged for avoidance, or other measures will be taken including applying for appropriate regulatory permits, as required.	Prior to Construction	Metropolitan Qualified Biologist

Mitigation Measure(s)	Timing of Implementation	Implementing Party
MM BIO-5, Adverse Impacts on Wetlands: For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 100 feet of unpaved areas (including large landscaped areas, parks, and golf courses), which contain wetlands, a qualified biologist will visit the site to conduct pre-construction surveys. If the biologist determines that wetlands may be present, preconstruction wetlands jurisdictional delineations will be performed prior to any construction. These delineations will be conducted by a qualified biologist within 100 feet of ground-disturbing activities. Any jurisdictional wetlands located during the delineations will be mapped and flagged for avoidance or other measures may be taken, including applying for appropriate regulatory permits, as required.	Prior to Construction	Metropolitan Qualified Biologist
MM BIO-6, Impacts on Wildlife Movement: For any projects within the program that require vegetation removal, ground disturbance of unpaved areas, parking or staging of equipment or material on unpaved areas, access routes on unpaved areas, or any rehabilitation or construction staging within 300 feet of unpaved areas (except for landscaped developed areas), a qualified biologist will visit the site to determine if any identifiable wildlife movement corridors are present at the site. If the biologist determines that such corridors are present, then wildlife movement corridors will be mapped, flagged, and avoided, or other measures will be taken to protect wildlife movement, as appropriate.	Prior to Construction	Metropolitan Qualified Biologist
MM BIO-7, Conflicts with Local Policies Related to Biological Resources: For any projects within the program that require vegetation removal, Metropolitan will determine if there are any applicable local policies related to biological resources and, if so, coordinate with the affected jurisdiction, as necessary, to determine appropriate requirements for vegetation removal and replacement. The contractor will be required to comply with any applicable requirements. Nothing in this mitigation will require the contractor to make improvements beyond the existing condition prior to construction.	Prior to Construction	Metropolitan Contractor
4.5 Cultural Resources		
MM CUL-1, Historic Resources Protection Program: To avoid impacts on built environment (historic) resources, prior to any rehabilitation involving excavation or concrete cutting, a qualified cultural resource specialist will determine whether there are any identified or eligible historical resources present and whether proposed construction activities could adversely affect these resources. If any resources could be adversely affected by construction, measures will be taken to prevent adverse impacts on the resource, as determined by the qualified cultural resource specialist.	Design Phase Prior to Construction	Metropolitan Qualified Cultural Resource Specialist

Mitigation Measure(s)	Timing of Implementation	Implementing Party
MM CUL-2, Avoidance or Monitoring of Archaeological Sites: To avoid impacts on archaeological sites, prior to construction of any program element, such as pipeline alignments, construction staging areas, laydown areas, or relocation of pipelines in new alignments, a new record search will be conducted to determine if additional sites or resources have been recorded on or adjacent to the proposed construction section. Reports will be examined to determine the condition of each site when recorded, if the site has been evaluated, and if destruction of the site is documented. Following this review, recorded archaeological sites that are within the pipeline route will be surveyed and their present conditions assessed (see MM CUL-4). Archaeological monitoring will be required during construction-related ground-disturbing activities if within the recorded area of a significant or potentially significant site and for a 50-foot buffer beyond the site boundary. A Native American monitor may be present if the site is prehistoric. If archaeological materials are discovered during monitoring, procedures outlined in MM CUL-4 will be implemented. If it can be demonstrated that the site has been destroyed by previous construction or other actions and there is no potential for other buried parts of the site within the construction area, or if the site has been evaluated and determined not eligible for the California Register of Historical Resources (CRHR), then monitoring will not be required.	Prior to Construction Construction	Metropolitan Qualified Archaeologist/ Native American Monitor
MM CUL-3, Preconstruction Meeting for Identifying Cultural Resources: To avoid impacts on previously unidentified cultural resources, all construction personnel will attend a preconstruction meeting that includes a discussion of cultural resources. The meeting will inform construction personnel on how to identify potential cultural resources during ground-disturbing activities and what to do if such potential resources are encountered.	Prior to Construction	Metropolitan Contractor Qualified Cultural Resource Specialist
MM CUL-4, Previously Unidentified Resources Encountered during Ground-disturbing Activities: In the event that any potentially significant cultural resources are unexpectedly encountered during construction, work will be immediately halted and the discovery shall be protected in place. The contractor will halt construction within 50 feet of the exposed resource until a qualified cultural resources specialist evaluates the discovery. If the qualified cultural resources specialist determines that the discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse impacts from project implementation. This additional work may include avoidance, testing, and evaluation or data recovery excavation. Work shall be prohibited in the restricted area until Metropolitan provides written authorization.	Construction	Metropolitan Contractor Qualified Cultural Resources Specialist

Mitigation Measure(s)	Timing of Implementation	Implementing Party
MM CUL-5, Archaeological Survey of Non-Pipeline Areas: Prior to rehabilitation activities of any program element, each area will be subject to pedestrian survey for archaeological resources by a professional archaeologist retained by Metropolitan if ground-disturbing activities are slated to occur. If archaeological sites are recorded or found in these affected areas, the sites will be avoided to the greatest extent feasible. If a site cannot be avoided, site testing and evaluation by a professional archaeologist will be required. This may require test excavations, artifact analysis, evaluation for the CRHR and review by the State Historic Preservation Officer, and possibly data recovery excavation and reporting.	Prior to Construction	Metropolitan Qualified Archaeologist
MM CUL-6, Develop a Program to Mitigate Impacts on Paleontological Resources for Each Contract Package: In order to avoid impacts on paleontological resources, the following mitigation program will be implemented for each contract package. This mitigation program will be conducted by a qualified professional paleontologist and will be consistent with the provisions of CEQA. This program will include the following: 1. Assessment of site-specific excavation areas to determine those areas that may be designated as highly sensitive for unique paleontological resources to be monitored during ground disturbance. 2. In these designated areas, if any, paleontological resources monitors qualified to Society of Vertebrate Paleontology standards will be equipped to salvage fossils as they are unearthed and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitoring may be reduced or eliminated if some of the potentially fossiliferous units are determined upon exposure and examination by qualified paleontological resources personnel to have low potential to contain fossil resources. Also in these designated areas, all unique paleontological resources, if any, will be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates. 3. Unique paleontological resources, if any, will be identified and curated into an established, accredited museum repository. 4. Preparation of a report of findings including a summary of field work and laboratory methods, an overview of the program work area geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. If the monitoring efforts produced fossils, a copy of the report will also be submitted to the designated museum repository.	Prior to Construction Construction	Metropolitan Contractor Qualified Paleontologist

Mitigation Measure(s)	Timing of Implementation	Implementing Party
4.6 Geology and Soils[2]		
None required.		
4.7 Greenhouse Gas Emissions		
MM-AIR-1: (see above, under 4.3, Air Quality)		
4.8 Hazards and Hazardous Materials		
MM HAZ-1, Project-Level Hazardous Materials Sites Assessment Prior to Construction Activities: To avoid exposure of construction workers, the public, or the environment to previously identified hazardous materials, during design, qualified Metropolitan staff or consultant(s) specializing in hazardous materials impact assessment will conduct a project-level analysis to determine if there are existing hazardous materials sites in the vicinity of the construction site and potential for existing hazardous materials sites to affect construction. This assessment will consist of a search for environmental-related information present in publicly accessible databases. The information will be reviewed to determine if the construction footprint or adjacent properties are listed in the databases. If the construction footprint or adjacent properties are listed in the databases, qualified Metropolitan staff or consultant(s) will determine the potential risk to construction workers, the public, or the environment from rehabilitation activities and identify all necessary avoidance, abatement, remediation, cleanup, disposal, monitoring, reporting, notifications, and/or other measures to prevent significant impacts.	Prior to Construction	Metropolitan Environmental Consultant (Hazardous Waste)
MM HAZ-2, Encountering Unreported Hazardous Materials: To avoid exposure of construction workers, the public, or the environment to unreported hazardous materials in the soil, contractors will be required to inspect any site to be used for excavation, work zones, staging, or other rehabilitation-related activities prior to beginning construction. If odiferous, stained, or discolored soil is encountered, qualified Metropolitan staff or consultant(s) specializing in the identification and handling of hazardous materials will be retained to assess the site. Identification of possible hazardous materials would typically involve soil samples and laboratory analysis. The suspect soil will be isolated, covered, and avoided by construction personnel until analytical results are reviewed by qualified personnel. Soils identified as hazardous or contaminated will be handled, transported, and treated in accordance with all federal, state, and local existing hazardous materials regulations.	Prior to Construction Construction	Metropolitan Contractor Environmental Consultant (Hazardous Waste)

[2] Impacts under CEQA threshold e for geology and soils were determined to be less than significant in the Initial Study and were not addressed in the Programmatic EIR.

Mitigation Measure(s)	Timing of Implementation	Implementing Party
MM HAZ-3, Engineering Controls and Best Management Practices during Construction: To minimize human exposure to potential contaminants, during construction contractors will employ the use of engineering controls and best management practices (BMPs). Engineering controls and construction BMPs will include, but are not limited to, the following: • Contractor employees working on site handling hazardous materials on contaminated media will be certified in the Occupational Health and Safety Administration's 40-hour Hazardous Waste Operations and Emergency Response training. • Contractors will water or mist soil as it is being excavated and stockpiled or loaded onto transportation trucks.	Construction	Contractor
MM HAZ-4, Encountering Contaminated Groundwater: To avoid exposure of construction workers, the public, or the environment to contaminated groundwater, suspect water removed from excavation areas (but not including dewatering of the pipelines themselves) will be tested by a qualified laboratory specializing in the identification of hazardous materials. If groundwater is considered hazardous, Metropolitan will notify the Regional Water Quality Control Board and local Environmental Health agencies regarding assessment and remediation requirements.	Construction	Contractor Environmental Consultant (Hazardous Waste)
MM HAZ-5, Construction Activities within Runway Protection Zones: During the design phase for any projects in the program within the runway protection zones for Long Beach Municipal Airport or Van Nuys Airport (even where all construction would be accessed from outside the runway protection zones), project engineers will coordinate with the management of Long Beach Municipal Airport (Second Lower Feeder) or Van Nuys Airport (Sepulveda Feeder), as appropriate, to determine the methods of construction that will be necessary to avoid impacts on airport operations and safety. All operations and safety requirements of the airports will be incorporated into the construction design packages. All necessary requirements will be implemented during construction.	Design Phase Prior to Construction Construction	Metropolitan
MM HAZ-6, Aboveground Elements in Runway Protection Zones: To avoid airport operations and safety impacts, no permanent aboveground elements of the proposed program, such as manhole covers, valve boxes, or electrical panels, will be located within runway protection zones (at Long Beach Municipal Airport for the Second Lower Feeder and Van Nuys Airport for the Sepulveda Feeder) without prior approval of the management of the appropriate airport.	Design Phase Prior to Construction	Metropolitan

Mitigation Measure(s)	Timing of Implementation	Implementing Party
MM HAZ-7, Maintaining Emergency/Evacuation Routes: To avoid impacts on emergency/evacuation routes, excavation sites will typically not be placed in roadways that serve as designated emergency/evacuation routes. If such streets cannot be avoided, the contractor will work with the local jurisdiction responsible for the emergency/evacuation routes to maintain adequate capacity. This will be accomplished by utilizing unused portions of the street right-of-way for travel lanes (such as temporarily prohibiting parking, restriping medians or parkway space, or detouring bike lanes) or by detouring the emergency/evacuation route to other roadways during construction. If detours are necessary, appropriate notification of emergency personnel and temporary signage will be used to direct emergency/evacuation traffic during construction.	Design Phase Prior to Construction Construction	Metropolitan Contractor
4.8 Hydrology and Water Quality[3]		
MM HYD-1, Implementation of a Grading and Drainage Plan: Prior to construction of aboveground project facilities, Metropolitan will prepare a grading and drainage plan that identifies anticipated changes in flow that would occur on site and minimizes any potential increases in flooding, erosion, or sedimentation potential in accordance with applicable regulations and in coordination with the county and/or the city in which the facility would be located. The plan will identify and implement best management practices and other measures to ensure that potential increases in stormwater flows and erosion are minimized.	Prior to Construction Construction	Metropolitan Contractor

[3] CEQA thresholds b, g, h, and i for hydrology and water quality were determined to be less than significant in the Initial Study and were not addressed in this PEIR.

Mitigation Measure(s)	Timing of Implementation	Implementing Party
4.1 Land Use[4]		
None required.		
4.11 Noise		
MM NOI-1, Locate Excavation Sites Away From Vibration-Sensitive Uses: A noise and vibration consultant will be retained during excavation site planning to determine if there are vibration-sensitive land uses that could be affected by construction. Whenever possible, excavation sites will then be located so that vibration impacts would not affect vibration-sensitive land uses or mitigation would be included to reduce vibration levels at vibration-sensitive land uses to less-than-significant levels.	Design Phase	Metropolitan Noise/Vibration Consultant
MM NOI-2, Locate Excavation Sites Away From Noise-Sensitive Receptors Where Feasible: A noise consultant will be retained during excavation site planning to determine if there are sensitive receptors that could be affected by construction. Whenever possible, the excavation sites will be located in areas that would not affect sensitive receptors or where receptors can be shielded from construction noise.	Design Phase	Metropolitan Noise/Vibration Consultant
MM NOI-3, Conduct Project-Level Noise Studies at Each Excavation Site Where Noise-Sensitive Receptors Are Present: Project-level noise studies will be required at all excavation sites where sensitive receptors are present, as required in the planning stage by MM NOI-2. Such noise studies will identify the ambient noise levels, the receptors that would be affected, the noise levels the receptors will experience during construction, and any measures that can be used to reduce noise levels. All feasible mitigation measures identified in this noise study will be implemented.	Environmental Phase	Metropolitan Noise/Vibration Consultant
MM NOI-4, Locate Staging Areas Away from Noise-Sensitive Receptors or Provide Noise Attenuation: Whenever feasible, staging areas will be located in areas that would not affect sensitive receptors or where receptors can be shielded from staging-area noise. Where possible, noise screening will include temporary noise barriers with openings in the barriers kept to the minimum necessary for access.	Prior to Construction Construction	Metropolitan Contractor

[4] For threshold c for land use, see Threshold BIO-F in Section 4.4, *Biological Resources*.

Mitigation Measure(s)	Timing of Implementation	Implementing Party
4.12 Recreation		
None required.		
4.13 Transportation and Traffic		
MM TRA-1, Excavation Siting to Minimize Traffic Impacts: Excavation sites would be located to avoid traffic impacts to the maximum extent feasible, considering the logistical requirements for pipeline rehabilitation (e.g., adequate spacing, pipeline logistics) and other impacts such as habitat and noise. To the maximum extent feasible, the following will be considered when locating excavation sites: • Whenever feasible, where an off-road excavation site is available that would not result in other significant environmental impacts (e.g., to habitat, land uses), the off-road location will be used. • Whenever feasible, excavation sites in roadways will be situated within medians where available and feasible, especially if the medians are not used for left-turn lanes and do not include large street trees or other features that would be difficult to restore after rehabilitation. • Whenever feasible, excavation sites will be situated where the existing number of travel lanes can be maintained by temporarily removing parking (where adequate parking is available in the local area), temporarily relocating bike lanes to adjacent roadways, or temporarily restriping to provide narrower lanes (where they can be safely accommodated). • Whenever feasible, excavation sites will be situated so that adequate access to adjacent properties can be maintained, including left-turn entrances. • Whenever feasible, excavation sites will be situated so that bicycle and pedestrian circulation can be safely maintained, either by use of barriers or other safety features, or by providing alternative bicycle and pedestrian routes, with appropriate signage. Where feasible, siting excavation near heavily used pedestrian areas, such as around schools, hospitals, and transit stops, will be avoided. Where feasible, siting excavation in areas designated as safe routes to school will be avoided, or alternative routes will be developed in coordination with the local jurisdictions and school districts and providing appropriate signage, notification, and traffic controls.	Design Phase Prior to Construction Construction	Metropolitan Contractor

Mitigation Measure(s)	Timing of Implementation	Implementing Party
MM TRA-2, Construction Traffic Control Plans: Metropolitan and/or its contractors will coordinate with the counties of Los Angeles, Orange, and San Bernardino as well as each local jurisdiction through which the pipelines travels to develop construction traffic control measures and procedures prior to the start of construction on each project. Measures to reduce temporary construction traffic and transportation impacts on city streets may include, but not be limited to, the following: • Development of traffic control plans in coordination with local jurisdictions. The traffic control plans will be implemented and revised, as necessary and applicable. • Provision of advance written notification of construction activities to residences and businesses around each construction site. • Identification of travel routes and establishment of optimal arrival and departure times to minimize conflicts with residents, schools, and businesses, as feasible to minimize conflicts. • Provisions to detour pedestrians and bicyclists from project activities near or on the sidewalks and bike lanes. • Implementation of safety measures, such as signs, flaggers, cones, signage, and advance notice, as appropriate. • Covering of all open trenches when not in use or at the end of each work day, as applicable.	Design Phase Prior to Construction Construction	Metropolitan Contractor
MM TRA-3, Maintaining Adequate Parking: Whenever feasible, excavation work zones and construction staging areas will not be sited in such a way that they result in inadequate availability of parking for adjacent land uses. If work zones or staging areas are planned for parking areas, a parking study will be completed by a qualified traffic consultant prior to construction to identify if adequate parking would be available locally.	Design Phase Prior to Construction Construction	Metropolitan Contractor Traffic Consultant
MM HAZ-5: (see above in 4.8, Hazards and Hazardous Materials). **MM HAZ-6:** (see above in 4.8, Hazards and Hazardous Materials). **MM HAZ-7:** (see above in 4.8, Hazards and Hazardous Materials).		
4.14 Utilities and Service Systems		
None required.		
4.15 Energy Conservation		
None required.		

2.2 References Cited

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act Guidelines, as amended.

California Public Resources Code, Sections 21000–21177. California Environmental Quality Act (CEQA), as amended.

Chapter 3
Statement of Overriding Considerations

When a proposed project results in significant, unavoidable adverse impacts, CEQA requires the decision-making body of the Lead Agency to weigh the benefit of the proposed project against such environmental impacts in determining whether or not to approve the proposed project (*State CEQA Guidelines* Section 15043). In making this determination, the Lead Agency is guided by the *State CEQA Guidelines* Section 15093, which states:

> CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable."

When the Lead Agency approves a project that will result in the occurrence of significant effects that are identified in the Final EIR but are not avoided or substantially lessened, the agency shall state in writing the specific reasons to support its action based on the Final EIR and/or other information in the record. The Statement of Overriding Considerations shall be supported by substantial evidence in the record.

If an agency makes a Statement of Overriding Considerations, the statement should be included in the record of the project approval and should be mentioned in the notice of determination. This statement does not substitute for, and shall be in addition to, Findings required pursuant to Section 15091.

In addition, PRC Section 21081(b) requires that when a public agency finds that economic, legal, social, technological or other reasons make infeasible the mitigation measures or alternatives identified in the EIR and the project thereby continues to have significant unavoidable adverse impacts, the public agency must also find that specific overriding economic, legal, social, technological or other benefits of the project outweigh those significant unavoidable impacts of the project.

The Final Programmatic EIR identified one alternative to the proposed program: the No Program Alternative. This alternative was evaluated to the extent to which it met the basic program objectives, while avoiding or substantially lessening any significant adverse impacts of the proposed program.

By statute, if the environmentally superior alternative is the No Project Alternative, an EIR must also identify an environmentally superior alternative among the other alternatives. The reasons detailed in the Findings and the Programmatic EIR (Chapter 5 of the Final Programmatic EIR) indicate the proposed program would have similar or lesser impacts than the No Program Alternative. The sections below explain the overriding considerations Metropolitan relied on in selecting the proposed program rather than the No Program Alternative.

3.1 Significant and Unavoidable Impacts

3.1.1 Air Quality

Based on the information and analysis set forth in the Final Programmatic EIR and the record of proceedings, implementation of the proposed program would result in temporary significant impacts related to air quality. Significant and unavoidable short-term emissions of air pollutants would be emitted as a result of rehabilitation activities stemming from the use of construction equipment (primarily diesel-powered), haul and materials vehicle trips, and fugitive dust. Pollutants would exceed the daily regional mass emissions thresholds as well as the localized significance thresholds identified by the South Coast Air Quality Management District (SCAQMD) and would be significant. Following the implementation of Mitigation Measure MM AIR-1, the regional mass emissions would still exceed the SCAQMD regional mass emissions thresholds for carbon monoxide (CO) and nitrogen oxides (NO_X), but would no longer exceed the localized significance thresholds. Thus, the program would violate an air quality standard or contribute substantially to an existing or projected air quality violation, result in a cumulatively considerable net increase in any criteria pollutant for which the region is in non-attainment, and expose sensitive receptors to substantial pollutant concentrations. No additional feasible mitigation measures are available that would reduce temporary air quality impacts to less than significant levels. Impacts would be significant and unavoidable.

3.1.2 Biological Resources

Based on the information and analysis set forth in the Final Programmatic EIR and the record of proceedings, rehabilitation activities have the potential to result in impacts on protected species. Migratory birds, including most birds that nest in the study area, are protected by the federal Migratory Bird Treaty Act, which makes it unlawful to take, possess, import, export, transport, sell, barter, or offer for sale any migratory bird, or the parts, nests or eggs of any bird. In addition, California Fish and Game Code Section 3503 makes it unlawful to take, possess, or needlessly destroy nests or eggs of any bird. Where vegetation, and especially trees, is removed as part of construction, there is the potential for violations under the Migratory Bird Treaty Act and Section 3503 of the California Fish and Game Code, which would be a significant impact, but the level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measure MM BIO-2 may reduce this impact, but potentially not to a less-than-significant level.

Various rehabilitation activities could affect riparian habitats and other sensitive natural communities. Vegetation clearing, excavation, materials storage, traffic, and other activities could remove habitat and result in temporary impacts to runoff and/or water quality, potentially affecting habitat; air quality impacts (dust, exhaust) could affect adjacent habitat; and construction-related traffic could introduce hazardous materials into habitats. These effects could result in potentially significant impacts on riparian habitats or sensitive natural communities, but the level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measures MM BIO-3 and MM BIO-4 may reduce these impacts, but potentially not to less-than-significant levels.

Various rehabilitation activities could also affect wetlands, if present near work areas. Any of these effects could result in significant impacts on wetlands, but the level of impact would need to be

determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measure MM BIO-5 may reduce these impacts, but potentially not to less-than-significant levels.

In addition, various rehabilitation activities could affect wildlife movement and dispersal in the vicinity of construction. The level of impact would need to be determined at the project level when rehabilitation locations are known. Implementation of Mitigation Measure MM BIO-6 may reduce these impacts, but potentially not to less-than-significant levels.

Certain construction and maintenance activities are allowed under the Shell E&P and Metropolitan Habitat Conservation Plan (HCP) and Central and Coastal Natural Communities Conservation Plan (NCCP)/HCP, and would be allowed under the proposed North Fontana Multiple Species Habitat Conservation Plan (covered activities). However, the types of construction for the proposed program that would occur within the covered lands are not known at this time. Therefore, construction could be inconsistent with the requirements of these plans, which would be a significant impact. Without knowing the location or type of rehabilitation activities in the covered lands, the level of impact and mitigation measures to address these impacts cannot be determined at this time. Also, it cannot be determined if impacts could be reduced to less-than-significant levels with mitigation. Therefore, impacts related to conflicts with the adopted Shell E&P and Metropolitan HCP and Central and Coastal NCCP/HCP and the proposed North Fontana Multiple Species Habitat Conservation Plan may be potentially significant and unavoidable. Additional project-specific analysis will be required for rehabilitation activities within the covered lands for these plans.

For the purposes of this Programmatic EIR, the impacts identified above related to biological resources would be considered significant and unavoidable.

3.1.3 Greenhouse Gas Emissions

Based on the information and analysis set forth in the Final Programmatic EIR and the record of proceedings, program-related rehabilitation activities would result in greenhouse gas (GHG) emissions from fuel combustion associated with on- and off-road construction equipment and vehicles. Emissions associated with construction would result in amortized annual emissions of just over 4,700 metric tons, which exceeds the SCAQMD interim threshold of 3,000 metric tons. As such, impacts would be significant. With the implementation of Mitigation Measure MM AIR-1, impacts would be reduced, but would remain significant. Impacts would be significant and unavoidable.

3.1.4 Noise

Based on the information and analysis set forth in the Final Programmatic EIR and the record of proceedings, noise levels during rehabilitation activities, specifically during excavation and concrete sawing, would likely reach very high levels, generally exceeding any noise-level restrictions set by some local jurisdictions. Because of the type of construction and its location, there is no effective mitigation that would reduce this impact below a level of significance. Therefore, impacts related to exposing persons to, or generating, noise levels in excess of standards would be significant, at least at some locations. Implementation of Mitigation Measures MM NOI-2 through MM NOI-4 would reduce impacts, but not to a less-than-significant level at all locations. Impacts would be significant and unavoidable.

3.1.5 Transportation/Traffic

Based on the information and analysis set forth in the Final Programmatic EIR and the record of proceedings, during the course of the pipeline rehabilitation work, work zones would be established within existing roadways, requiring lane closures, temporary signage, traffic cones and delineators, fencing, and barriers (i.e., concrete trapezoidal "K rail," or Caltrans Temporary Type K railing). Where work zones are located within streets, temporary impacts on transportation would occur, including increased congestion and travel times, reduced access, and impacts on transit operations, bike routes, and pedestrian routes. The disruption of local and regional traffic caused by capacity reduction would be significant at some locations, but the level will need to be determined at the project level when rehabilitation locations are known. Analysis to determine the individual projects' impacts on vehicle miles traveled and/or level of service may be required. Implementation of Mitigation Measure MM TRA-1 would reduce these impacts in some locations, but would not be feasible in all circumstances. Therefore, impacts on local and regional transportation may be significant and unavoidable. Impacts would be significant and unavoidable.

3.2 Project Benefits

In September 2011, Metropolitan's Board authorized initiation of the PCCP Rehabilitation Program in order to develop a comprehensive, long-term plan for repair of Metropolitan's at-risk PCCP feeders. There were several drivers for the creation of this program: (1) the increasing number of failures of PCCP lines within the water industry, along with recognition of the risks associated with these failures; (2) trends of PCCP deterioration within Metropolitan's distribution system, based on monitoring data collected over a 14-year period; and (3) Metropolitan's experience with expensive, urgent repairs on PCCP lines. Based on this experience and on a risk assessment of Metropolitan's PCCP lines, staff concluded that approximately 100 miles of PCCP will have a reduced service life and need to be rehabilitated, especially in comparison with pipelines made of other materials.

As discussed in Chapter 3 of the Final Programmatic EIR, the following objectives of the proposed program would be achieved through program implementation:

- Reduce the risk of unplanned outages
- Extend the service life of the pipelines
- Perform the rehabilitation work in a cost-effective manner
- Minimize the effects of rehabilitation efforts on Member Agency deliveries
- Minimize the loss of hydraulic capacity due to rehabilitation
- Improve system operational and emergency flexibility

The pipelines identified for repair in the proposed program deliver drinking water to about 19 million people in Southern California. Rehabilitation of the deteriorating prestressed concrete cylinder portions in these pipelines would preserve this conveyance function and reduce the risk of pipeline failure, minimize repair costs and prevent unplanned shutdowns of the pipelines.

3.3 Statement of Overriding Considerations

After balancing the specific economic, legal, social, technological, and other benefits of the proposed program, Metropolitan has determined that the significant and unavoidable adverse environmental impacts identified above may be considered "acceptable" due to the specific program benefits that outweigh the significant and unavoidable adverse environmental impacts of the proposed program.

Metropolitan has considered information contained in the Final Programmatic EIR, as well as comments received from public agencies and interested parties during the public review period. In addition, Metropolitan commits to the proposed mitigation measures and acknowledges that program benefits outweigh the few significant and unavoidable, temporary adverse impacts identified above. In making this determination and commitment, Metropolitan incorporates by reference the Findings and the proposed Mitigation Monitoring and Reporting Program, as well as all of the supporting evidence cited therein and in the record of proceedings and administrative record.

Engineering, Operations, & Technology Committee

Second Lower Feeder PCCP Rehabilitation Reach 3B

Item 7-2

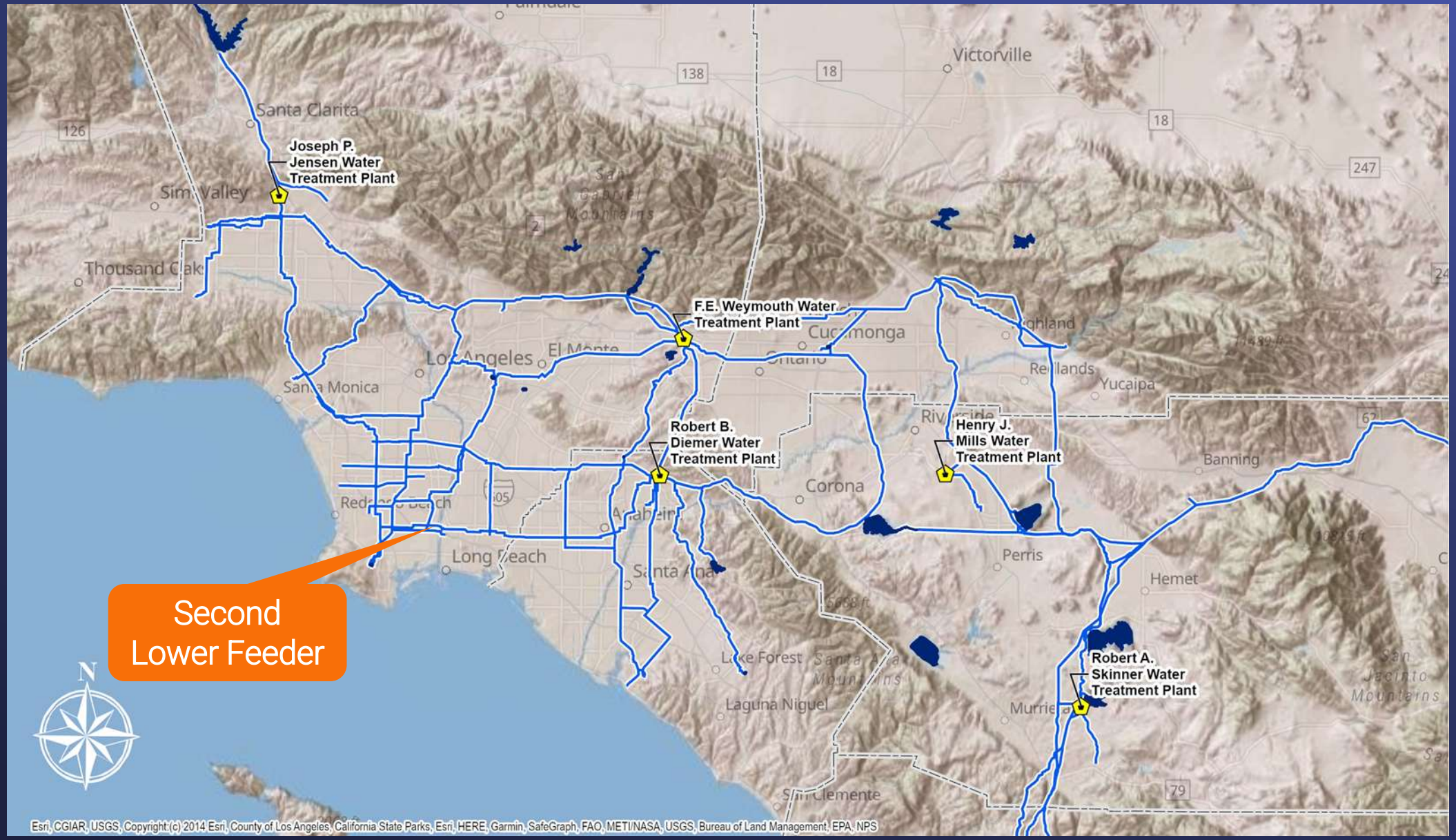
January 9, 2023

Second Lower Feeder PCCP Rehabilitation
Reach 3B

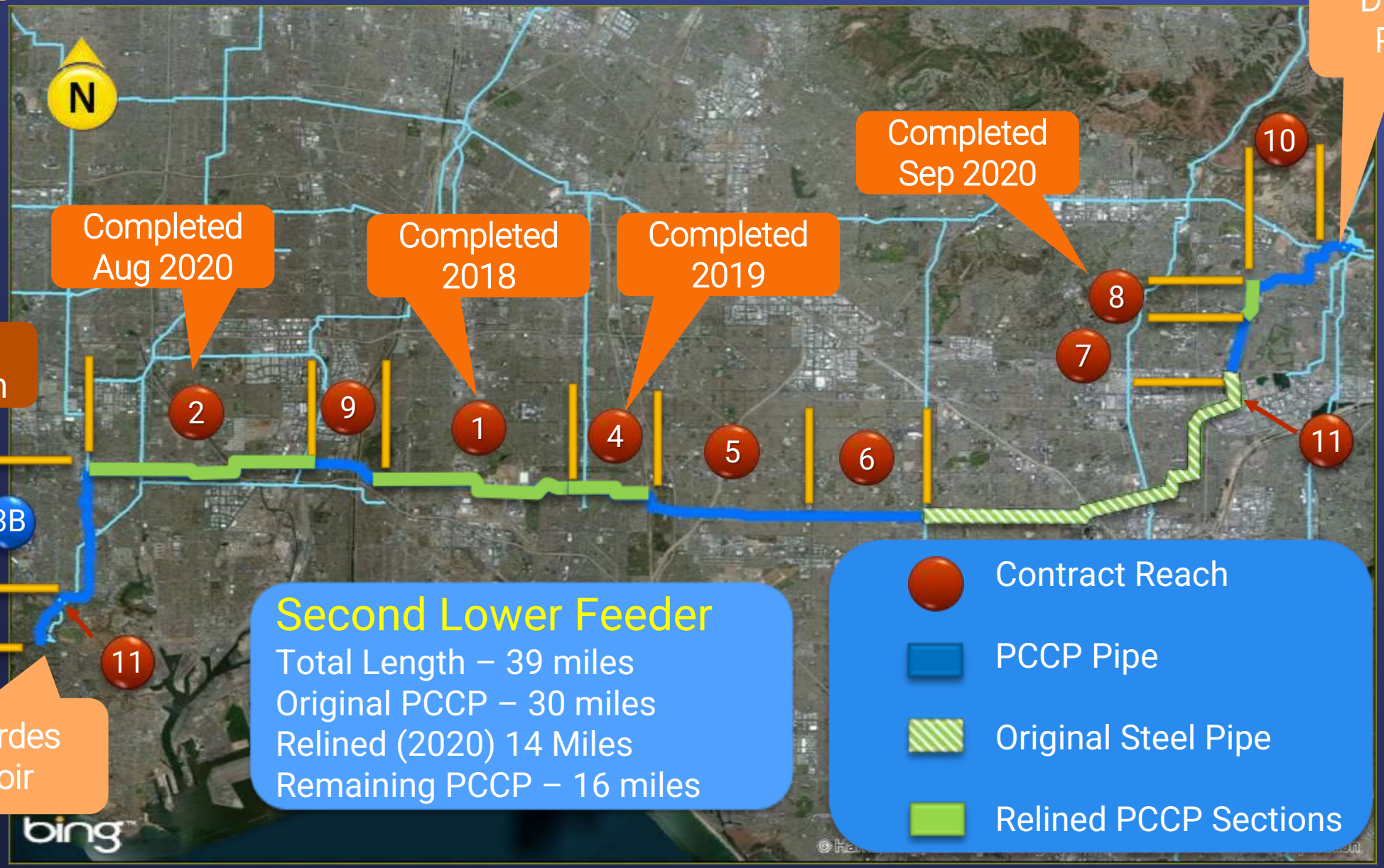
Current Action

- Award a $68,847,000 contract to J.F. Shea Construction, Inc. to rehabilitate Reach 3B of the Second Lower Feeder
- Authorize an access & permitting agreement with City of Lomita in an amount not to exceed $310,000

Distribution System



Background Second Lower Feeder



Second Lower Feeder PCCP Rehabilitation
Reach 3B

Alternatives Considered

- Construction of Reaches 3A & 3B under one construction contract & shutdown
  - Requires an 8-month shutdown
  - Member agencies in this area cannot sustain shutdowns longer than 4 months
- Selected Alternative – Separate Reach 3 into Reaches 3A & 3B
  - Provides greater lead time to procure temporary bypass piping
  - Reduces schedule & materials procurement risks associated with longer shutdowns

Contractor Scope

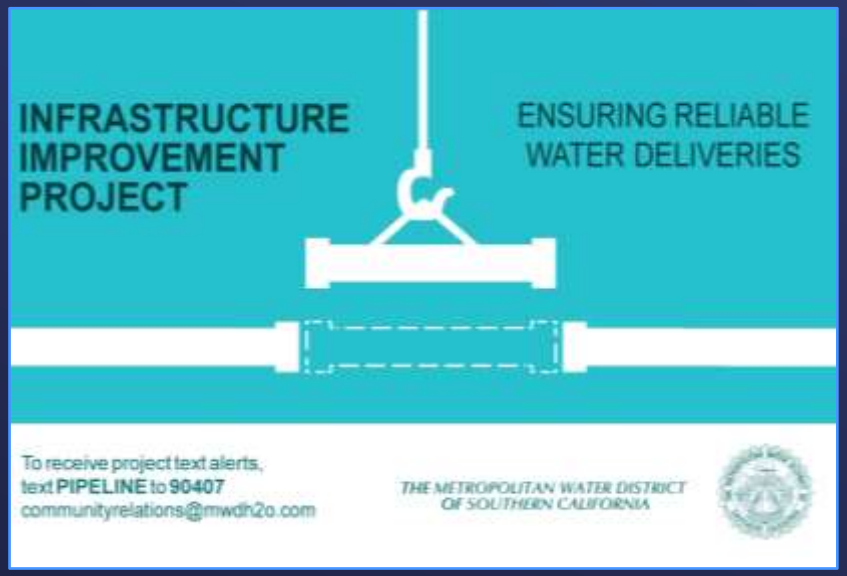
- Line approximately 19,500 ft. of existing PCCP
- Replace three 42-inch with three 48-inch valves at sectionalizing structures
- Install & remove the Palos Verdes Reservoir Bypass Pipeline
- Rehabilitate all maintenance holes & air release valves
- Construct new maintenance holes
- Surface restoration

Fabrication of 48-inch Diameter Valve

Typical Pipe Access and Storage Site

Metropolitan Scope

- Fabrication inspection
- Conduct multiple shutdowns
- Construction management/inspection
- Submittal review & record drawings
- Remove bulkheads & piping that isolate Palos Verdes Reservoir
- Permitting, ROW, public outreach, & program management



Bid Results

Specifications No. 2026**

Bids Received	December 8, 2022
No. of Bidders	3
Low Bidder	J.F. Shea Construction, Inc.
Low Bid	$68,847,000
Range of other Bids	$87,991,972 to $112,206,766
Engineer's estimate	$72 M
SBE Participation*	10%

*SBE (Small Business Enterprise) participation level set at 10%

**This contract will be conducted under the terms of Metropolitan's project labor agreement

Second Lower Feeder PCCP Rehabilitation
Reach 3B

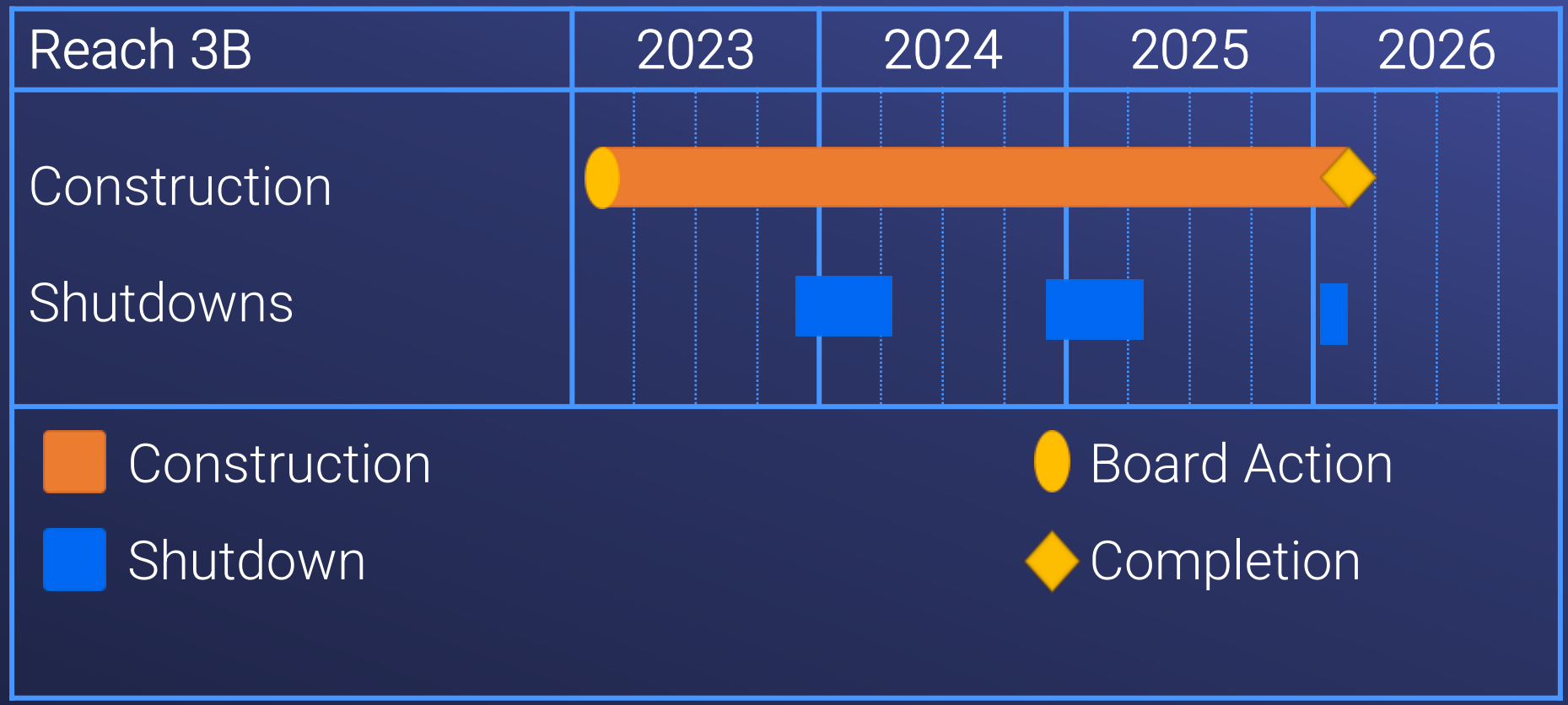
Access & Permitting Agreement with City of Lomita

- Open excavation required to rehabilitate pipeline
  - Work conducted in residential neighborhood
  - Two pipe access sites
  - Three full & three partial street closures
- $235,850.47 for permit fees during the planned construction duration
- Deposit to extend the permit on a month-to-month basis for six months at a rate of $11,609 per month
- NTE amount - $310,000

Allocation of Funds

Contract	
J.F. Shea Construction, Inc.	$68,847,000
Los Angeles Conservation Corps	250,000
Metropolitan Labor	
Program mgmt., permitting, contract admin. & travel	3,050,000
Force Construction	5,977,000
Construction Management/Inspection	8,400,000
Submittal review, technical support, & record drwgs.	1,971,000
Incidentals, Materials & Supplies	705,000
Right-of-Way	835,000
Professional Services	
Black & Veatch, Inc.	510,000
Parsons Constructors, Inc.	500,000
Helix Group, Inc.	220,000
Water Systems Consulting	150,000
Remaining Budget	2,385,000
Total	$93,800,000

Second Lower Feeder Project Schedule



Board Options

- Option #1

  Review and consider Addendum No. 5 to the certified 2017 Programmatic Environmental Impact Report for the Prestressed Concrete Cylinder Pipe Rehabilitation Program, and

  a. Award a $68,847,000 contract to J.F. Shea Construction, Inc. to rehabilitate Reach 3B of the Second Lower Feeder; and

  b. Authorize an access and permitting agreement with the city of Lomita in an amount not to exceed $310,000.

- Option #2

  Do not move forward to rehabilitate Reach 3B of the Second Lower Feeder at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- **Board of Directors**
  Engineering, Operations, and Technology Committee

1/10/2023 Board Meeting

7-3

Subject

Review and consider Addendum No. 3 to the certified 2005 Environmental Impact Report; award a $59,489,720 contract to James W. Fowler Company for construction of the Interstate 215 freeway tunnel crossing for the Perris Valley Pipeline; and authorize agreements with Parsons Environment & Infrastructure Group, Inc. for $1 million to provide technical support during construction, Mott McDonald Group for $3.5 million to provide construction management support, and Rincon Consultants, Inc. for $250,000 to provide specialized environmental support

Executive Summary

Eastern Municipal Water District (Eastern) and Western Municipal Water District (Western) of Riverside County have both requested additional deliveries from the Henry J. Mills Water Treatment Plant to meet current and future demands. The Perris Valley Pipeline project allows Metropolitan to meet projected treated water demands in Riverside County; maximize use of the Mills plant; strengthen water delivery system reliability; and increase operational flexibility in this portion of Metropolitan's service area. Although mostly completed in 2011, the southern portion of the pipeline has remained out of service until a tunnel crossing of the Interstate 215 freeway can be completed. This action awards a contract to construct the last remaining portion of the pipeline. This contract will be conducted under the terms of Metropolitan's project labor agreement (PLA). This action also authorizes agreements with Parsons Environment & Infrastructure Group, Inc. for technical support during construction, Mott McDonald Group for construction management support during construction, and Rincon Consultants for specialized environmental services.

Details

Background

The 96-inch-diameter Perris Valley Pipeline is approximately 6.5 miles long and has four service connections with a combined capacity of 375 cubic feet per second. The pipeline starts at the Mills plant and runs easterly along Alessandro Boulevard for approximately 2 miles, then continues south for approximately 4.5 miles. The route runs adjacent to Interstate 215 and a railroad line, with a tunnel crossing necessary for each. The terminus of the pipeline is at Harley Knox Boulevard.

The pipeline is being constructed in four stages. The initial portion of the Perris Valley Pipeline, consisting of the tie-in to the Mills plant and an initial service connection, was completed in 2006. Construction of the 2.5-miles long North Reach was completed in 2008, while the 3.5 miles South Reach was largely completed in 2011.

As construction of the South Reach was nearing completion, a dramatic downturn in the economy resulted in much lower water demands and demand projections. At that same time, the South Reach contractor encountered greater than anticipated groundwater flow at the Interstate 215 freeway tunnel crossing that would have required a change of conditions with considerable extra cost. Rather than negotiate a non-competitive cost for completion of the tunnel crossing, the crossing was deleted from the contract, and completion was deferred due to the reduced demands. In recent years, potential water supply demands in this portion of Riverside County have accelerated. As a result, both Eastern and Western have formally requested that construction of the remaining Interstate 215 tunnel crossing portion of the Perris Valley Pipeline be completed. Completion of this portion of the pipeline will allow water deliveries through the southernmost service connections of the pipeline to begin by fiscal year 2024/25.

In accordance with the April 2022 action on the biennial budget for fiscal years 2022/23 and 2023/24, the General Manager will authorize staff to proceed with construction of the Perris Valley Pipeline Interstate 215 Tunnel Crossing, pending board award of the contract described below. Based on the current Capital Investment Plan (CIP) expenditure forecast, funds for the work to be performed pursuant to this action during the current biennium are available within the CIP Appropriation for Fiscal Years 2022/23 and 2023/24 (Appropriation No. 15525). Funds required for work to be performed pursuant to the subject contract after fiscal year 2023/24 will be budgeted within the CIP Appropriation for fiscal years 2024/25 and 2025/26. This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP evaluation team to be included in the System Flexibility/Supply Reliability Program.

Perris Valley Pipeline Interstate 215 Tunnel Crossing – Construction

The scope of the contract includes construction of four tunnel access shafts, construction of approximately 3,000 feet of tunnel in three sections between the shafts, and installation of temporary support in the form of a steel casing; installation of a 97-inch inside diameter steel pipe inside the tunnel casing; field welding the pipe joints; grouting the annular space between the steel pipe and the tunnel casing; mortar lining the inside of the steel pipe; settlement monitoring; and groundwater dewatering and treatment. Due to high groundwater levels and potential groundwater contamination with per-and polyfluoroalkyl substances (PFAS), the contractor is required to comply with the requirements of the permit issued to Metropolitan by the Santa Ana Regional Water Quality Control Board. If encountered in the groundwater during construction, the contractor will be required to treat perfluoro octane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) to non-detect levels. Metropolitan force activities will include shutdown of the pipeline and establishment of clearances, final disinfection, water quality testing, and return of the pipeline to service.

A total of $75 million is required for this work, including the cost of the construction contract. Allocated funds for professional agreements include $1 million for construction support by Parsons Environment & Infrastructure Group, Inc., $3.5 million for specialized tunnelling construction management support by Mott McDonald Group, $250,000 for environmental services by Rincon Consultants, Inc., and $240,000 for PLA administration under an existing board-authorized agreement. The new agreements are further detailed below. In addition, $500,000 is necessary for right of way acquisition of temporary access and storage areas. Allocated funds for Metropolitan staff activities include $600,000 for shutdown-related activities; $3,100,000 for construction management and inspection; $769,000 for submittals review and preparation of record drawings; $2,080,000 for contract administration, environmental monitoring support, project controls, PLA administration, and project management; and $3,471,280 for remaining budget. **Attachment 1** provides the allocation of the required funds.

Award of Construction Contract (James W. Fowler Co.)

Specifications No. 1928 for construction of the Interstate 215 freeway tunnel crossing for the Perris Valley Pipeline was advertised for bids on August 17, 2022. As shown in **Attachment 2**, two bids were received and opened on December 1, 2022. The low bid from James W. Fowler Company in the amount of $59,489,720 complies with the requirements of the specifications. The higher bid was $67,880,500, while the engineer's estimate for this project was $74,000,000. Staff investigated why the low bid was significantly lower than the engineer's estimate and attributes the difference to the conservative estimating approach by Metropolitan related to projected inflationary labor components of the project, as well as potential risks that were priced into the estimate associated with material procurement and supply chain issues. For this contract, Metropolitan established a Small Business Enterprise (SBE) participation level of at least ten percent of the bid amount. James W. Fowler has committed to meet this level of participation. The subcontractors for this contract are listed in **Attachment 3.** This contract will be conducted under the terms of Metropolitan's PLA.

This action awards a $59,489,720 contract to James W. Fowler Company for the construction of the Interstate 215 freeway tunnel crossing for the Perris Valley Pipeline. The total cost of construction for this project is $60,089,720, which includes the amount of the contract ($59,489,720) and Metropolitan force activities ($600,000). Engineering Services' performance metric target range for inspection of projects with construction greater than $3 million is 9 to 12 percent. For this project, the performance metric goal for inspection is 11.0 percent of the total construction cost.

Technical Engineering Support During Construction (Parsons Environment & Infrastructure Group, Inc.) – New Agreement

Parsons Environment & Infrastructure Group, Inc. (Parsons) prepared the final design of the Perris Valley Pipeline Interstate 215 freeway tunnel crossing through an on-call agreement that has since expired. As the engineer of record, Parsons is recommended to provide technical support during construction. This support includes review of submittals received from the contractor, responding to requests for information, advising the inspectors on technical issues as they may arise, and preparing record drawings. The estimated cost for Parsons to provide these services is $1 million. For this agreement, Metropolitan has established an SBE participation level of 25 percent. Parsons has agreed to meet this level of participation. The planned subconsultants for this agreement are Brierley Associates and DRP Engineering.

This action authorizes an agreement with Parsons for a not-to-exceed amount of $1 million to provide technical support for construction of the Interstate 215 freeway tunnel crossing of the Perris Valley Pipeline.

Construction Management Support (Mott McDonald Group) – New Agreement

Given the complexity of the tunnelling operation for the Perris Valley Pipeline Interstate 215 freeway tunnel crossing, staff recommends the use of a hybrid team of in-house staff and an outside consultant experienced in this type of specialized work to perform construction management of this contract. Mott McDonald Group is recommended to provide specialized construction management support services for the Perris Valley Pipeline Interstate 215 freeway tunnel crossing. Mott McDonald Group was prequalified under Request for Qualifications No. 1298. Mott McDonald Group was selected for this project based on their qualifications, experience with similar projects, and technical approach and methodology.

The planned activities for Mott McDonald Group to support the in-house staff include providing technical support during construction, conducting field inspection during the tunnelling activities, review of tunnel submittals, and additional as-needed support to Metropolitan's general construction management activities. Anticipated consultant staff on the project will include: a construction manager experienced in tunnel construction, an assistant resident engineer, a chief inspector, tunnel inspectors, and field engineers and geologists with tunnel construction experience. For this agreement, Metropolitan has established an SBE participation level of 25 percent. See **Attachment 4** for the planned subconsultants.

This action authorizes an agreement with Mott McDonald Group for a not-to-exceed amount of $3.5 million to provide construction management support for the Perris Valley Pipeline Interstate 215 crossing project.

Specialized Environmental Services (Rincon Consulting, Inc.) – New Agreement

Rincon Consulting, Inc. (Rincon) is recommended to prepare environmental monitoring services for construction of the Perris Valley Pipeline Interstate 215 tunnel . Rincon was prequalified through Request for Qualification No. 1265. Rincon was selected for this project based on the firm's extensive experience with CEQA compliance and environmental clearances, and its specific experience with facility environmental investigations and documentation.

The planned scope of work includes a preconstruction survey of the work site, environmental awareness training, construction monitoring, including nesting bird surveys, and general support.

This action authorizes a new agreement with Rincon for a not-to-exceed amount of $250,000 for environmental monitoring for the Perris Valley Pipeline Interstate 215 tunnel. There are no planned subconsultants for this work.

Alternatives Considered

Alternatives considered for completing construction management of the Perris Valley Pipeline Interstate 215 crossing included assessing the availability and capability of in-house Metropolitan staff to conduct this construction support work. Metropolitan's staffing strategy for utilizing consultants and in-house Metropolitan staff has been: (1) to assess current work assignments for in-house staff to determine the potential availability of staff to conduct this work; and (2) for long-term rehabilitation projects, when resource needs exceed available in-house staffing or require specialized technical expertise.

In the case of this project, Metropolitan staff maintains the core competencies and technical capabilities to perform the general construction management of the project as well as performing inspection for the civil design work. The consultant will be relied upon to support construction management of the specialized tunnelling activities, review of tunnel submittals, and additional as-needed support to Metropolitan's general construction management activities. In this manner, in-house staff will continue to address a baseload of work on capital projects, while the professional services agreement will be relied upon to perform work that falls outside of the core competencies of in-house staff. This approach will allow for the efficient, competent, and timely completion of this project.

In addition, during the planning and design stage of this project, staff considered several different pipeline alignments, some of which consisted of a combination of tunnels and pipelines. After an assessment of construction risks, including groundwater infiltration into tunnel shafts and pipeline trenches, PFAS treatment requirements, and potential disruption to aboveground facilities owned by others, the current all-tunnel alignment was selected to mitigate risks and cost-effectively meet water-demand objectives.

Summary

This action awards a construction contract for the Interstate 215 freeway tunnel crossing for the Perris Valley Pipeline and authorizes agreements with: (1) Parsons Environment & Infrastructure, Inc. to provide technical support during construction, (2) Mott McDonald Group for construction management support services, and (3) Rincon Consulting, Inc. for environmental monitoring. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, **Attachment 3** for the Subcontractor of Low Bid, **Attachment 4** for the Planned Subconsultants for Mott McDonald Group, **Attachment 5** for the Location Map, and **Attachment 6** for Addendum No. 3 to the certified 2005 Environmental Impact Report.

Project Milestone

December 2024 – Completion of construction

Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11100: Environmental Matters

By Minute Item 52778, dated April 12, 2020, the Board appropriated a total of $600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

Pursuant to the provisions of CEQA and the State CEQA Guidelines, Western Municipal Water District, acting as Lead Agency, prepared and processed a Final Environmental Impact Report (Final EIR) for the proposed project. The Final EIR was certified, and the project was approved by the Lead Agency on December 7, 2005. The Lead Agency also approved the Findings of Fact (Findings), the Statement of Overriding Considerations (SOC), and the Mitigation Monitoring and Reporting Program (MMRP). Metropolitan, as a Responsible Agency under CEQA, certified that it had reviewed and considered the information in the certified Final EIR and adopted the Lead Agency's Findings, SOC, and MMRP on December 21, 2005, and has assumed responsibilities for the final design and construction of the proposed project.

On April 9, 2021, Addendum No. 3 to the Final EIR was prepared to document the proposed minor modifications to the approved project as described in this letter. CEQA and State CEQA Guidelines require the preparation of an addendum to a previously certified EIR if changes or additions are necessary, but none of the conditions calling for the preparation of a subsequent EIR have occurred (Section 15164 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Review and consider Addendum No. 3 to the certified 2005 Environmental Impact Report and:

a. Award a $59,489,720 contract to James W. Fowler Company for construction of the Interstate 215 freeway tunnel crossing for the Perris Valley Pipeline.
b. Authorize an agreement with Parsons Environment & Infrastructure Group, Inc., for $1 million to provide technical support during construction.
c. Authorize an agreement with Mott McDonald Group, for $3.5 million to provide construction management support.
d. Authorize an agreement with Rincon Consultants, Inc., for $250,000 to provide specialized environmental support.

Fiscal Impact: Expenditure of $75 million in capital funds. Approximately $60 million will be incurred in the current biennium and has been previously authorized. The remaining funds from this action will be accounted for and appropriated under the next biennial budget.

Business Analysis: This option would improve Metropolitan's ability to meet water demands in the Riverside County region.

Option #2

Do not proceed with this project at this time.
Fiscal Impact: None
Business Analysis: This option would reduce system reliability and operational flexibility within this portion of Metropolitan's distribution system.

Staff Recommendation

Option #1

12/19/2022
John V. Bednarski *Date*
Manager/Chief Engineer
Engineering Services

12/21/2022
Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Subcontractors for the Low Bidder

Attachment 4 – Planned Subconsultants

Attachment 5 – Location Map

Attachment 6 – Addendum No. 3 to the Final EIR

Allocation of Funds for Perris Valley Pipeline Interstate 215 Freeway Tunnel Crossing

	Current Board Action (Jan. 2023)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt., permitting, contract admin, & environmental monitoring)	2,080,000
Submittals Review & Record Drwgs.	769,000
Construction Inspection & Support	3,100,000
Metropolitan Force Construction	600,000
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Parsons Environmental & Infrastructure Group, Inc.	1,000,000
Mott McDonald Group	3,500,000
Rincon Consulting, Inc.	250,000
PLA Administration	240,000
Right-of-Way	500,000
Equipment Use	-
Contracts	-
James W. Fowler, Co.	59,489,720
Remaining Budget	3,471,280
Total	$ 75,000,000

The total amount expended to date for the Perris Valley Pipeline Interstate 215 crossing project is approximately $7.6 million. The total estimated cost to complete this pipeline project, including the amount appropriated to date and funds allocated for the work described in this action, is $82.6 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on December 1, 2022, at 2:00 P.M.

Specifications No. 1928
Perris Valley Pipeline Interstate 215 Freeway Tunnel Crossing

This work includes constructing approximately 3,000 linear feet of 97-inch diameter welded steel pipe installed in steel casing by micro-tunneling and cut and cover, and four tunnel access shafts; installing cathodic protection test stations and geotechnical instrumentation; and performing groundwater management and treatment, offsite disposal of excavated materials, removal of existing bulkheads, hydrotesting, pipeline disinfection, traffic control, and site restoration.

Engineer's estimate: $74,000,000

Bidder and Location	Total	SBE $	SBE %	Met SBE[1]
James W. Fowler Company Dallas, OR	**$59,489,720**	**$6,371,246**	**11%**	**Yes**
Steve P. Rados, Inc. Santa Ana, CA	$67,880,500	-	-	-

[1] Small Business Enterprise (SBE) participation level established at 10% for this contract.

The Metropolitan Water District of Southern California

Subcontractors for Low Bidder

Specifications No. 1928
Perris Valley Pipeline Interstate 215 Freeway Tunnel Crossing

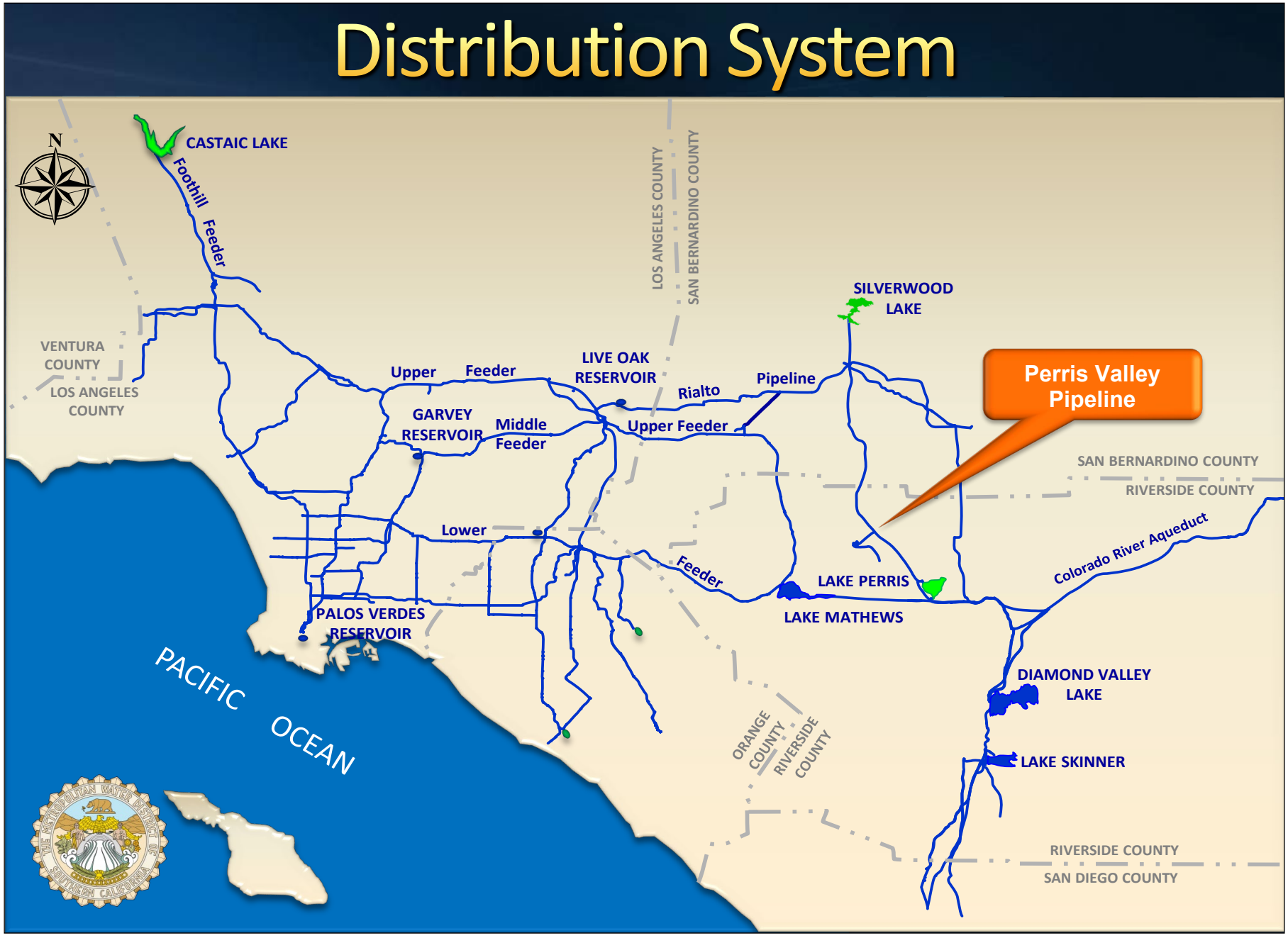
Low bidder: James W. Fowler Company

Subcontractor and Location
National Welding Corporation Midvale, UT
Clear Creek Systems, Inc. Bakersfield, CA
Mahaffey Drilling Co. Compton, CA
Sixense, Inc. Torrance, CA
Rain For Rent Bakersfield, CA

The Metropolitan Water District of Southern California

Subconsultants for Agreement with Mott McDonald Group

Subconsultant and Location
American Safety Group San Diego, California
Black & Veatch Overland Park, Kansas
Coast Surveying Tustin, California
CPM Partners Encinitas, California
FPL & Associates Irvine, California
Group Delta Consultants Irvine, California
Leland Saylor Associates Oakland, California
McMillen Jacobs San Francisco, California
MTGL Anaheim, California


Distribution System
N
CASTAIC LAKE
Foothill Feeder
VENTURA COUNTY
LOS ANGELES COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
Perris Valley Pipeline
Upper Feeder
LIVE OAK RESERVOIR
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Lower Feeder
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
PACIFIC OCEAN
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY

Addendum No. 3
To The Perris Valley Pipeline Project Environmental Impact Report

April 2021

Prepared For:

The Metropolitan Water District of Southern California
Environmental Planning Section
700 North Alameda Street
Los Angeles, California 90012

Prepared By:

Rincon Consultants, Inc.
1980 Orange Tree Lane, Suite 105
Redlands, California 92374

This page left intentionally blank.

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

ADDENDUM NO. 3 TO THE PERRIS VALLEY PIPELINE PROJECT ENVIRONMENTAL IMPACT REPORT

(State Clearinghouse No. 2005061028)

The Metropolitan Water District of Southern California
Environmental Planning Section
700 North Alameda Street
Los Angeles, CA 90012

Contact Information:
Ms. Brenda S. Marines
Environmental Specialist
Office No. (213) 217-7902
Email: bmarines@mwdh2o.com

April 9, 2021

This page left intentionally blank.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

This page left intentionally blank.

Metropolitan Water District of Southern California
Perris Valley Pipeline Project

Addendum No. 3 to the Environmental Impact Report

1 Introduction

1.1 Purpose of Addendum

The purpose of this Addendum is to evaluate potential environmental effects associated with proposed minor modifications to the previously approved Perris Valley Pipeline Project ("Project"). An Environmental Impact Report (EIR) for the Project was prepared and certified by the Western Municipal Water District (WMWD) in 2005, and was reviewed and considered by the Metropolitan Water District of Southern California (Metropolitan) Board as part of its approval of the Project on December 21, 2005. Addendum No. 1 to the Final EIR was approved on May 20, 2008, and Addendum No. 2 was approved on July 15, 2009.

Addendum No. 3 proposes an alternate pipeline realignment across the Interstate 215 (I-215) freeway to minimize tunneling length. Construction and installation of approximately 3,000 feet of underground pipeline would be required using the tunneling method. When completed, the pipeline would provide continuous potable water delivery from Metropolitan's Henry J. Mills Water Treatment Plant (Mills WTP) to regional member agencies identified in the Final EIR. Together, these minor design changes are referred to in Addendum No. 3 as the "proposed modifications."

The proposed modifications are described in detail in Section 2.0 of this Addendum and are summarized as follows:

- Pipeline realignment to minimize the length of tunneling under I-215. The original Project crossed I-215 on a diagonal using tunneling and jack and bore methods, and the current project would cross I-215 at a perpendicular using tunneling method only.
- Tunneling activities to minimize above-ground impacts. Construct three separate tunnels and four boring pits/shafts for tunnel access and ventilation.
- Stagnant water is present in the already-constructed northern and southern segments of the Project. Temporary treatment facilities would treat stagnant water before dewatering at discharge point locations.
- Three temporary treatment facilities installed to treat encountered groundwater from tunnel activities, high total dissolved solids (TDS) and pH levels (high alkalinity), and stagnant water. Temporary dewatering pipelines installed to transport treated water from the temporary treatment facilities to discharge water locations.
- Approximately forty existing dewatering and monitoring wells may be removed and backfilled.

Additionally, Metropolitan actions will include obtaining real property rights from various public agencies (e.g., California Department of Transportation [Caltrans], March Joint Powers Authority [MJPA], Riverside County Transportation Commission/Burlington Northern Santa Fe [RCTC/BNSF], Southern California Regional Rail Authority [SCRRA], U.S. Department of Veterans Affairs, Riverside County Flood Control and Water Conservation District, Federal Aviation Administration, WMWD, Eastern Municipal Water District [EMWD]), and other private owners to complete the proposed Project.

These rights may include easements, licenses, leases, permits, or other rights which will be acquired through agreements with the underlying property owners, or through condemnation actions, as necessary and appropriate. This document, along with the previous CEQA documents, may be reviewed and considered by other agencies responsible for additional discretionary approvals related to the Project.

To comply with the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000 et seq.) and *Guidelines for Implementation of the CEQA* (California Code of Regulations Sections 15000 et seq., hereinafter referred to as *State CEQA Guidelines*), this Addendum No. 3 has been prepared to evaluate the potential environmental impacts associated with the proposed modifications as described in detail in Section 2.0.

1.2 Regulatory Background

According to Section 15164(a) of the *State CEQA Guidelines*, the Lead Agency or Responsible Agency shall prepare an addendum to a previously certified EIR or adopted negative declaration if some changes or additions are necessary, but none of the changes call for preparation of a subsequent EIR or negative declaration (see CEQA Guidelines Section 15162). Section 15162 of the *State CEQA Guidelines* lists the conditions that would require the preparation of a subsequent EIR or negative declaration rather than an addendum. These include the following:

(1) Substantial changes are proposed in the Project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the Project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time of the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

   (A) The Project will have one or more significant effects not discussed in the previous EIR or negative declaration;

   (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

   (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the Project, but the Project proponents decline to adopt the mitigation measure or alternative; or

   (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the Project proponents decline to adopt the mitigation measure or alternative.

Metropolitan has evaluated the potential environmental impacts of the proposed modifications as outlined in Section 3.0 of this Addendum. As noted in Section 6.0, *Conclusion*, of this Addendum, Metropolitan, acting as the Lead Agency, has determined that none of the conditions described in Section 15162 of the *State CEQA Guidelines* apply, and an addendum is the appropriate environmental documentation for the proposed modifications and fully complies with CEQA and the *State CEQA Guidelines*.

1.3 Summary of Environmental Effects

Section 3.0 of this Addendum presents an analysis of potential environmental impacts related to aesthetics, air quality, biological resources, cultural resources, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, transportation, tribal cultural resources, and wildfire associated with the proposed modifications. For all other resource categories identified in the CEQA Appendix G Checklist (e.g., agriculture, geology and soils, land use and planning, mineral resources, population and housing, public services, recreation, utilities and service systems), the certified 2005 EIR found that the Project would either have no impact, a less than significant impact, or a less than significant impact with mitigation incorporated. For these categories, the proposed modifications would not generate new significant environmental effects that were not previously addressed, nor would they substantially increase the severity of previously identified significant effects identified in the Project's original environmental documentation. Therefore, no further written analysis in this Addendum is required.

The certified 2005 EIR and Mitigation Monitoring and Reporting Program (MMRP) included mitigation measures for six resource areas - air quality, cultural resources, hazards and hazardous materials, hydrology and water quality, noise, and traffic - to reduce significant environmental impacts associated with the approved Project to the maximum extent practicable. The currently proposed modifications would be subject to the same adopted mitigation measures, as applicable. Mitigation measures adopted in the certified 2005 EIR remain unchanged.

This Addendum concludes that the proposed modifications would not change the significance determinations of the certified 2005 EIR regarding construction and operational impacts on the identified impact categories: aesthetics, air quality, biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality, noise, and transportation. Also, because analyses of greenhouse gas emissions, tribal cultural resources, and wildfire were not required when the original Project EIR was certified, brief discussions of impacts on these resource categories are included. The proposed modifications to the previously approved Project do not meet any of the conditions that would require the preparation of a subsequent EIR or negative declaration set forth in Section 15162 of the *State CEQA Guidelines* or any of the conditions requiring the preparation of a supplement to an EIR as set forth in Section 15163 of the *State CEQA Guidelines.*

1.4 Incorporation by Reference

The following documents were used in the preparation of this Addendum and are incorporated herein by reference, consistent with Section 15150 of the *State CEQA Guidelines*.

- *Perris Valley Pipeline Project Draft Environmental Impact Report.* Western Municipal Water District. (SCH No. 2005061028), October 2005.
- *Perris Valley Pipeline Project Final Environmental Impact Report*. Western Municipal Water District. (SCH No. 2005061028), December 2005.
- Addendum No. 1 to the Final Perris Valley Pipeline Project Environmental Impact Report. The Metropolitan Water District of Southern California. May 2008.
- Addendum No. 2 to the Perris Valley Pipeline Project Environmental Impact Report. The Metropolitan Water District of Southern California. July 2009.

2 Description of the Proposed Modifications

2.1 Background

As mentioned previously, the Project was analyzed in an EIR prepared and certified by WMWD on December 21, 2005. Metropolitan took over the design and construction of the Project in 2007, and Metropolitan's Board of Directors adopted the EIR and its MMRP and mitigation obligations in 2007. Subsequently, Metropolitan prepared Addendum No. 1 and No. 2, approved on May 20, 2008 and July 15, 2009, respectively. The objectives of the Project are to (1) meet existing and projected treated water demands in Riverside County, (2) maximize existing water treatment facilities, (3) strengthen water delivery system reliability and increase operational flexibility, and (4) provide a secure source of water to regional member agencies, as described in the certified 2005 EIR.

The Project, which was previously approved, permitted and is almost complete, consists of the construction, operation and maintenance of approximately six miles of the Perris Valley Pipeline and appurtenances, four service connections, and four pump stations. The Project alignment traverses the cities of Perris and Riverside as well as unincorporated Riverside County and is located almost entirely within the WMWD service area, with a small portion near the southern terminus extending into the EMWD service area. Both WMWD and EMWD provide wholesale and retail water to their respective service areas and purchase supplemental, imported water from Metropolitan.

2.2 Project Location and Project Description

The Project area is generally located off the Van Buren Boulevard and I-215 freeway interchange, on land owned by Caltrans, MJPA, RCTC/BNSF, and other private owners. The project would impact surrounding areas that parallel I-215, located within approximately 300 feet east and west of the freeway, from Van Buren Boulevard to Harley Knox Boulevard in unincorporated Riverside County. The regional location of the proposed modifications is depicted in Figure 1.

Metropolitan proposes to modify the Perris Valley Pipeline alignment, where it crosses I-215, from the alignment reviewed and certified in the 2005 EIR. The modifications would include the relocation of the tunnel undercrossing located near the RCTC/BNSF railroad tracks and I-215 from a point south of Van Buren Boulevard to a point just north of Van Buren Boulevard (Tunnel 1). The tunnel would veer in a southwesterly direction along the eastern side of I-215 and Van Buren Boulevard (Tunnel 2), and under the northwestern portion of the March Air Field Museum, and into the Van Buren Boulevard right-of-way (ROW) to connect with the already-constructed southern segment of the Project (Tunnel 3). The modifications would shorten the length of the alignment that would traverse beneath I-215, at approximately 3,000 linear feet, which is effectively the same as the length of the originally approved alignment in this area. Each tunnel activity would require approximately sixteen weeks.

The proposed modifications would include installation of temporary dewatering facilities such as temporary groundwater conveyance lines, a temporary conveyance line delivering treated water from the Mills WTP, and three temporary treatment plants. All the temporary facilities (e.g., groundwater conveyance lines, Mills WTP water conveyance lines, treatment plants) would be installed at-grade and no trenching is proposed.

The Project would also include decommissioning and removal of approximately 40 existing dewatering and monitoring wells. The groundwater dewatering wells were previously constructed as part of the construction of the Perris Valley Pipeline Project and are no longer required. Well decommissioning activities would occur over approximately eight weeks.

Construction access would be provided via existing paved and unpaved roads following the RCTC/BNSF railroad tracks, dirt roads associated with the already-constructed segments of the Project, and dirt and gravel access roads for public utility access near Van Buren Boulevard and the MJPA property line. The existing appurtenant facilities (e.g., blow-off valves, air release/vacuum relief valve assemblies, and access manholes), service connections, and pump stations would not be affected by the proposed modifications. Existing manholes, along the existing Perris Valley Pipeline, would be used for ingress/egress for pipeline cleaning activities and ventilation. Figure 2 shows the general Project location and Figure 3, Figure 4, and Figure 5 show the detailed proposed modifications (tunnels, temporary facilities, wells).

The realignment proposed in this Addendum would not result in an increase in the number of workers at the Project area during the operational phase compared to activities previously analyzed in the certified 2005 EIR. Given that the operational regime of the pipeline would not change as a result of the proposed realignment, this Addendum focuses on the construction aspect of the proposed modifications to the Project.

Figure 1 Regional Location

Imagery provided by Esri and its licensors © 2018.

★ Project Location

N

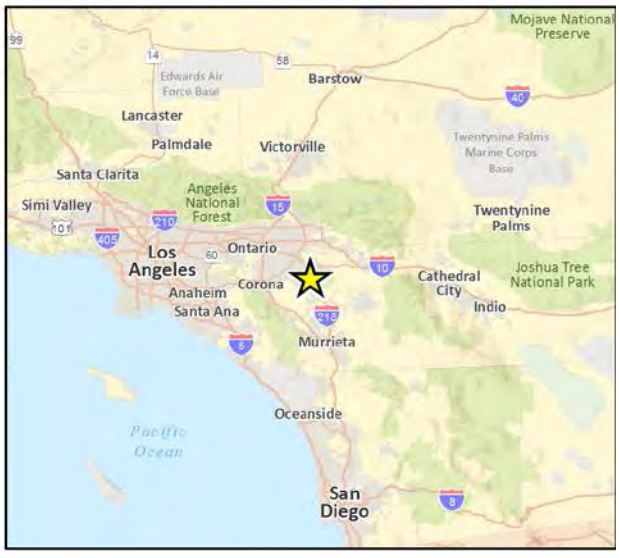


Figure 2 Project Location

Figure 3 Proposed Modifications (1 of 3)

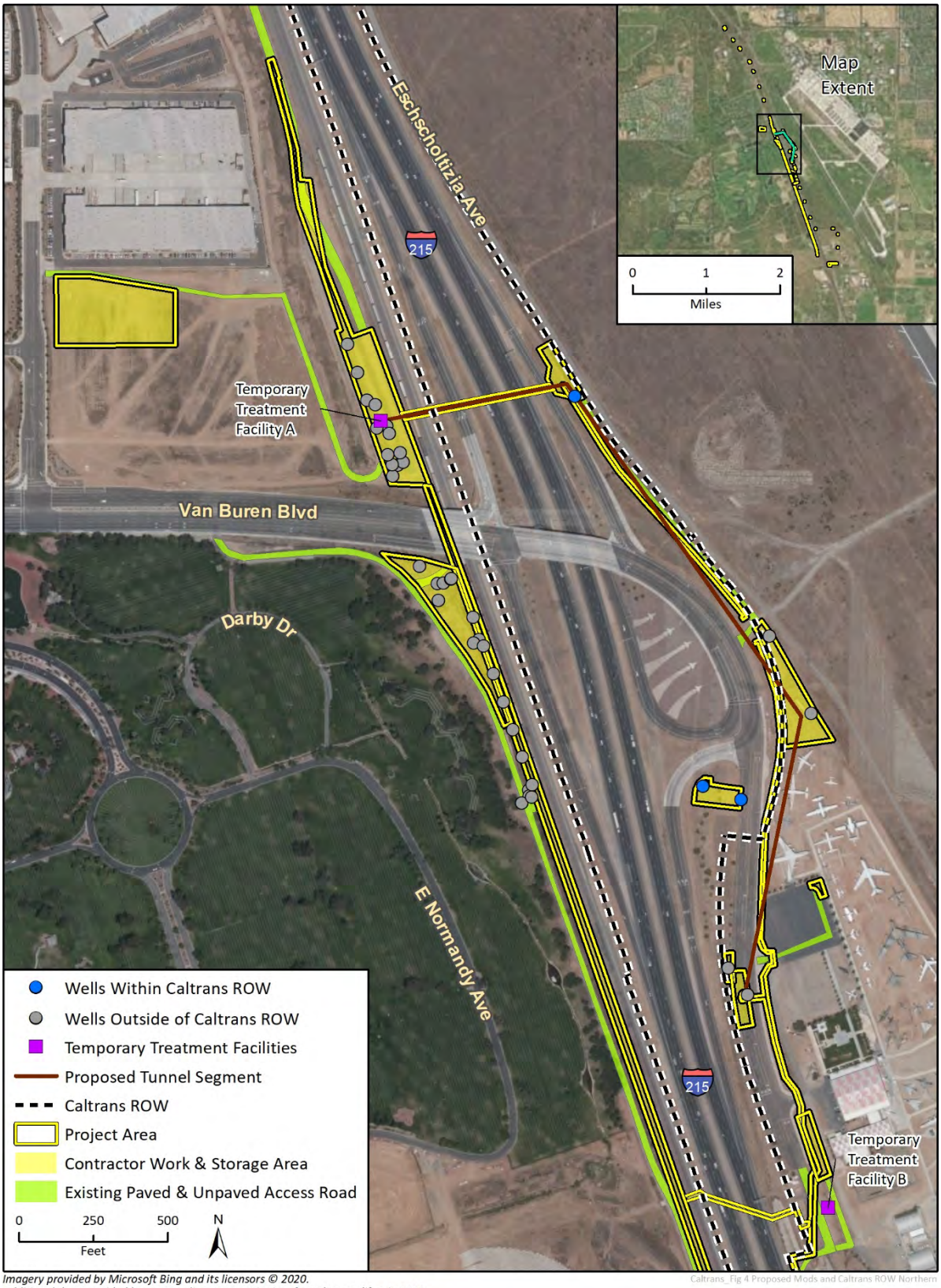


Figure 4 Proposed Modifications (2 of 3)

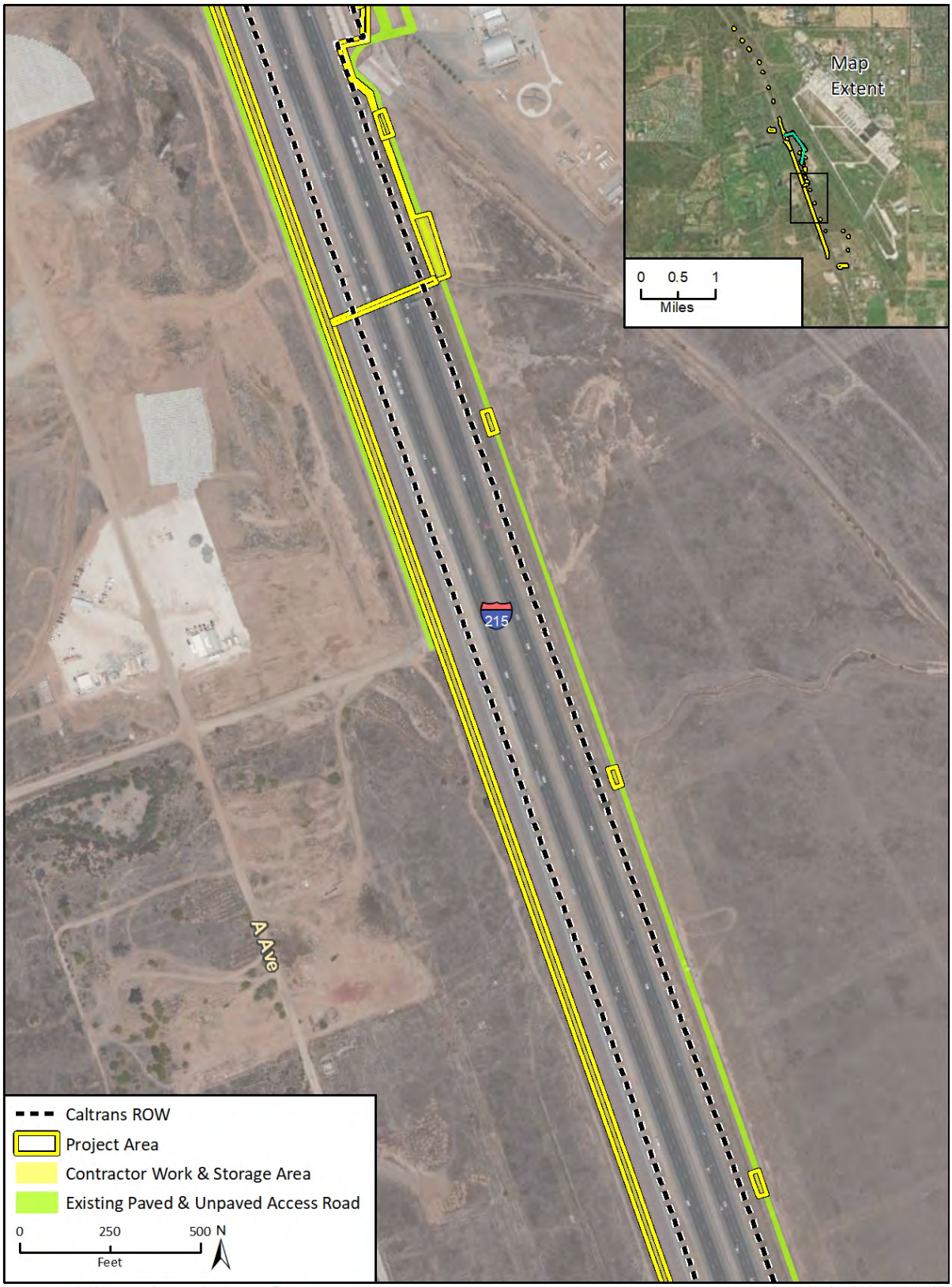
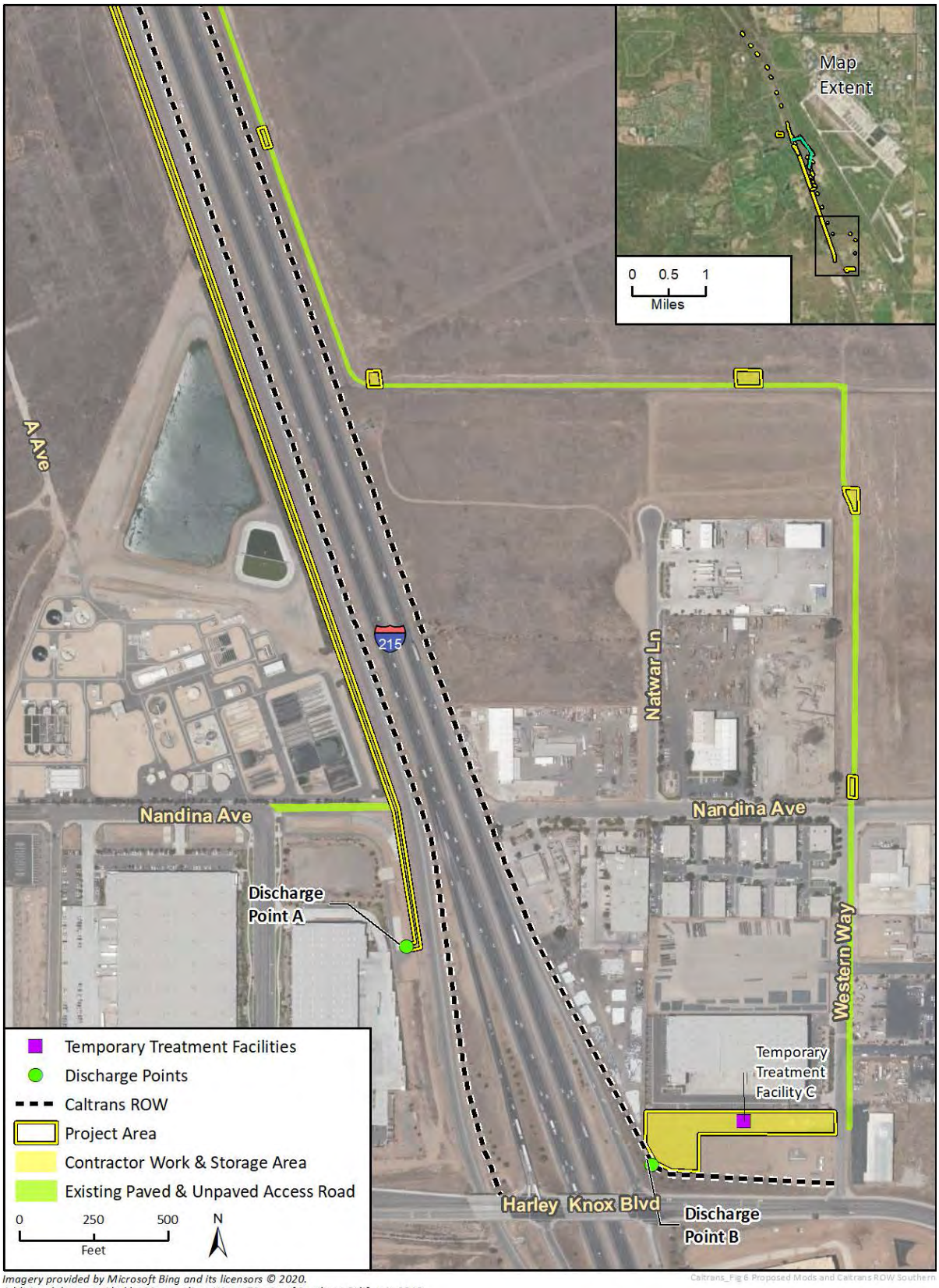


Figure 5 Proposed Modifications (3 of 3)



3 Environmental Setting and Analysis

This section presents an analysis of environmental impacts related to aesthetics, air quality, biological resources, cultural resources, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, transportation, tribal cultural resources and wildfire associated with the proposed modifications.

3.1 Aesthetics

The certified 2005 EIR prepared for the original Project concluded that potential environmental impacts to aesthetics would be less than significant. This section provides an analysis of the potential aesthetic impacts associated with the proposed modifications to the Project.

3.1.1 Setting

As described in the certified 2005 EIR, from virtually any place in the Project area, there is an overall view of distant mountains and nearby hills. Rock outcroppings accent the hillsides and provide a distinct texture to the landscape. Other dominant features in the landscape include the March Air Reserve Base, the I-215 freeway, the RCTC/BNSF railroad tracks, and commercial and industrial development.

According to the Riverside County General Plan (County of Riverside 2017), there are no designated State or County scenic highways within the Project area.

3.1.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate impacts to aesthetics associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications would introduce new significant impacts or substantially increase the severity of previously identified significant impacts associated with:

a) A substantial adverse effect on a scenic vista

b) Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway

c) In an urbanized area, a conflict with applicable zoning and other regulations governing scenic quality

d) Creation of a new source of substantial light or glare which would adversely affect day or nighttime views in the area

3.1.3 Potential Impacts

Scenic Vista

The Riverside County General Plan addresses scenic resources in both the Land Use Element (County of Riverside 2019) and the Circulation Element (County of Riverside 2017). The Riverside County General Plan does not specifically designate scenic vistas, but it does identify policies to protect and maintain resources along scenic highways. There are no designated State or County scenic highways within the Project area.

The proposed modifications would not introduce new significant impacts to a scenic vista. Construction of the proposed modifications would be visible from surrounding land uses and would temporarily alter the existing visual character and quality of the Project area and vicinity. However, the modifications would not permanently affect any of the aboveground components of the Project. Construction activities would be temporary and localized. Upon completion of construction, the proposed modifications would be located entirely underground and would not be visible. The proposed modifications would not substantially change the aesthetic character of aboveground structures and would not result in permanent changes affecting scenic vistas. Therefore, no impacts to scenic vistas would occur.

Scenic Resources

According to the Riverside County General Plan (County of Riverside 2017), there are no designated State or County scenic highways within the Project area. Furthermore, as previously discussed, upon completion of construction, the proposed modifications would be located entirely underground and would not be visible. No trees, rock outcroppings, or historic buildings within a State scenic highway would be affected. Consequently, no impacts to scenic resources visible from a State scenic highway would occur.

Zoning and Other Regulations

The proposed modifications are located in unincorporated Riverside County and the city of Perris. Pursuant to California Government Code 53091(d) and (e), the Project, including the proposed modifications, would not be subject to the design review policies contained in the County's or City's zoning regulations. Local zoning and building ordinances do not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water.

As previously discussed, there are no designated State or County scenic highways within the Project area. Therefore, the proposed modifications would not conflict with Riverside County General Plan policies governing scenic quality. As such, the proposed modifications would not cause the Project to conflict with applicable zoning and other regulations governing scenic quality. No impacts would occur related to zoning ordinances or regulations governing scenic quality.

Light or Glare

During construction, tunnel boring and receiving pits would be dewatered. Construction dewatering would occur for the duration of excavation activities associated with tunneling. Dewatering would require continuous operation of approximately six pumps at the treatment facilities, and would require nighttime lighting.

Construction lighting may be visible from surrounding roadways and other land uses, but the lighting would not face toward adjacent uses and would be directed downwards towards pipeline installation activities. The land uses surrounding the Project area are primarily industrial and commercial. The nearest receptors sensitive to light trespass or glare are residences located over 5,000 feet west of the proposed tunneling activities near the I-215/Van Buren Boulevard interchange. Any construction lighting used would be shielded to minimize impacts to any nearby receptors. As such, light and glare from nighttime construction activities would not substantially disturb sensitive receptors. Following the completion of construction dewatering activities, temporary treatment facilities would be removed, and the general area would be returned to its existing conditions. Therefore, the proposed modifications would not result in any new significant impacts related to light and glare. This impact would be less than significant, consistent with the certified 2005 EIR.

3.1.4 Conclusion

The proposed modifications would not result in any new significant impacts to aesthetics or substantially increase the severity of impacts already identified in the certified 2005 EIR. Impacts would be similar to those determined in the certified 2005 EIR. Therefore, impacts to aesthetics would be considered less than significant and no further mitigation is required.

3.2 Air Quality

The certified 2005 EIR prepared for the original Project concluded that potential environmental impacts to air quality would be significant and unavoidable after the incorporation of mitigation. This section provides an analysis of the potential air quality impacts associated with the proposed modifications to the Project.

3.2.1 Setting

As described in the certified 2005 EIR, the Perris Valley Pipeline Project site, which includes the Project area, is located in the South Coast Air Basin (Basin), which is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD monitors ozone, carbon monoxide, nitrogen dioxide and suspended particulates in the Basin and compares the concentrations of those pollutants to State and federal standards.

The Basin is in non-attainment for the federal standards for ozone and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), as well as lead in Los Angeles County only. Also, the Basin is in non-attainment for the State standards for ozone, particulate matter less than 10 microns in diameter (PM_{10}), and $PM_{2.5}$, as well as lead in Los Angeles County only (SCAQMD 2016). The nonattainment status is a result of several factors, the primary ones being the naturally adverse meteorological conditions that limit the dispersion and diffusion of pollutants, the limited capacity of the local airshed to eliminate pollutants from the air, and the number, type, and density of emission sources within the Basin.

The SCAQMD considers air quality sensitive receptors to be residences, hospitals, convalescent facilities, and other places where it is possible for an individual to remain for 24 hours. Commercial and industrial facilities are not considered sensitive (SCAQMD 2008a). Therefore, the closest sensitive receptors to the Project area are residences located over 5,000 feet west of the project components near the I-215/Van Buren Boulevard interchange, approximately 2,800 feet northeast of the work area near the I-215/Cactus Avenue interchange, and a residence located approximately 1,900 feet southwest of the Project components near the I-215/Harley Knox Boulevard Interchange.

3.2.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate impacts to air quality associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications would introduce new significant impacts or substantially increase the severity of previously identified significant impacts associated with:

a) A conflict with or obstruction of implementation of the applicable air quality plan

b) A cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard

c) Exposure of sensitive receptors to substantial pollutant concentrations

d) Other emissions (such as those leading to odors) adversely affecting a substantial number of people

The SCAQMD provides significance thresholds (see Table 1) to determine the potential impacts of the proposed modifications for CEQA significance thresholds b) and c). These thresholds are the same as those applied in the certified 2005 EIR, with the exception of $PM_{2.5}$ which was not previously evaluated.

Table 1
SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NO_x	100 lbs/day	55 lbs/day
Volatile Organic Compounds (VOC)	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
Sulfur oxide (SO_x)	150 lbs/day	150 lbs/day
Carbon monoxide (CO)	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden >0.5 excess cancer cases (in areas ≥ 1 in 1 million) Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Greenhouse gases (GHG)	10,000 MT/yr CO_2eq for industrial facilities	
Ambient Air Quality for Criteria Pollutants		
Nitrogen dioxide (NO_2) 1-hour average annual arithmetic mean	SCAQMD is in attainment; the project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM_{10} 24-hour average annual average	 10.4 μg/m^3 (recommended for construction) & 2.5 μg/m^3 (operation) 1.0 μg/m^3	
$PM_{2.5}$	10.4 μg/m^3 (construction)e & 2.5 μg/m^3 (operation)	
Sulfur dioxide (SO_2) 1-hr average 24-hr average	 0.25 ppm (state) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	 25 ug/m^3 (state)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; the project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day average Rolling 3-month average Quarterly average	 1.5 ug/m^3 (state) 0.15 ug/m^3 (federal) 1.5 ug/m^3 (federal)	

KEY: lbs/day = pounds per day ppm = parts per million ug/m^3 = microgram per cubic meter ≥ greater than or equal to
Source: SCAQMD 2015.

The SCAQMD has also developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4)[1] that was prepared to update the SCAQMD's CEQA Air Quality Handbook. LSTs are voluntary thresholds that represent the maximum emissions from a project that would not cause or contribute to an air quality exceedance of the most stringent applicable federal or State ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source-receptor area (SRA), project size, and distance to the sensitive receptor. LSTs only apply to emissions in a fixed stationary location and do not apply to mobile sources, such as cars on a roadway (SCAQMD 2008). As such, LSTs are typically applied only to construction emissions. LSTs have been developed for emissions within areas up to five acres in size, with air pollutant modeling recommended for activity within larger areas. The Project area is located in SRA 24, Perris Valley. Pipeline tunneling and minimal trenching for placement of temporary dewatering facilities are the primary components of the proposed modifications that would involve daily site disturbance. Decommissioning of dewatering and monitoring wells would occur at the rate of approximately one well per day, resulting in minor site disturbance area. To establish LSTs for the Project, the Project area was determined to be approximately 3.1 acres in size, based on the size of work areas around all tunnel pits, temporary water treatment facilities, and eight approximately 40-foot long segments of temporary dewatering and potable water conveyance lines that would be installed via trenching. Therefore, LSTs for a two-acre site were used to provide a conservative analysis. LSTs are provided by SCAQMD for sensitive receptors at a distance of up to 1,640 feet (500 meters) from the Project area. Because the nearest sensitive receptors are located approximately 1,900 feet from the Project area—which is in excess of the furthest distance established by SCAQMD of 1,640 feet—LSTs for receptors at 1,640 feet were used to provide a conservative analysis. See Table 2 for LSTs. LSTs are determined by both the size of the project footprint and the proximity to sensitive receptors, with projects closer to sensitive receptors having lower LSTs. Therefore, the LSTs presented in Table 2 are substantially higher than those applied in the certified 2005 EIR because the proposed modifications are located further from sensitive receptors than other previously constructed segments of the pipeline.

Table 2
SCAQMD LSTs for Construction

Pollutant	Allowable Emissions for a 2-acre Site in SRA 24 for a Receptor 1,640 Feet Away
Gradual conversion of NO_X to NO_2	684
CO	18,947
PM_{10}	186
$PM_{2.5}$	91

Source: SCAQMD 2009.

3.2.3 Potential Impacts

Air Quality Management Plan

Generally, to be consistent with an Air Quality Management Plan (AQMP), a project must not result in or contribute to an exceedance of the forecasts in the applicable plan(s). The certified 2005 EIR determined that the original Project was consistent with SCAQMD's 2003 AQMP because it served development approved in the general plans on which the AQMP is based. Similarly, the modified Project, including the

[1] The Governing Board's Environmental Justice Enhancement Initiative (1-4) refers to the first four original Environmental Justice Initiatives outlined here: http://www.aqmd.gov/nav/about/initiatives/environmental-justice/environmental-justice-initiatives

proposed modifications, would serve development approved in the current general plan upon which the 2016 AQMP is based. The proposed modifications would not directly or indirectly increase the population or result in a change in land use that would result in air contaminant emissions. As stated in Section 2.2, *Project Location and Project Description,* the proposed modifications would not require any additional workers during the operational phase of the Project. The certified 2005 EIR estimated there would be a maximum of 10 workers onsite during construction at any one time. Construction of the proposed modifications would generally involve similar construction techniques and, consequently, would require a similar number of workers at the Project area as activities previously analyzed in the certified 2005 EIR. Well-decommissioning activities would require a crew of up to four people and were not evaluated in the certified 2005 EIR. As such, the proposed modifications would be expected to require a maximum of 14 workers onsite during construction at any one time. Construction workers for the proposed modifications would be onsite temporarily, and it is not expected that they would permanently relocate to the area. The Project, including the proposed modifications, is therefore consistent with the 2016 AQMP. Construction of the proposed modifications would not increase the population of the area, and no impacts would occur.

Criteria Pollutants and Sensitive Receptors

The certified 2005 EIR concluded that construction emissions would exceed the SCAQMD regional thresholds for $NO_{X,}$ and LSTs for NO_X, CO, and PM_{10}. Therefore, implementation of Mitigation Measure AIR-1 was required. However, the certified 2005 EIR determined that incorporation of Mitigation Measure AIR-1 would not reduce air quality impacts to a less than significant level.

AIR-1 The construction management entity(ies) shall include the following mitigation measures in its/their standard construction specifications:

- Maintain construction equipment engines by keeping them properly tuned
- Use clean and low-sulfur fuel for equipment
- Provide particulate traps and oxidation catalysts on construction equipment
- Spread soil binders on-site, where appropriate, unpaved roads and staging areas
- Water site and equipment in the morning and evening
- Suspend grading activities during first and second stage smog alters and during high winds by SCAQMD Rule 403 requirements
- If necessary, wash off trucks leaving the site
- Cover haul trucks

This mitigation measure was implemented during construction of portions of the original Project that have already been completed, and will be implemented during construction of the remaining portions of the Project, including the proposed modifications. The proposed modifications, similar to the Project activities analyzed under the certified 2005 EIR, will include construction activities that would generate temporary emissions. Exhaust emissions such as PM_{10}, CO, NO_X, and reactive organic gases (ROG)/VOC[2] associated with truck trips, haul trips, and diesel construction equipment would potentially

[2] Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air

degrade air quality. The air emissions modeling conducted for the original Project estimated the maximum daily air pollutant emissions associated with seven work areas of the Project carrying out construction activities concurrently. The number of construction activities occurring at any one time under the proposed modifications would be fewer than what was used to determine the maximum daily air pollutant emissions in the certified 2005 EIR. Construction methods, duration, and fleet requirements for the Project would not change substantially from what was previously analyzed in the certified 2005 EIR as a result of the proposed modifications because the original Project also called for tunneling/jack and bore construction methods for pipeline installation under the I-215 freeway. Finally, the emission factors associated with the use of heavy-duty construction equipment would be lower than those used to predict air pollutant emissions in the certified 2005 EIR because of improvements in technology and efficiency since 2005.

The original Project emissions were estimated based on the 2005 emissions factors from SCAQMD. Construction emissions associated with the proposed modifications were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2, a modeling tool that the California Air Pollution Control Officers Association developed for use throughout the State to estimate construction emissions from land use development. Metropolitan provided the construction schedule and equipment information that was used in CalEEMod to model emissions associated with the proposed modifications. Construction of the proposed modifications would adhere to all applicable regulatory standards. For construction emissions modeling, it was assumed that construction of the proposed modifications would comply with SCAQMD Rule 403, which identifies measures to reduce fugitive dust and is required to be implemented at all construction sites located within the Basin. Pursuant to Metropolitan's environmental specifications and consistent with the California Air Resources Board's (CARB) In-Use Off-Road Diesel-Fueled Fleets Regulation, the contractor would be required to use off-road construction equipment that meets or exceeds U.S. EPA Tier 4 emissions standards, or at a minimum Tier 3 or Tier 2 standards with the highest level of available emission control equipment where Tier 4 equipment is not available. However, for a more direct comparison with emissions quantified for the approved Project, emissions modeling for the proposed modifications does not account for engine tiering standards and, therefore, provides a conservative estimate of construction-related emissions.

Construction would involve the use of approximately five generators: two 1,200 kW generators (one at Tunnel Pit 1, one at Tunnel Pit 3), two 60 kW generators (one at Tunnel Pit 2, one at Tunnel Pit 3), and a 100kW generator to power construction trailers near the March Air Field Museum. Generators and pumps were assumed to operate for 24 hours per day for the duration of excavation, tunneling, and dewatering activities at each tunnel pit. While not expected to occur frequently during construction activities, it is possible that all generators may operate simultaneously. To account for the potential for all generators to operate at the same time, generator operating phases were made to overlap in CalEEMod to account for this worst-case scenario in the maximum daily emissions. Finally, it was assumed that installation of temporary construction dewatering facilities, including installation of treatment facilities and dewatering discharge lines, would occur prior to excavation of tunnel pits or pipeline installation. Therefore, site preparation and installation of temporary water treatment facilities and trenching to install temporary dewatering discharge lines were modeled separately in CalEEMod. Other activities, such as cleaning and disinfection of the existing pipeline and placement of temporary dewatering discharge and potable water conveyance lines are not anticipated to require the use of heavy equipment or substantial ground disturbance and, as such, were not modeled in CalEEMod. See Appendix A for air quality modeling assumptions and results.

quality perspective two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC).

As shown in Table 3, the estimated maximum daily construction emissions would not exceed SCAQMD regional or localized significance thresholds for ROG, CO, SO_2, PM_{10}, and $PM_{2.5}$. However, as with the original Project, maximum daily construction emissions associated with the construction of the proposed modifications would exceed the SCAQMD regional significance threshold for NO_X, and temporary air quality impacts would be potentially significant. Metropolitan would implement Mitigation Measure AIR-1 described in the certified 2005 EIR during the construction of the proposed modifications to reduce NO_X emissions; however, mitigation would not reduce impacts below the level of significance.

The certified 2005 EIR identified exceedances of SCAQMD's LSTs for CO, NO_x, and PM_{10}. The proposed modifications, however, would not result in any exceedances of SCAQMD LSTs. As mentioned, the nearest sensitive receptor to the location of the proposed modifications is a residence approximately 1,900 feet southwest of the proposed blended water discharge point near the I-215/Harley Knox Boulevard interchange. Given the distance of sensitive receptors from the Project area, temporary nature of construction emissions, and the fact maximum daily emissions would not exceed LSTs established by SCAQMD; no sensitive receptors would be exposed to substantial pollutant concentrations. Therefore, construction-related air quality impacts would remain significant and unavoidable, similar to what was described in the certified 2005 EIR, but the proposed modifications would not substantially increase the severity of this impact.

Table 3
Estimated Unmitigated Maximum Daily Construction Emissions

Construction Year	Emissions (pounds per day)					
	ROG	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Installation of Temporary Dewatering Discharge and Treatment Facilities						
Maximum Daily Emissions	**0.8**	**7.9**	**8.0**	**<0.1**	**0.9**	**0.6**
SCAQMD Regional Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No
SCAQMD LSTs	*n/a*	*684*	*18,947*	*n/a*	*186*	*91*
Threshold Exceeded?	n/a	No	No	n/a	No	No
Pipeline Tunneling, Excavation Pit Dewatering, and Well Decommissioning Activities						
2021	45.5	628.0	269.2	1.0	22.8	18.5
2022	39.3	551.2	242.6	0.9	17.0	14.3
Maximum Daily Emissions	**45.5**	**628.0**	**269.2**	**1.0**	**22.8**	**18.5**
SCAQMD Regional Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	Yes	No	No	No	No
SCAQMD LSTs	*n/a*	*684*	*18,947*	*n/a*	*186*	*91*
Threshold Exceeded?	n/a	No	No	n/a	No	No

LSTs = Localized Significance Thresholds

Source: See Appendix A for CalEEMod calculations and assumptions.

Notes: All numbers have been rounded to the nearest tenth. Emission data is pulled from "mitigated" results, which account for compliance with regulations. Emissions presented are the highest of the winter and summer modeled emissions.

No change in permanent, long-term operational air pollutant emissions would occur as a result of the proposed modifications because pipeline operations would be substantially the same as those analyzed under the certified 2005 EIR. Therefore, operational impacts to air quality associated with the proposed modifications would not result in a new or substantially more severe significant impact than previously identified in the certified 2005 EIR.

Objectionable Odors

As discussed in the certified 2005 EIR, the original Project includes the construction of a water supply pipeline, and operation would not create or cause objectionable odors; therefore, no impact would occur. Construction activities may result in temporary odors, such as those associated with use of gasoline and diesel fuel used to power construction equipment and generators. These odor sources would be temporary in nature and typical of other construction projects using similar equipment in the region. Furthermore, the proposed modifications are not located near any air quality sensitive receptors where construction-related odors would be expected to be disruptive. The proposed modifications would not include any additional odor-generating sources. The proposed modifications would not introduce new odor impacts and would not result in a new or substantially more severe significant impact than what was previously analyzed in the certified 2005 EIR.

3.2.4 Conclusion

The proposed modifications would not result in any new significant impacts to air quality or substantially increase the severity of impacts already identified in the certified 2005 EIR. Unlike the original Project, maximum daily emissions associated with construction of the proposed modifications would not exceed any LSTs established by SCAQMD and would not expose sensitive receptors to substantial pollutant concentrations. Therefore, impacts related to air quality for the proposed modifications would be less than previously identified in the certified 2005 EIR, but would remain significant and unavoidable. The proposed modifications would not substantially increase the severity of air quality impacts and no further mitigation is required.

3.3 Biological Resources

The certified 2005 EIR prepared for the original Project concluded that no potential environmental impacts to biological resources would occur. This section provides an analysis of the potential biological resource impacts associated with the proposed modifications.

3.3.1 Setting

A site-specific biological survey was conducted in 2005 to identify and evaluate impacts to biological resources associated with the Project. Survey results were recorded in the certified 2005 EIR. Additionally, a number of reconnaissance-level surveys were performed to assess the proposed modifications footprint. On June 8, 2018, Rincon biologist Lily Sam performed a reconnaissance-level biological resources field survey of the proposed modifications footprint that includes the approximately 3,000-foot segment of the pipeline, work areas, and access roads. On May 24, 2019, Rincon biologist Amy Leigh Trost conducted an additional reconnaissance-level biological field survey of the temporary dewatering facilities which includes the temporary dewatering lines and treatment facility locations. On March 30, 2020, Rincon biologist Jared Reed conducted an additional reconnaissance-level biological field survey of the revised work areas and temporary dewatering facility alignments. On April 23, 2020, Rincon biologist Christina Shushnar conducted an additional reconnaissance-level site visit which

consisted of walking and driving select portions of the Project alignment to assess existing conditions of biological resources present within the location of the proposed modifications and adjacent areas, with particular attention to the dewatering discharge locations. Results of the surveys are documented in a Biological Resources Assessment (BRA) for the proposed modifications (Rincon Consultants 2020a; Appendix B) and the *Biological Resources Memorandum for the Perris Valley Pipeline Modifications Project in the Caltrans Interstate 215 Right-of-Way* (Rincon Consultants 2020b).

The Project area is located within a developed/disturbed transportation corridor, primarily within the rights-of-way of existing dirt and paved roadways including I-215 freeway, Van Buren Boulevard, and the BNSF/RCTC railroad. The Project area and surrounding areas have been heavily developed and disturbed since at least 1994. Portions of the Project area that are not paved and devoid of vegetation consist of patchy, ruderal vegetation including non-native grasses and other weedy plant species, and bare ground. Adjacent land uses include developed and urban areas including the transportation corridors mentioned above, March Air Reserve Base to the east, industrial development to the west/northwest, and Riverside National Cemetery to the west/southwest.

No special status plant or wildlife species were observed during the four field reconnaissance surveys (Rincon Consultants 2020a). The Project is located within a heavily traveled urban transportation corridor with high levels of existing disturbance that is subject to high noise levels which would likely deter most wildlife from long-term use in the area.

3.3.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate impacts to biological resources associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications would introduce new significant impacts or substantially increase the severity of previously identified significant impacts associated with:

a) An adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS)

b) An adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS

c) An adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means

d) Interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

e) A conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

f) A conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plans

3.3.3 Potential Impacts

Special Status Species

As discussed in the certified 2005 EIR, no impacts to special status species were expected to occur as a result of the implementation of the original Project because none were present. As expected, no impacts to special status species have occurred to date during the construction of the Project.

As described in the BRA for the proposed modifications to the Project (Rincon Consultants 2020a; Appendix B), 14 sensitive plant species and 38 sensitive wildlife species are known to occur or have potential to occur within a five-mile radius of the site. Two sensitive plant communities, southern cottonwood riparian forest and southern sycamore alder riparian woodland, were identified within five miles of the Project area. Due to the lack of specific habitats or suitable substrates as well as the high levels of historical and existing disturbance, sensitive plant species are not expected to occur within the Project area.

Of the 38 sensitive wildlife species identified, 36 of these species are not expected to occur due to lack of suitable habitat (e.g., riparian, scrub, woodland). The remaining two species with the potential to occur within the Project area are burrowing owl (*Athene cunicularia*) and California horned lark (*Eremophila alpestris actia*). Construction activities associated with the proposed modifications are primarily located within existing dirt and paved roadways and will be installed underground with surfaces returned to pre-Project conditions following the completion of construction.

No special-status wildlife species were observed during the four reconnaissance surveys, and the potential for these species to occur is low due to the Project's location within a heavily traveled urban transportation corridor and high levels of existing disturbance which would likely deter individuals from long-term use of the Project area. However, construction activities associated with the proposed modifications will occur for approximately 52 weeks which would overlap with the nesting bird season. Metropolitan will implement standard best management practices (BMPs), including pre-construction nesting bird/burrowing owl surveys and avoidance/implementation of no-work buffers as appropriate, to ensure that no direct or indirect impacts to sensitive wildlife species or nesting birds would occur as a result of construction activities. Implementation of these standard BMPs would be required as part of Metropolitan's standard contractor specifications.

The proposed modifications to the Project would not result in new or substantially more severe significant impacts than what was previously analyzed in the certified 2005 EIR. No impact to special status species would occur.

Riparian Habitat, Wetlands, or Sensitive Natural Communities

As discussed in the certified 2005 EIR, no riparian habitat, protected wetlands, or sensitive natural communities were present in the Project area, and implementation of the original Project was expected to have no impact on these resources. The Project is almost complete, and no riparian habitat, protected wetlands, or sensitive natural communities were encountered to date during the prior construction phases of the Project. The adopted MND for the I-215/Van Buren Boulevard Interchange Project identified small areas of potentially jurisdictional wetlands, coastal sage scrub, and southern willow scrub within the Biological Study Area for that project (Caltrans 2009). However, none of those identified communities are located within the Project area.

As discussed in the BRA for the proposed modifications (Appendix B), several potentially State and/or federal jurisdictional features have been identified adjacent to the proposed realignment; however, a

formal jurisdictional delineation was not conducted. Therefore, the information below provides a general assessment of potentially jurisdictional features and does not provide a formal assessment of specific agency jurisdiction for each feature. Based on a review of existing data, including review of aerial imagery and the USFWS NWI (2020c), and on-site observations, several potentially jurisdictional features are present within or adjacent to the Project area, including the following:

- A constructed earthen storm channel is located east of I-215 off-ramp and north of Van Buren Boulevard but outside of the Project work limits. The channel conveys stormwater flows from north to south and supports low growing herbaceous vegetation as well as avian species. No standing water was observed in the storm channel during the April 2020 site visit.
- An existing detention basin is present west of the I-215 on-ramp and north of Van Buren Boulevard. The detention basin supports various grasses and shrubs and provides foraging and nesting habitat for avian species. A small pond of standing water was present within the detention basin during the April 2020 site visit.
- A small depression is present within the surrounding disturbed non-native grassland habitat located east of 1-215 between the I-215 off-ramp and Van Buren Boulevard just across from the March Air Field Museum. It is adjacent to, but outside, the Project work limits. The depression contains areas with bare soil in contrast to the dense non-native grasses in the surrounding areas. The depression has cracked soils, indicating water may have collected for brief periods following storm events that has since percolated into the ground or evaporated. No wet areas were observed within the depression during the April 2020 site visit following a wet winter with relatively recent rains. The depression is surrounded by stakes and fencing, indicating that it may have been previously fenced or flagged from another project.

All three features (storm channel, detention basin, depression) described above are located outside of the proposed modifications work area, and the proposed modifications have been designed to avoid these potentially jurisdictional features. Additionally, Metropolitan would implement standard BMPs, including flagging work area boundaries and installation of straw waddles and/or silt fencing, to ensure that no direct or indirect impacts to adjacent potentially jurisdictional resources would occur as a result of construction activities. Implementation of these standard BMPs would be required as part of Metropolitan's standard contractor specifications. Therefore, the potentially jurisdictional features described above would not be impacted by the Project.

Tunneling and well decommissioning activities during construction might encounter groundwater. As mentioned in the BRA, project-related groundwater would be discharged at two separate discharge points near the potentially jurisdictional features described below:

- Discharge Point A consists of a partially earthen/partially concrete-lined v-ditch channel, owned and maintained by Riverside County Flood Control and Water Conservation District, which conveys flows from north to south into two large concrete culverts, and is located along the west side of I-215 near a warehouse complex. Review of aerial imagery indicates that the channel originates from underground approximately 400 feet north and 350 feet west of Discharge Point A. At Discharge Point A the channel is devoid of vegetation and does not provide habitat for sensitive biological resources. No riparian vegetation or wildlife were observed at this location. A small amount of water was present within the channel during the April 2020 site visit.
- Discharge Point B consists of a concrete-lined trapezoidal channel, owned by EMWD, which conveys flows from north to south along the east side of I-215. Review of aerial imagery indicates that Discharge Point B likely connects with Discharge Point A upstream approximately 1,000 feet northwest of Discharge Point B. At Discharge Point B, the channel is devoid of

vegetation and does not provide habitat for sensitive biological resources. No riparian vegetation or wildlife were observed at this location. The channel was dry at the time of the April 2020 site visit. The channel conveys flows underground to the south and into Lateral B.

- Lateral B is a 30-foot wide partially concrete-lined and partially earthen flood control channel maintained by Riverside County Flood Control and Water Conservation District. At Heacock Street, Lateral B transitions from a fully concrete-lined channel with rip-rap into a trapezoidal-shaped earthen channel. At this location the Lateral B channel exhibits signs of regular disturbance including erosion from flows transitioning from the concrete channel into an earthen channel, other water flows entering the channel, trash dumping, and mowing for weed abatement. A small amount of ponded water was present at the time of the April 2020 site visit which appeared to support several avian species including barn swallows and killdeer. At this location the channel was mostly devoid of vegetation with the exception of a few weedy herbaceous species. No riparian vegetation was observed. Ground squirrel burrows were present within the earthen banks of the channel. Approximately 1,000 feet downstream of Heacock Street, Lateral B was dry and similarly mostly devoid of vegetation. This section of the channel was comprised of very compact soils and showed signs of erosion including incised areas of flow concentration within the larger channel bottom and some areas of ponded water where deeper pockets had been formed. This portion of the channel also exhibited signs of regular mowing for weed abatement. As Lateral B proceeds downstream toward the Perris Valley Storm Drain, the channel is less disturbed and more densely vegetated. At the inlet of Lateral B to the Perris Valley Storm Drain, the channel supports dense riparian vegetation including large willow trees (*Salix* sp.) and tamarisk (*Tamarix* sp.). At this location, Lateral B contained several inches of standing water and supported various avian species including mallard ducks (*Anas platyrhynchos*) during the April 2020 site visit. Due to the presence of standing water and riparian vegetation, Lateral B is likely subject to the jurisdiction of CDFW and Regional Water Quality Control Board (RWQCB), and potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE).
- Perris Valley Storm Drain is an approximately 300-foot wide partially concrete-lined and partially earthen bottom flood control channel maintained by Riverside County Flood Control and Water Conservation District. At the inlet of Lateral B, the Perris Valley Storm Drain was inundated with at least a foot of standing water and densely vegetated with riparian vegetation including willows, tamarisk and cattails (*Typha* sp.) during the April 2020 site visit. In this location, the Perris Valley Storm Drain supports riparian vegetation and provides foraging and nesting habitat for avian species. The Perris Valley Storm Drain is subject to the jurisdiction of all three regulatory agencies. The Perris Valley Storm Drain is located approximately 2.0 miles from Discharge Points A and B.

Project-related groundwater would be discharged at two separate points and may connect with downstream areas under the jurisdiction of CDFW, USACE, and RWQCB including Lateral B and the Perris Valley Storm Drain. Water would be discharged in accordance with the Project's National Pollutant Discharge Elimination System (NPDES) General Construction Permit and dewatering activities would comply with the conditions of the permit including preparation of a stormwater pollution prevention plan, implementation of BMPs, and monitoring to ensure impacts to water quality are minimized. Metropolitan conducted a hydraulic open channel flow analysis to estimate discharge flow and the potential for erosion/scour within Lateral B and the Perris Valley Storm Drain. The analysis indicated that the depth of discharge flow would be less than three inches with flow velocities around one foot per second. The analysis concluded that the flow velocity for the projected maximum discharge would not result in erosion/scour within Lateral B or the Perris Valley Storm Drain. Refer to the Appendix to the BRA for photographs of the potentially jurisdictional features described herein.

Additionally, based on a review of historical aerial imagery, Lateral B and the Perris Valley Storm Drain are routinely maintained as part of Riverside County Flood Control and Water Conservation District's maintenance program which includes grading and removal of all riparian vegetation within the channels. According to the MND for Riverside County Flood Control and Water Conservation District's Regional Permit for Maintenance of Existing Flood Control Facilities (March 2017), "It is important to note that conducting maintenance on existing flood control facilities is the existing conditions/CEQA baseline; on a daily basis the District currently maintains its facilities." The channels are also previously developed and subject to significant disturbance, including trash dumping and non-natural runoff from adjacent development. Based on this information, the volume of water discharged into the channels from Project dewatering would not adversely affect jurisdictional waters, riparian habitat, or wildlife beyond ambient conditions. Impacts would be less than significant and the proposed modifications would not substantially increase the severity of the impacts identified in the 2005 EIR. The Project is not expected to require regulatory permits from CDFW, RWQCB, or the USACE (e.g, a Lake and Streambed Alteration Agreement from CDFW pursuant to Section 1602 of the California Fish and Game Code, a 404 permit from the USACE pursuant to the Clean Water Act, or a 401 Permit from the RWQCB, pursuant to the Clean Water Act) because the Project would not be expected to result in discharge of dredge or fill into wetlands or waters of the United States; deposit or dispose of debris or waste or other material into any river, stream, or lake; or substantially divert or obstruct the natural flow of or change or use any material from the bed, channel, or bank of any river, stream, or lake

Wildlife Corridors or Nursery Sites

As discussed in the certified 2005 EIR, the original Project is mostly underground and would not interfere with any migratory activities or impact migratory corridors given their absence in the Project area. The adopted MND for the I-215/Van Buren Boulevard Interchange Project similarly found that there are limited wildlife connectivity and no linkages between MSHCP core areas in or near the I-215/Van Buren Boulevard Interchange Project area, which includes the proposed modifications Project area (Caltrans 2009).

As with the original Project, the Project area is not located within any known regional wildlife movement corridor and is not on or adjacent to any existing or proposed linkages between Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) core areas. Given that the Project area is disturbed and surrounded by existing development, there is limited connectivity between it and adjacent habitat areas. The Project area is also not a wildlife nursery site, meaning a site where wildlife are born and young are grown and cared for (Rincon Consultants 2020; Appendix B). Similar to the original Project, the proposed modifications would be installed underground with surfaces returned to pre-project conditions following completion of construction. No structures would be introduced that could physically impede wildlife movement.

Therefore, no impact to wildlife corridors or nursery sites would occur, and the proposed modifications to the Project would not result in new or substantially more severe significant impacts than what was previously analyzed in the certified 2005 EIR.

Stephens' Kangaroo Rat

The proposed modifications are located within the County of Riverside Stephens' Kangaroo Rat Plan and Fee Area. County of Riverside Ordinance No. 663 (Stephens' Kangaroo Rat Mitigation Fee Ordinance) requires that all proposed development projects located within the fee area are reviewed to determine the most appropriate course of action to ensure the survival of the species through one or more of the following: (1) on-site mitigation of impacts to the Stephens' Kangaroo Rat through the reservation or

addition of lands included within or immediately adjacent to a potential habitat reserve site, or (2) payment of the Mitigation Fee or (3) any combination of (1) and (2) consistent with the intent and purpose of the ordinance. The certified 2005 EIR identified no impact to special-status species, including Stephens' Kangaroo Rat, due to low potential for the species to occur on the Project site. Therefore, no potential conflicts with the County's ordinance would occur. As with the original Project, the proposed modifications site lacks suitable grassland, coastal scrub and sagebrush habitat to support Stephens' Kangaroo Rat and is located within a heavily traveled and disturbed transportation corridor primarily within the rights-of-ways of existing dirt and paved roadways. Also, the proposed modifications would be installed underground with surfaces returned to pre-project conditions following completion of construction. Therefore, the proposed modifications would not result in impacts to or loss of suitable habitat for Stephens' Kangaroo Rat. No other resources protected by local policies or ordinances are present within the Project area. Therefore, impacts would be less than significant, and the proposed modifications to the Project would not result in new or substantially more severe significant impacts than what was previously analyzed in the certified 2005 EIR.

Conservation Plans

As discussed in the certified 2005 EIR, the original Project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional or state habitat conservation plan. Similarly, the adopted MND for the I-215/Van Buren Boulevard Interchange Project found that implementation of the Interchange Project, which includes the proposed modifications area, would not have an adverse impact concerning the MSHCP (Caltrans 2009).

The proposed modifications are located in the Western Riverside County MSHCP area. Portions of the Project area are located within the survey area for burrowing owl, but not within a designated survey area identified for any other MSHCP covered species or narrow endemic plant species. The proposed modifications are not located within a criteria cell or Public/Quasi-Public conserved lands. Public/Quasi-Public conserved lands are located approximately 0.5 mile west of the Project area on the opposite side of adjacent industrial development and approximately 1.4 miles east of the Project area on the opposite side of March Air Reserve Base. Based on the proposed modifications' distance and separation from Public/Quasi-Public lands as well as the limited scope and duration of activities (i.e., activities to occur within existing dirt and paved roadways), the proposed modifications are not expected to impact Public/Quasi-Public lands. As discussed in the BRA (Rincon Consultants 2020a; Appendix B), no burrowing owls or their sign were observed during the reconnaissance-level biological resources field survey on June 8, 2018. The potential for burrowing owl to occur is low due to the Project's location within a heavily traveled urban transportation corridor and high levels of existing disturbance which would likely deter individuals from long-term use of the Project area. Also, the proposed modifications would be installed underground with surfaces returned to pre-project conditions following completion of construction. The proposed modifications are not expected to result in impacts to or loss of suitable habitat for burrowing owl and would not conflict with any requirement of the MSHCP. The Project area is not subject to the provisions of any other Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, impacts would be less than significant, and the proposed modifications would not result in new or substantially more severe significant impacts than what was previously analyzed in the certified 2005 EIR.

3.3.4 Conclusion

The proposed modifications would not result in any new significant biological resource impacts or substantially increase the severity of impacts already identified in the certified 2005 EIR. Impacts would

be similar to those identified in the certified 2005 EIR. Therefore, impacts to biological resources would be considered less than significant and no further mitigation is required.

3.4 Cultural Resources

The certified 2005 EIR prepared for the original Project concluded that potential environmental impacts to cultural resources would be less than significant with the incorporation of mitigation. This section provides an analysis of the potential impacts to cultural resources associated with the proposed modifications.

3.4.1 Setting

As discussed in the certified 2005 EIR, 14 cultural resource sites have been identified previously within or near the Project alignment. A field survey of the original Project's alignment conducted on June 8 and 9, 2005 found no evidence of the previously identified cultural resources present within the Project area, and no unidentified resources were discovered. The adopted MND for the I-215/Van Buren Boulevard Interchange Project, which has a project site and Area of Potential Effects (APE) similar to that of the proposed modifications, did not identify any cultural resources within a one-mile radius of the APE or the Project area (Caltrans 2009). No historic properties are located within the boundaries of the original Project.

Rincon Consultants completed pedestrian surveys of the Project area for all proposed modifications on June 26, 2018, August 24, 2018, May 24, 2019, and April 1, 2020. No cultural resources were identified during the surveys.

Rincon Consultants completed a cultural resources record search at the Eastern Information Center for the Project area on June 19, 2018. See Figure 6 for the geographic area covered by the records search. The updated records search did not indicate the presence of any known resources within the Project area.

Portions of the proposed modifications, specifically work areas associated with cleaning and disinfection activities along the already-constructed portions of the pipeline as well as temporary dewatering discharge lines and treatment facilities near the I-215/Harley Knox Boulevard interchange, were not included in the 2018 updated records search or within its 0.5-mile buffer. However, the Project components within this area would not involve ground disturbance, as Project activities consist of pipeline access through existing manholes and temporary dewatering facilities placement located at-grade. For additional discussion of the existing cultural resources setting in the Project area and potential impacts associated with the proposed modifications, refer to the *Cultural Resources Memorandum for the Perris Valley Pipeline Modifications Project Within the Caltrans Interstate 215 Right-of-Way* (Rincon Consultants 2020c).

The adopted MND for the I-215/Van Buren Boulevard Interchange Project identified the Project area as being located on very old alluvial fan deposits of the early Pleistocene age (geologic unit designation: Qvof). These deposits are well-indurated, reddish-brown sand deposits derived mainly from rocks of southern California batholith (United States Geological Survey 2001). According to the Cultural and Paleontological Resources Element of the County of Riverside's General Plan, this geologic unit has been classified as "High Sensitivity (High B)," which indicates that fossils are likely to be encountered at or below four feet (County of Riverside 2016, Figure 4.9.3). The adopted MND for the I-215/Van Buren Boulevard Interchange Project also found that most of the area contains a shallow layer of artificial fill from previous highway construction activities; the fill placement was not documented in available as-built

data but appears to have been derived from excavations of the alluvium during construction of the Van Buren Boulevard bridges over the railroad and I-215 (Caltrans 2009).

3.4.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate impacts to cultural resources associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications would introduce new significant impacts or substantially increase the severity of previously identified significant impacts associated with:

a) A substantial adverse change in the significance of a historical resource pursuant to §15064.5

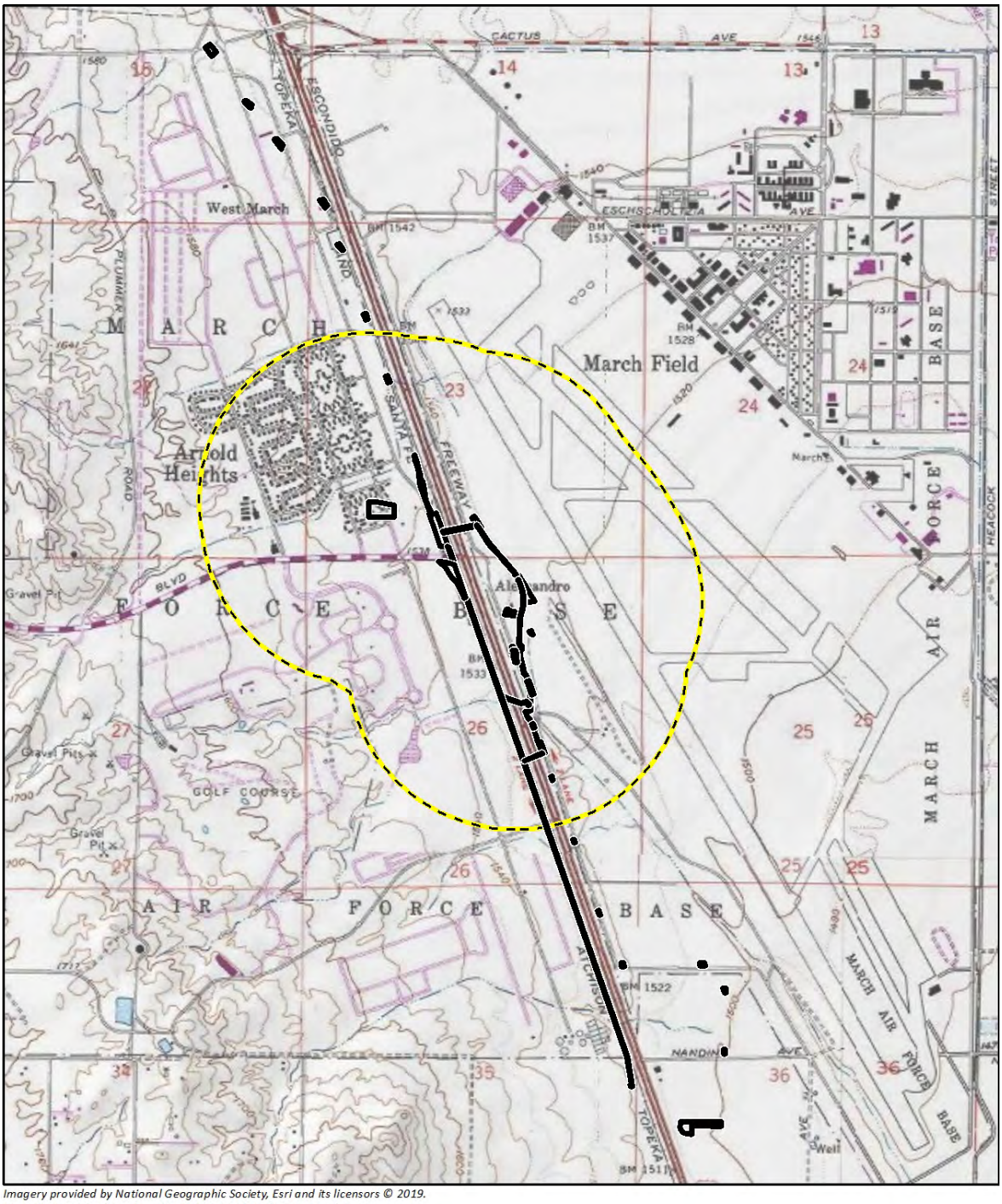
b) A substantial adverse change in the significance of an archaeological resource pursuant to §15064.5

c) Disturbance of any human remains, including those interred outside of formal cemeteries

In addition to the thresholds described above, updates to the CEQA Guidelines that took effect on December 28, 2018 categorized evaluation of impacts to paleontological resources under the Geology and Soils resource. Prior to December 28, 2018, discussion of paleontological resources had previously been evaluated under Cultural Resources, as it was in the certified 2005 EIR. Therefore, for consistency with the certified 2005 EIR, the following threshold is also evaluated in this section:

d) Directly or indirectly destroying a unique paleontological resource or site or unique geologic feature

Figure 6 Cultural Resources Records Search Study Area, June 19, 2018



Imagery provided by National Geographic Society, Esri and its licensors © 2019. Riverside East Quadrangle. T03S R04W S22-27. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

3.4.3 Potential Impacts

Historical Resources

No historical resources were identified within the Project APE in the certified 2005 EIR. Also, the adopted MND for the I-215/Van Buren Boulevard Interchange Project, which has a project site and APE similar to that of the proposed modifications, did not identify any cultural resources within a one-mile radius of the APE or within the I-215/Van Buren Boulevard Interchange project area (Caltrans 2009). The records search performed by Rincon Consultants on June 19, 2018, determined that five built environment resources are located within 0.5-mile of the proposed modifications, which include four structures and the foundation remains of 60 to 70 buildings, all recorded under one primary number. These foundations are likely associated with Camp Haan, a United States Army training camp built in 1940 near March Air Reserve Base. Camp Haan opened in January 1941 as a training facility for Coast Artillery Antiaircraft gunners. The 8,058-acre camp spanned approximately four miles by three miles with tent housing before its closure in 1945. These resources are located outside the Project area and have been recommended as not eligible for the California Register of Historic Resources and are not identified as being associated with any historic districts and therefore would not be directly indirectly impacted by the proposed modifications. Additionally, no historical resources were identified during surveys of the Project area on June 26, 2018, August 24, 2018, May 24, 2019, and April 1, 2020. Therefore, no impact to historical resources would occur.

Archaeological Resources

No cultural resources were identified within a one-mile radius of the APE or the I-215/Van Buren Boulevard Interchange project area (Caltrans 2009). The records search performed by Rincon Consultants on June 19, 2018, determined that no archaeological resources are located within 0.5-mile of the proposed modifications. Surveys of the Project area were completed on June 26, 2018, August 24, 2018, May 24, 2019, and April 1, 2020 and no archaeological resources were observed as part of the surveys.

The proposed modifications would be constructed in an area recently disturbed during Caltrans' construction of the I-215/Van Buren Boulevard Interchange, completed in 2014. Tunneling activities associated with the construction of the proposed modifications would occur approximately 30 to 55 feet bgs, and the discovery of intact archaeological resources and presence of Holocene age sediments with potential to contain such resources is unlikely at these depths. Temporary dewatering discharge lines and potable water conveyance lines would be installed aboveground along existing access roads and parking lots. As a result, the potential for archaeological resources to be identified during ground disturbance in these areas is extremely low, and impacts to archaeological resources would be less than significant. However, because the potential for previously unknown archaeological resources to be discovered cannot be completely dismissed, Mitigation Measure CUL-1, included in the certified 2005 EIR, will be implemented for this phase of the Project in the unlikely event that archaeological resources are encountered. The certified 2005 EIR determined that implementation of mitigation measures would reduce impacts to a less than significant level and the proposed modification are not expected to produce any new or substantially more severe significant impacts to archaeological resources.

CUL-1 If cultural resources are encountered at any time during construction, construction personnel shall avoid altering these materials and their context until a qualified archeologist has evaluated the situation. Project personnel shall not collect or retain cultural resources. Prehistoric resources include but are not limited to: chert or obsidian flakes; projectile points; mortars and pestles; dark, friable soil containing shell and bone; dietary debris; heat-affected rock; or human burials. Historic resources include stone or adobe foundations or walls; structures and remains

with square nails; and refuse deposits (glass, metal, wood, ceramics), often found in old wells and privies.

Human Remains

The certified 2005 EIR determined that although grading activity associated with the Project would be limited, the discovery of human remains is always a possibility during ground-disturbing activities. Therefore, implementation of Mitigation Measure CUL-2 described in the certified EIR, which requires halting work and immediate notification of the County Coroner if human remains are discovered during grading activities, was included to reduce impacts to less than significant.

CUL-2 In the event of an accidental discovery or recognition of any human remains, the County Coroner shall be notified, and construction activities at the affected work site shall be halted. If the remains are found to be Native American, the Native American Heritage Commission shall be notified within 24 hours. Guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

As described previously, construction activities associated with the proposed modifications would extend outside of the original Project boundary considered in the certified 2005 EIR. Mitigation Measure CUL-2 would apply to these activities if human remains are discovered and would reduce impacts to a less than significant level. Therefore, no new or substantially more severe significant impacts to cultural resources would occur as a result of the proposed modifications.

Paleontological Resources

The certified 2005 EIR determined that no impact to paleontological resources was expected to occur since no paleontological resources have been identified over the course of Project construction. The Project area is heavily disturbed due to construction of the existing freeway, railroad, and adjacent development. However, as described in Section 3.4.1, *Setting*, the geologic unit underlying the Project area has been identified as highly sensitive for paleontological resources. The proposed modifications would include excavation to depths of 30 to 55 feet. The certified 2005 EIR acknowledges that jack-and-bore tunneling methods would be required where cut-and-cover construction is not feasible, such as under the I-215 freeway. As such, excavation of tunnel pits and tunneling construction methods are consistent with the construction methods described and analyzed in the certified 2005 EIR.

Metropolitan's standard environmental requirements in its specifications for construction projects (Section 01065 specifications) include the following related to the discovery of paleontological resources:

- If paleontological resources are encountered at the Project area, the contractor shall not disturb the resources and shall immediately:
  - Cease all work within 50 feet of the discovery;
  - Notify the Engineer;
  - Protect the discovery area, as directed by the Engineer; and
  - The Engineer, with the qualified paleontologist, will make a decision of validity of the discovery and designate an area surrounding the discovery as a restricted area. The contractor shall not enter or work in the restricted area until the Engineer provides written authorization.

Given that the Project area is heavily disturbed, no paleontological resources identified during the previous construction of the original Project and Caltrans I-215/Van Buren Boulevard Interchange

Project, and implementation of standard BMPs and construction specifications would protect any paleontological discoveries made during construction of the proposed modifications; no new or substantially more severe significant impacts to paleontological resources would occur.

3.4.4 Conclusion

The proposed modifications would not result in any new significant impacts to cultural resources or substantially increase the severity of impacts already identified in the certified 2005 EIR. Impacts would be similar to those identified in the certified 2005 EIR. Therefore, impacts related to cultural and paleontological resources would be considered less than significant with mitigation incorporated and no further mitigation is required.

3.5 Greenhouse Gas Emissions

This section provides an analysis of the potential greenhouse gases (GHG) emission impacts associated with the proposed modifications to the Project.

3.5.1 Setting

Climate Change and Greenhouse Gases

The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without the natural heat-trapping effect of GHGs, Earth's surface would be about 34°C cooler (California Environmental Protection Agency [CalEPA] 2006). However, emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere to record historic levels. Greenhouse gases emitted in the highest levels from human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Emissions of CO_2 are largely by-products of fossil fuel combustion. Methane emissions result from fossil fuel combustion sources as well as off-gassing associated with agricultural practices and landfills. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizers that contain nitrogen, fossil fuel combustion, and other chemical processes.

Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. According to CalEPA's 2010 Climate Action Team Biennial Report, potential impacts of climate change in California may include loss in snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, increase in lake and water temperatures, and more drought years (CalEPA 2010). While these potential impacts identify the possible effects of climate change at a global and potentially statewide level, in general, scientific modeling tools are currently unable to predict what impacts would occur locally with a similar degree of accuracy.

Regulatory Framework

In response to an increase in man-made GHG concentrations over the past 150 years, California passed Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 codifies the Statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15 percent reduction below 2005 emission levels) and requires the CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires the ARB to adopt regulations to require reporting and verification of statewide GHG emissions.

The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms. In May 2014, the CARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan update defines the CARB's climate change priorities for the next five years and sets the groundwork to reach post-2020 goals outlined in Executive Order (EO) S-3-05 (CARB 2014).

On September 8, 2016, the governor signed SB 32 into law, amending AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for water infrastructure or the water sector. Instead, it recommends that local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of 6 metric tons (MT) of CO_2e by 2030 and 2 MT of CO_2e by 2050 (CARB 2017).

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the Guidelines for the analysis of GHG impacts and feasible mitigation of GHG emissions. The adopted Guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

3.5.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate impacts to GHG emissions associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications would introduce new significant impacts or substantially increase the severity of previously identified significant impacts associated with:

a) The generation of GHG emissions, either directly or indirectly, that may have a significant impact on the environment

b) A conflict with any applicable plan, policy, or regulation adopted to reduce the emissions of greenhouse gases

Under the requirements of SB 97, the Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. With regard to environmental impacts, there are no established federal, State, or local quantitative thresholds applicable to the proposed program to determine the quantity of GHG emissions that may have a significant effect on the environment. The CARB, SCAQMD, and various cities and agencies have proposed, or adopted on an interim basis, thresholds of significance that require the implementation of GHG emission reduction measures. The SCAQMD threshold, which was established in December 2008 and is designed to achieve emission reductions in the Basin consistent with statewide GHG reductions codified under AB 32, considers emissions of over 10,000 MT of CO_2e per year to be significant for industrial projects when SCAQMD is the lead agency. Per the CEQA Guidelines, Lead Agencies have the discretion to formulate their significance thresholds. Therefore, Metropolitan has chosen to apply the 10,000 MT of CO_2e per year threshold to water infrastructure projects in the past and has elected to apply that threshold to GHG emissions associated with the proposed modifications as well. However, this threshold is intended to evaluate a project for consistency with GHG targets established in AB 32, particularly for emissions

occurring by 2020. Because construction of the proposed modifications would extend beyond 2020 through 2022, the 10,000 MT CO_2e per year threshold has been adjusted to demonstrate consistency with 2030 GHG targets established pursuant to SB 32. SB 32 requires the State to further reduce GHG emissions to 40 percent below 1990 levels. Therefore, for the purposes of this analysis, a commensurate 40 percent reduction has been applied to the 10,000 MT CO_2e per year bright-line threshold to reflect the most applicable GHG reduction target based on the anticipated date of Project completion. This reduction results in a bright-line threshold of 6,000 MT CO_2e per year. Based on SCAQMD guidance, construction emissions should be amortized over the life of the project, which is defined by SCAQMD as 30 years, and compared to the applicable interim GHG significance threshold (SCAQMD 2008b). The proposed modifications would realign an unbuilt piece of water supply infrastructure, the Perris Valley Pipeline, with an anticipated life of much more than the standard 30 years used for amortization. Therefore, using the 30-year amortization period provides a conservative analysis.

3.5.3 Potential Impacts

Greenhouse Gas Emissions

As mentioned previously, the GHG resource category was incorporated into the CEQA checklist via amendments to the *State CEQA Guidelines* that went into effect in March 2010, approximately five years after adoption of the certified 2005 EIR. Consequently, no GHG emissions modeling was performed for the certified 2005 EIR. Additional amendments to the *State CEQA Guidelines* effective at the end of 2018 further clarified requirements for analysis of GHG impacts in CEQA documents. Similar to the original Project analyzed in the certified 2005 EIR, the proposed modifications would require construction activities that would generate temporary GHG emissions associated with worker trips, vendor trips, and diesel construction equipment. CalEEMod version 2016.3.2 was used to estimate emissions associated with the construction period, based on parameters such as the duration of construction activity, area of disturbance, and anticipated equipment use during construction, which were provided by Metropolitan. However, construction methods, duration, and fleet required for the Project would not change substantially from what was previously analyzed in the certified 2005 EIR, as the original Project anticipated use of tunneling/jack and bore construction methods under the I-215 freeway. Therefore, construction emissions from the original Project and the proposed modifications would be similar. Complete results from CalEEMod and assumptions can be viewed in Appendix A. As shown in Table 4, construction of the proposed modifications would generate approximately 9,638 MT of CO_2e, or 321.3 MT of CO_2e annually when amortized over a 30-year period (the expected life of projects per SCAQMD guidance).

Table 4
Estimated GHG Emissions during Construction

Year	Emissions (MT of CO_2e)
2021	5,433.6
2022	4,204.4
Total	9,638
Amortized over 30 years	**321.3**
Threshold	**6,000**
Threshold Exceeded?	**No**

Source: CalEEMod outputs (Appendix A)

No change in permanent, long-term operational GHG emissions would occur as a result of the proposed modifications because operational conditions would be similar to pipeline operations analyzed under the certified 2005 EIR. The proposed modifications would not result in new operational emissions above those generated by the original Project. Total emissions would not exceed the adjusted threshold of 6,000 MT of CO_2e per year, and impacts related to GHG emissions would be less than significant. Therefore, the proposed modifications would not result in any new significant or more severe impacts related to GHG emissions.

Consistency with Applicable Plans, Policies, and Regulations

Applicable plans, policies, and regulations adopted to reduce GHG emissions include the CARB's 2017 Scoping Plan and SCAQMD's GHG guidance and thresholds. SCAQMD's GHG policies are intended to ensure that planned development progresses in a manner consistent with the GHG reduction goals identified by AB 32. The original Project and proposed modifications are consistent with the AB 32 Scoping Plan and the 2017 Scoping Plan because they would serve the development approved in the general plans on which these plans are based. The original Project would result in long-term operational GHG emissions from the operation of four pump stations. The proposed modifications would not change the anticipated operations of the four pump stations or the construction methods, duration, or fleet. Therefore, the proposed modifications would not increase GHG emissions compared to the previously original Project, and no impact would occur.

3.5.4 Conclusion

The proposed modifications would not result in any new or more severe significant impacts related to GHG emissions. Therefore, impacts related to greenhouse gases emissions would be considered less than significant and no further mitigation is required.

3.6 Hazards and Hazardous Materials

The certified 2005 EIR prepared for the approved Project concluded that potential environmental impacts to hazards and hazardous materials would be less than significant with mitigation incorporated. This section provides an analysis of the potential impacts to hazards and hazardous materials associated with the proposed modifications.

3.6.1 Setting

The certified 2005 EIR identified three leaking underground storage tank (LUST) sites along Alessandro Boulevard with an open status in 2005. Of these, the Riverside City Fire #9 site is now listed as "Completed – Case Closed"; the Arco #6345 is currently listed as "Open – Remediation as of 11/30/2007"; and the Mobil #18-A3E is listed as "Open – Eligible for Closure as of 5/26/2017" (State Water Resources Control Board 2011, 2017, and 2018). None of these listings are within 0.5 mile of the Project area.

In addition, the certified 2005 EIR identified 27 hazardous waste sites at the March Air Reserve Base, none of which were listed as officially closed in 2005. The certified 2005 EIR did not identify any potential impacts associated with these sites. As of 2009, the March Air Reserve Base determined that 19 of these sites required no further action. The remaining eight sites either contain active land use restrictions (e.g., prohibitions on construction of residential land use), have been capped in place to isolate and prevent the spread of contaminants, or are undergoing continuing remediation. These sites are located approximately 1.0 to 1.9 miles from all ground disturbing work associated with the proposed modifications (March Air Reserve Base 2009).

Seismicity on the Project area was identified in the certified 2005 EIR as a potential hazard; however, the entire southern California region is susceptible to strong ground shaking from severe earthquakes. The certified 2005 EIR did not identify any unique onsite conditions that would exacerbate this hazard. The certified 2005 EIR also determined that no other hazards, including liquefaction, slope instability and erosion, fire, or flooding would affect the Project area.

Groundwater and soils in the Project area contain low levels of per- and polyfluoroalkyl substances (PFAS) compounds, specifically perfluorooctanoate (PFOA) and perfluorooctane sulfonate (PFOS), associated with the release of aqueous film forming foam (AFFF) for firefighting activities at the adjacent March Air Reserve Base between 1970 and 2002. Most of the identified AFFF Release Sites associated with the March Air Reserve Base are located downgradient from the proposed realignment; however, two AFFF Release Sites were identified upgradient from the proposed realignment and present the potential for PFAS impacts to soil and groundwater in the Project area. These Release Sites are located east of I-215, range from approximately 0.17 – 0.5 mile away from the Project area, and may be impacted by dewatering activities associated with the proposed modifications.

In October 2020, Parsons completed a *Data Report on Combined Field Investigations for PFAS, Hydrazine, and Other COCs in Soil and Groundwater* for the proposed realignment (Parsons 2020). As described in the October 2020 Report, Parsons sampled groundwater from six wells within the Project area and soil from four exploratory borings located near the proposed tunneling shafts. Groundwater and soil PFOA and PFOS concentrations were compared to the San Francisco Bay RWQCB's Health Environmental Screening Levels (ESLs) for direct human exposure[3]. For additional information regarding the screening levels used in this analysis, refer to the *Water Quality Memorandum for the Perris Valley Pipeline Modifications Project Within the Caltrans Interstate 215 Right-of-Way* dated March 2021 (Rincon Consultants 2021a).

As summarized in Table 5, concentrations of PFOA and PFOS in groundwater underlying the Project area exceed the San Francisco Bay RWQCB health risk levels, as well as the State Water Resources Control Board (SWRCB) Response Levels and Notification Levels. Soil concentrations of PFOA and PFOS in the Project area do not exceed either the San Francisco Bay RWQCB's Health ESLs or the U.S. Environmental Protection Agency's (U.S. EPA) Regional Screening Levels (RSLs) for human health,

[3] To date, the San Francisco Bay Regional Water Quality Control Board is the only Regional Board to publish Environmental Screening Levels for PFOA/PFOS compounds.

most recently updated in May 2020. Sampling results for perfluorobutanesulfonate (PFBS) are also reported and compared to U.S. EPA RSLs for human health.

Table 5
PFAS Concentrations in Groundwater and Soil within the Project Area

	PFOA	PFOS	PFBS
Groundwater	**(ng/L)**	**(ng/L)**	**(ng/L)**
On-Site Wells	5.9 - 26	1.1 - 23	13 - 57
U.S. EPA Interim Regional Screening Level	40	40	–
Exceeds Screening Level?	No	No	N/A
California Notification Level	5.1	6.5	–
Exceeds California Notification Level?	**Yes**	**Yes**	N/A
California Response Level	10	40	–
Exceeds California Response Level?	**Yes**	No	N/A
San Francisco Bay RWQCB Priority ESL[1]	5.1	6.5	–
Exceeds San Francisco Bay RWQCB Priority ESL	**Yes**	**Yes**	N/A
U.S. EPA Human Health RSL	–	–	400,000
Exceeds U.S. EPA Human Health RSL?	N/A	N/A	No
Soil	**(µg/kg)**	**(µg/kg)**	**(µg/kg)**
On-Site Near Surface Soil Samples	0.15 - 0.46	ND - 0.76	0.035 - 0.067
On-Site Soil Borings	ND - 0.26	ND - 0.91	ND - 0.039
San Francisco Bay RWQCB Health ESL[1]	93	290	–
Exceeds San Francisco Bay RWQCB Health ESL	No	No	N/A
U.S. EPA Human Health RSL[2]	16,000	16,000	16,000,000
Exceeds U.S. EPA Human Health RSL?	No	No	No

PFOA = Perfluorooctanoate; PFOS = Perfluorooctane Sulfonate; PFBS = perfluorobutanesulfonate; RWQCB = Regional Water Quality Control Board; ESL = Environmental Screening Level; RSL = Regional Screening Level; EPA = Environmental Protection Agency; ND = non-detect; ng/L = nanogram per liter (parts per trillion [ppt]); µg/kg = microgram per kilogram (1,000 ppt)

[1] To date, the San Francisco Bay Regional Water Quality Control Board is the only regional board to publish Environmental Screening Levels for PFOA and PFOS.

[2] U.S. EPA Human Health RSL for PFBS as reported in Parsons 2020. U.S. EPA Human Health RSL for PFOS and PFOA as estimated in U.S. Department of Defense Memorandum, *Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program* (October 2019). PFOS and PFOA RSLs estimated in this memorandum using EPA RSL Calculator for Industrial/Commercial Composite Worker Screening Level with Hazard Quotient of 1.0.

Note: Several other PFAS compounds were detected at concentrations exceeding their respective laboratory detection limits in at least one of the soil samples; however, regulatory screening levels have not been established for any of these compounds.

Source: Parsons 2020

Additionally, groundwater and soils in the Project area were tested for the presence of hydrazine, due to use of hydrazine as an emergency fuel source for F-16 fighter jets at March Air Reserve Base. Hydrazine was not detected above laboratory detection limits in any groundwater or soil samples collected and analyzed by Parsons. Sampling and testing of groundwater and soils in the Project area for other volatile organic compounds (VOCs) and metals indicates that concentrations of these constituents of concern do not exceed applicable screening levels, as summarized in Table 6.

Table 6
Concentrations of Additional Constituents of Concern in Groundwater and Soils Within the Project Area

Constituents	On-site Wells/ Soil Borings	Screening Level	Exceeds Screening Level?
Groundwater VOCs	**(µg/L)**	**(µg/L)**	
Hydrazine	ND	0.0011	No[1]
Mono-methyl Hydrazine	ND	–	N/A
1,1-Dimethyl-hydrazine	ND	0.00042	No
Total Petroleum Hydrocarbons (TPH-d)	ND - 24	200	No
PCE	ND - 0.51	5	No
Chloroform	ND - 0.66	80	No
Groundwater Metals	**(mg/L)**	**(mg/L)**	
Calcium	100 - 190	–[2]	N/A[2]
Iron	ND - 0.19	1,400	No
Manganese	38 - 67	–[2]	N/A[2]
Soil VOCs	**(ng/g)**	**(ng/g)**	
Hydrazine	ND	140	No
Mono-methyl Hydrazine	ND	–	N/A
1,1-Dimethyl-hydrazine	ND	24	No

VOC = Volatile Organic Compound; ND = non-detect; TPH-d = Total Petroleum Hydrocarbons in the diesel range; PCE = tetrachloroethene; N/A = not applicable; µg/L = micrograms per liter; mg/L = milligrams per liter; ng/g = nanograms per gram

[1] The laboratory's method detection limit of 0.13 µg/L (130 ppt) for hydrazine in groundwater is higher than the Tapwater RSL of 0.0011 µg/L (1.1 ppt). However, the Tapwater RSL is only applicable when evaluating drinking water itself or a direct source thereof. For the assessment of groundwater, it is more appropriate to compare concentrations to the Maximum Contaminant Level (MCL). However, no MCL has been established for hydrazine. As such, neither soils nor groundwater beneath the Project area are considered impacted by hydrazine (Parsons 2020).

[2] No U.S. EPA Regional Screening Level for Tapwater was available for comparison to calcium and manganese concentrations.

Source: Parsons 2020

For additional discussion of existing hazards and hazardous materials conditions in the Project area, refer to the *Hazardous Materials Memorandum for the Perris Valley Pipeline Modifications Project Within the Caltrans Interstate 215 Right-of-Way* (Rincon Consultants 2021b).

3.6.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate impacts to hazards and hazardous materials associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications would introduce new impacts or substantially increase the severity of previously identified significant impacts associated with:

a) The creation of a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials

b) The creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment

c) The emission of hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school

d) The location of the project on a site that is included on a list of hazardous materials sites compiled under Government Code Section 65963.5 and, as a result, the creation of a significant hazard to the public or the environment

e) For projects located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the creation of a safety hazard or excessive noise for people residing or working in the Project area

f) The impairment of the implementation of or the physical interference with an adopted emergency response plan or emergency evacuation plan

g) The exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires

3.6.3 Potential Impacts

Hazardous Materials and Emissions

As discussed in the certified 2005 EIR, the original Project would involve the temporary use and transport of hazardous materials including fuels, lubricating fluids, and solvents during construction. Accidental spills of materials such as oils, grease, solvents, and other finishing products, may occur over the course of construction. Therefore, implementation of Mitigation Measures HAZ-1, HAZ-2, and HAZ-3 from the 2005 EIR are required to reduce impacts to less than significant. No schools are located within 0.25 mile of the Project area.

The proposed modifications to the Project would require similar construction activities. As described in Section 2.2, *Project Location and Project Description*, the proposed modifications include the use of temporary treatment facilities. Facilities may include the use and storage of treatment chemicals, such as sodium bisulfate and/or citric acid, to adjust the pH of stagnant water within the already-constructed northern and southern segments of the original Project prior to discharge into the storm drain network. Storage of these chemicals would be subject to on-site handling rules and regular inspection for leaks, pursuant to Mitigation Measure HAZ-1 as described in the certified 2005 EIR for the original Project. Such rules include secondary containment for paints, oils, and other construction contaminants. Furthermore, Metropolitan's standard construction specifications (Section 01065) require all hazardous materials to be stored in covered, leak-proof containers when not in use, away from storm drains and heavy traffic areas. Hazardous materials must be stored separately from non-hazardous materials on a surface that prevents spills from permeating the ground surface and in an area secure from unauthorized entry at all times.

As described earlier in Section 3.6.1, *Setting*, soils and groundwater underlying the Project area were sampled, and results indicate they contain low levels of PFAS compounds, specifically PFOA and PFOS. However, the proposed modifications would include treatment of dewatering effluent prior to discharge, testing, and appropriate disposal of all excavated soils. These procedures are described in greater detail under *Hazardous Waste Sites* below. As such, the proposed modifications would not result in new or substantially more severe significant impacts than what was previously analyzed in the certified 2005 EIR. Impacts would remain less than significant with mitigation incorporated.

HAZ-1 The contractor(s) shall enforce strict on-site handling rules to keep construction and maintenance materials out of receiving waters and storm drains. Also, the contractor(s) shall

store all reserve fuel supplies only within the confines of a designated construction staging area, refuel equipment only within the designated construction staging area, and regularly inspect all construction equipment for leaks.

HAZ-2 The contractor(s) shall prepare a *Health and Safety Plan*. The Plan shall include measures to be taken in the event of an accidental spill.

HAZ-3 The construction staging area shall be designed to contain contaminants such as oil, grease, and fuel products so that they do not drain towards receiving waters or storm drain inlets.

Hazardous Waste Sites

LUST Sites

As discussed in the certified 2005 EIR, the Project would potentially affect three active LUST sites along Alessandro Boulevard because petroleum contaminants released at these sites may have migrated off-site to areas that would be excavated for the construction of the Project. The 2005 EIR required the implementation of Mitigation Measure HAZ-4 to reduce impacts associated with excavation and disposal of potentially contaminated soils to a less than significant level.

HAZ-4[4] An electronic "sniffer" or portable VOC detector capable of detecting actionable levels of hydrocarbons shall be employed during excavation activities in proximity to the previously referenced sites. Should actionable levels of contaminants be encountered, these materials shall be removed and disposed of in accordance with applicable guidelines.

The segment of the pipeline along Alessandro Boulevard with potential to encounter contaminated soils associated with these LUST sites has already been constructed. The identified LUST sites are approximately 1.8 miles north of the Project area. Nevertheless, Metropolitan proposes to use an electronic sniffer to detect actionable levels of hydrocarbons during excavation of tunnel boring pits as needed, and Mitigation Measure HAZ-4 would apply. Should actionable levels of hydrocarbons be encountered during construction of the proposed modifications, such materials would be removed and disposed of in accordance with applicable guidelines, pursuant to Mitigation Measure HAZ-4.

Potential Environmental Concern (PEC) Sites

The proposed modifications would move the Project's I-215 undercrossing approximately 100 feet north of its original location, placing it near the I-215/VBB interchange. The Initial Site Assessment (ISA) performed for the adopted MND for the I-215/VBB Interchange Project identified four Installation Restoration Program (IRP)[5] sites and three additional sites located in the I-215/VBB project vicinity as potential environmental concern (PEC) sites,[6] listed below in Table 7.

[4] Mitigation Measure HAZ-4 originally applied to specific workspaces for the original Project in the vicinity of leaking underground storage tank sites, as identified in the certified 2005 EIR. None of these workspaces are located near the proposed modifications. However, construction of the proposed modifications would use an electronic sniffer to detect actionable levels of hydrocarbons during excavation of tunnel boring pits, and Mitigation Measure HAZ-4 would apply.
[5] The IRP is a program developed by the Department of Defense in 1980 to locate and clean up hazardous waste sites.
[6] Sites described in Table 7 were identified in the I-215/VBB Interchange Project IS-MND as potential environmental concern sites for that project. These sites are presented because the analysis in the I-215/VBB Interchange Project IS-MND and EA analyzed an area substantially similar to the location of proposed modifications considered in this Addendum. However, as described in Table 7 and the following discussion, due to the distance from the proposed modifications and remediation status of all seven sites, the proposed modifications would not disturb any of these PEC sites.

Table 7
Previously Identified PEC Sites Located in the Vicinity of the I-215/VBB Interchange Project

PEC Site	Distance from the Project	Description
IRP Site 19	Approximately 1.2 miles south	The site currently contains a water recycling facility. The site formerly contained sludge drying beds and is contaminated with polyaromatic hydrocarbons, polychlorinated biphenyls, hexavalent chromium, and thallium in the surface soil. The site has institutional controls in place in the form of deed restrictions that prohibit residential land use and soil disturbance activities.[1]
IRP Site 22	Approximately 0.2 mile east	The site was a potential landfill on March Air Reserve Base, but after further investigation, was found to have no evidence of a landfill.[1, 2]
IRP Site 24	Approximately 1.2 miles south	The site was a former landfill and was remediated via removal of on-site waste and contaminated soil in 1995. The site was subsequently backfilled with clean soil and revegetated.[1, 2]
IRP Site 43	Approximately 1.3 miles north	The site was a former automotive maintenance area and contained soil contamination from fuels as well as benzene, toluene, ethylbenzene, and xylenes. The site was remediated via removal of contaminated soil. A closure letter from the Santa Ana Regional Water Quality Control Board was issued under the underground storage tank (UST) program prior to the publication of the Second 5-Year Review Report for Former March Air Force Base and March Air Reserve Base California in 2009.[1, 2]
RFA Site C	Within 0.1 mile west	The site was identified as a dry cleaner possibly fueled by a UST. An investigation of the dry cleaner site determined that no data suggests that a UST remains on site or that significant quantities of dry cleaning solvents or other volatile organic compounds have been lost to site soils.[1]
RFA Site Y	Within 0.25 mile west	The site was identified as a possible landfill area. Further investigation determined that the site contained elevated metals concentrations and organic compounds in subsurface samples but that the contaminants had not migrated to downgradient groundwater monitoring wells. Therefore, such constituents would not be anticipated to have migrated to the groundwater underlying the proposed modifications.[3]
EBS A-12.7	Within 0.1 mile east	The site is located on the March Air Reserve Base near Runway 14-32. Investigation of the site determined that lead in the soil at the site was not present at concentrations considered to be a hazardous waste under the criteria cited in California Code of Regulations, Title 22, Division 4.5.[3]

IRP = Installation Restoration Program; RFA = Resource Conservation and Recovery Act Facility Assessment; EBS = Environmental Baseline Survey

[1] March Air Reserve Base. 2003. 5-Year Review Report for Former March Air Force Base and March Air Reserve Base, Riverside County, California. September 2003. https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/7654339015/MarchARB_AFB_5yrRev_Sept2003.pdf

[2] March Air Reserve Base. 2009. Second 5-Year Review Report for Former March Air Force Base and March Air Reserve Base California. September 2009. https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/5402422845/MarchAFB_ARB_2nd5yearReviewSept2009.pdf

[3] California Department of Transportation (Caltrans). 2009. Interstate 215 and Van Buren Boulevard Interchange Project Initial Study [with Mitigated Negative Declaration]/Environmental Assessment with Finding of No Significant Impact. State of California Department of Transportation. State Clearinghouse No. 2008081120. March 2009.

Given the distance and remediation status of the seven sites previously identified in the ISA performed for the adopted MND for the I-215/VBB Interchange Project, discussed above in Table 7, construction of the proposed modifications in the Project area (e.g., EBS A-12.7) would not disturb a PEC site and would not encounter known contamination or hazardous waste. The proposed modifications in the Project area would have no impact to the previously identified PEC sites.[7]

Hazardous Waste Cleanup Sites and Facilities

The Project site is adjacent to March Air Reserve Base (formerly March Air Force Base), a designated Superfund site under the Comprehensive Environmental Response, Compensation and Liability Act. Soils and groundwater underlying the 7,123-acre base have been contaminated as a result of facility operations dating back to 1918, including aircraft maintenance, refueling, and training operations. Cleanup activities on the base are ongoing and include removal and consolidation of contaminated landfill material, installation of soil vapor extraction systems, and operation of a groundwater extraction and treatment system beginning in 1992 and enhanced in 2020 (U.S. EPA 2021). Through the Superfund monitoring and cleanup process, specific contaminated sites within March Air Reserve Base have been identified. As described in Section 3.6.1, *Setting*, the certified 2005 EIR identified 27 of these hazardous waste sites located on March Air Reserve Base; as of 2009, all but eight of these sites had been determined to require no further cleanup action. All of the remaining eight sites are located approximately 1.0 to 1.9 miles from ground disturbing activities associated with the proposed modifications. Construction activities are not anticipated to affect these contaminated sites given their distance from the proposed modifications. Sites within 0.5 mile of the proposed modifications that were not addressed in the certified 2005 EIR, as well as the results of site-specific soil and groundwater sampling conducted in support of the Project, are described in greater detail below.

Table 8 lists hazardous waste cleanup sites and facilities permitted for the use of hazardous materials located within 0.5 mile of the portion of the proposed modifications that were not considered in the certified 2005 EIR. As discussed below in Table 8, none of these six sites are located within the Project area, or anticipated to interfere with or adversely affect the proposed modifications. Four of the six sites were cleaned up and remediated, and their cases were closed as of 2002. The other two trucking/warehousing storage facilities are permitted for handling hazardous materials with no below-ground activities that would have any potential to disturb hazardous materials. Additionally, the two trucking/warehousing storage facilities are located too far to adversely interfere with the proposed modifications.

Table 8
Listed Sites and Facilities within 0.5 Mile of the Proposed Modifications in the Caltrans ROW Not Considered in the Certified Perris Valley Pipeline Project EIR

Site Name	Address	Distance from the Project	Type	Status	Potential to Affect the Proposed Modifications
Sysco – Riverside[1]	15750 Meridian Parkway, Riverside	Approx. 450 feet northwest	Permitted Facility	Local Trucking with Storage	Permitted for the handling of hazardous materials. Based on distance to the Project area, this site is not expected to interfere with or adversely affect the proposed modifications.

[7] This review only includes sites with RCRA- or State-listed hazardous wastes or hazardous material. Sites undergoing review for constituents of emerging concern (CECs) are analyzed in the Water Quality Technical memorandum (Rincon Consultants 2021a) and are summarized below.

Site Name	Address	Distance from the Project	Type	Status	Potential to Affect the Proposed Modifications
Mobis Parts America[2]	15001 Meridian Parkway, Unit B, Moreno Valley	Approx. 0.5 mile northwest	Permitted Facility	General Warehousing and Storage	Permitted for the handling of hazardous materials. Based on distance to the Project area, this site is not expected to interfere with or adversely affect the proposed modifications.
Riverside National Cemetery[3]	22459 Van Buren Boulevard, Riverside	Approx. 0.3 mile southwest	Leaking Underground Storage Tank (LUST) Cleanup Site	Completed – Case Closed as of 4/4/1989	Release of diesel to soil. Based on the soil-only nature of the case and that cleanup was completed in 1989, this site is not expected to interfere with or adversely affect the proposed modifications.
Empire Tractor[4]	1480 Nandina Ave, Perris	Approx. 0.2 mile north	LUST Cleanup Site	Completed – Case Closed as of 1/9/2002	Release of oil to soil. Based on the soil-only nature of the case, remediation performed (excavation of contaminated soil), and distance to the Project area, this site is not expected to interfere with or adversely affect the proposed modifications.
Nandina Liquor[5]	1569 Nandina Ave, Perris	Approx. 0.13 mile northwest	LUST Cleanup Site	Completed – Case Closed as of 3/19/2018	Release of diesel to groundwater. Based on remediation performed (excavation of contaminated soil and groundwater extraction and treatment) and distance to the Project area, this site is not expected to interfere with or adversely affect the proposed modifications.
Bell Grain and Milling[6]	17971 Highway 215, Perris	Approx. 0.2 mile southwest	LUST Cleanup Site	Completed – Case Closed as of 12/13/1990	Release of gasoline to soil. Based on the soil-only nature of the case and distance to the Project area, this site is not expected to interfere with or adversely affect the proposed modifications.

[1]United States Environmental Protection Agency. 2015. "Sysco – Riverside" Multisystem Search. Last modified: July 1, 2015. https://oaspub.epa.gov/enviro/multisys2_v2.get_list?facility_uin=110070096850 (accessed June 2018).

[2]United States Environmental Protection Agency. 2016. "Mobis Parts America." Multisystem Search. Last modified: September 16, 2016. https://oaspub.epa.gov/enviro/multisys2_v2.get_list?facility_uin=110055376169 (accessed June 2018).

[3]State Water Resources Control Board. 2015. "Riverside National Cemetery." GeoTracker. Last modified: 2015. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500036 (accessed June 2018).

[4]State Water Resources Control Board. 2015. "Empire Trucking." GeoTracker. Last modified: 2015. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500575 (accessed March 2020).

[5]State Water Resources Control Board. 2015. "Nandina Liquor." GeoTracker. Last modified: 2015. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500307 (accessed March 2020).

[6]State Water Resources Control Board. 2015. "Bell Grain and Milling." GeoTracker. Last modified: 2015. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500208 (accessed March 2020).

As discussed under Section 3.6.1, *Setting*, groundwater and soils in the Project area contain low levels of PFAS compounds, specifically PFOA and PFOS, associated with the use of AFFF for firefighting activities at the adjacent March Air Reserve Base. Most of the identified AFFF Release Sites associated with the March Air Reserve Base are located down-gradient from the proposed realignment and, therefore, would not be anticipated to affect soils or groundwater at the Project area. However, two AFFF Release Sites were identified up-gradient from the proposed realignment and present the potential for

PFAS impacts to soil and groundwater in the Project area. These Release Sites are located east of I-215, range from approximately 0.17 – 0.5 mile away from the Project area, and may be impacted by dewatering activities associated with the proposed modifications. As summarized in Table 5 above, sampling and testing conducted by Parsons of groundwater wells and exploratory soil borings indicated concentrations of PFOA and PFOS in groundwater underlying the Project area exceeding the San Francisco Bay RWQCB ESLs, as well as the SWRCB Response Levels and Notification Levels. Soil concentrations within the Project area do not exceed either the San Francisco Bay RWQCB's Health ESLs for PFOA or PFOS or the U.S. EPA's RSLs for human health for PFOA, PFOS, or PFBS. As summarized in Table 6, other groundwater and soil constituents of concern underlying the Project area do not exceed applicable screening levels (Parsons 2020).

Similar to the original Project, dewatering during construction of the proposed modifications is anticipated. The proposed modifications include treatment of dewatering effluent through a granular activated carbon (GAC) filtration system at on-site temporary treatment facilities prior to blending with Mills WTP potable water. Metropolitan will treat PFAS in construction groundwater discharges to non-detect ("ND"). ND means to a level below the PFAS reporting limits used by the contracting laboratory that conducts the analyses.

Soils within the Project area contain small quantities of PFAS compounds; however, the PFOA, PFOS, and PFBS levels are below the U.S. EPA's RSLs for human health and the San Francisco RWQCB's Health ESLs for direct human exposure. Excavated soils stored on the Project area would include standard erosion control BMPs to reduce potential off-site migration via wind and water erosion in accordance with the NPDES Construction General Permit requirements and Metropolitan's standard construction specifications. Additionally, as a precautionary measure, Metropolitan would profile and test all excavated material and temporary stockpile areas for PFOA and PFOS presence, pursuant to Modified EPA Method 537.1. Soils testing positive for PFOA and PFOS would be disposed of at a facility accepting Class I hazardous waste, while those testing negative for such compounds would be disposed of at an approved facility or used as backfill on the Project area. Standard manifest protocols would be required for hauling and disposal of all excavated materials.

As discussed above, the proposed modifications would not cause the Project to be located on or near any new identified hazardous waste sites. The proposed modifications include dewatering treated effluent and groundwater, and disposing soils following protocols to avoid the creation of a significant hazard to the public or the environment associated with low levels of PFAS compounds present on the Project area. As such, the proposed modifications would not result in new or substantially more severe significant impacts than previously analyzed in the certified 2005 EIR. Impacts would remain less than significant with mitigation incorporated.

Airports

As discussed in the certified 2005 EIR, the Project would be located within the March Air Reserve Base Airport Influence Area. Properties within the designated safety zones are subject to regulations that govern such issues as the height of structures and noise. These restrictions could have an impact on the use of certain types of construction equipment (e.g., cranes) within these zones; therefore, the certified 2005 EIR determined that all construction activities within these zones would need to be coordinated with the March Air Reserve Base. The Air Installation Compatible Use Zone study prepared for the March Air Reserve Base indicates that the project area is not located within the Clear Zone or an Accident Potential Zone (Air Force Reserve Command 2018, Figure 5-2). In addition, the certified 2005 EIR determined that the Project would not be located within the vicinity of a private airstrip; the proposed modifications would also not be located near a private airstrip. Therefore, the proposed modifications would not create an airport-related safety hazard for people working in the Project area. The proposed modifications would

not result in new or substantially more severe significant impacts than what was previously analyzed in the certified 2005 EIR. No impact would occur.

Emergency Plans

As discussed in the certified 2005 EIR, the Project would not physically interfere with an adopted emergency response plan or emergency evacuation plan. The proposed modifications would shift the alignment of the underground pipeline three hundred feet and would not alter the location of aboveground structures; therefore, the proposed modifications would not change the conclusion of the certified 2005 EIR. No impact would occur.

Wildland Fires

As discussed in the certified 2005 EIR, the Project would be located within an urban area and therefore would not be at risk of wildland fires. In addition, the proposed modifications would be located within an area that is not designated as a very high fire hazard severity zone (County of Riverside 2016, Figure S-11). The conclusion of the certified 2005 EIR would not change, and no impact would occur.

3.6.4 Conclusion

The proposed modifications would not result in any new significant impacts to hazards and hazardous materials or substantially increase the severity of significant impacts already identified in the certified 2005 EIR. Impacts would be similar to those identified in the certified 2005 EIR. Impacts would remain less than significant with mitigation incorporated and no further mitigation is required.

3.7 Hydrology and Water Quality

The certified 2005 EIR prepared for the original Project concluded potential environmental impacts to hydrology and water quality would be less than significant with mitigation incorporated. This section provides an analysis of the potential impacts to hydrology and water quality associated with the proposed modifications.

3.7.1 Setting

The Project area is in the Perris Reservoir sub-watershed of the San Jacinto River watershed (Hydrologic Unit Code: 18070202). The certified 2005 EIR describes the topography of the Project area as typical of foothill regions in Southern California, with an expansive alluvial fan formation created from repeated runoff from the surrounding mountains discharging to the valley floor. The Santa Ana RWQCB governs surface water quality within the San Jacinto River watershed, setting water quality objectives and monitoring surface water quality through the implementation of the Santa Ana River Water Quality Control Plan (Basin Plan). The Project area is approximately 8.7 miles northwest of the San Jacinto River and approximately 1.4 miles west of the Perris Valley Storm Drain/Perris Valley Channel, the primary tributary to the San Jacinto River through the city of Perris. The nearest surface water features to the Project area are built roadside/canal ditches and storm drains located south of the Van Buren Boulevard/I-215 interchange on both the east and west side of I-215. An existing storm drain originates west of I-215, flows under the RCTC/BNSF railroad tracks and I-215, and continues southeast, ultimately meeting the Perris Valley Storm Drain/Perris Valley Channel. Additionally, as discussed in Section 3.3, *Biological Resources*, other potentially jurisdictional features in the Project area include a constructed earthen stormwater channel north of Van Buren Boulevard and east of I-215, an existing detention basin along the

west side of the I-215 and of the Van Buren Boulevard on-ramp, and a small depression east of I-215 across the street from the March Air Field Museum.[8] All of these features are located outside of the work area for the proposed modifications and are discussed in greater detail in the BRA (Appendix B; Rincon Consultants 2020a) and the *Biological Resources Memorandum for the Perris Valley Pipeline Project Modifications in the Caltrans Interstate 215 Right-of-Way* (Rincon Consultants 2020b).

The proposed modifications overlie the western portion of the San Jacinto Groundwater Basin (Basin 8-005). Water quality in the basin is characterized by high concentrations of TDS and nitrate. Groundwater sampling of 12 wells in the Perris North management zone of the basin, which the Project area overlies, indicated TDS levels ranging from 330 to 1,900 milligrams per liter (mg /L) and nitrate (as nitrogen) concentrations ranging from <0.1 to 20.0 mg/L in 2017 (EMWD 2018). Additionally, sampling and testing by Parsons in the *Data Report on Combined Field Investigations for PFAS, Hydrazine, and Other COCs in Soil and Groundwater, dated October 2020,* indicates that groundwater underlying the Project area contains low levels of PFAS, including PFOS and PFOA (Parsons 2020). Groundwater and soil contamination in the Project area are described in greater detail in Section 3.6, *Hazards and Hazardous Materials*.

EMWD oversees groundwater management in the basin, having adopted the West San Jacinto Groundwater Basin Groundwater Management Plan in 1995. In 2017, EMWD formed the West San Jacinto Groundwater Sustainability Agency (GSA) to implement the planning requirements of the Sustainable Groundwater Management Act in the western portion of the basin. The Project area is generally located outside the West San Jacinto GSA's management area because it is in WMWD's service area, except the proposed modifications associated with the discharge of blended dewatering effluent near the I-215/Harley Knox Boulevard interchange. WMWD serves on the Advisory Committee for the GSA. The eastern portion of the San Jacinto Groundwater Basin is adjudicated under a 2013 Stipulated Judgement (Case Number RIC 1207274).

For additional discussion of existing surface water and groundwater conditions in the Project area, refer to the *Water Quality Memorandum for the Perris Valley Pipeline Modifications Project Within the Caltrans Interstate 215 Right-of-Way* (Rincon Consultants 2021a).

3.7.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate impacts to hydrology and water quality associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications would introduce new impacts or substantially increase the severity of previously identified significant impacts associated with:

a) The violation of any water quality standards or waste discharge requirements or otherwise substantial degradation of surface or groundwater quality

b) The substantial decrease of groundwater supplies or substantial interference with groundwater recharge such that the project may impede sustainable groundwater management of the basin

c) The substantial alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

    i. Result in substantial erosion or siltation on- or off-site

[8] As noted in the BRA, potentially jurisdictional features were identified in the Project area; however, a formal jurisdictional delineation was not conducted. Information in this document is provided for a general assessment of potentially jurisdictional features and does not provide a formal assessment of specific agency jurisdiction for each feature.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff or

iv. Impede or redirect flood flows

d) In flood hazard, tsunami, or seiche zones, the risk of releasing pollutants due to project inundation

e) Conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan

3.7.3 Potential Impacts

Water Quality Standards and Degradation of Surface or Groundwater Quality

As discussed in the certified 2005 EIR, the Project would temporarily expose bare soil to wind and water erosion during site grading and excavation activities. If precautions are not taken to contain sediments, construction activities could produce sediment-laden storm runoff that would exceed limits specified in the Project's NPDES General Construction Permit. In addition to increased erosion potential, hazardous materials associated with construction equipment and LUST sites in the Project area could adversely affect water quality if spilled or stored improperly. Finally, the certified 2005 EIR notes the potential need for construction dewatering activities and subsequent discharge to surface water during construction in areas of high groundwater. Therefore, implementation of Mitigation Measure HYD-1 was required to reduce impacts to less than significant.

The proposed modifications to the Project would generally require similar construction activities, including jack and bore tunneling under the RCTC/BNSF railroad tracks and I-215. As documented in the certified 2005 EIR, such activities would expose soil, resulting in potential sediment-laden runoff. As with the Project, Mitigation Measure HYD-1 would be required to reduce impacts to a less than significant level by requiring construction BMPs to reduce erosion and sediment runoff.

Given the groundwater elevation in the Project area and proposed depth of boring and receiving pits, construction dewatering activities would be necessary. The proposed modifications include placement of temporary dewatering facilities, including groundwater conveyance lines, a conveyance line delivering potable water from the Mills WTP, and three temporary treatment facilities for water blending, treatment, and testing prior to discharge to the existing storm drain network. The placement of these facilities would occur on the ground, requiring minimal, if any, additional ground disturbance with potential to result in exposed soil and erosion. Upon completion of construction, the temporary dewatering facilities would be removed, and the area restored to its pre-Project condition.

Groundwater in the Project area contains high concentrations of TDS, which could impair water quality if discharged directly to surface water bodies near the modified alignment. To comply with Santa Ana RWQCB discharge permit requirements for the Project and reduce potential impacts to surface water quality associated with construction dewatering activities, dewatering effluent would be blended with potable water to reduce TDS concentrations to levels acceptable to the Santa Ana RWQCB. Furthermore, as discussed in Section 3.6, *Hazards and Hazardous Materials*, groundwater and soils underlying the Project area contain low levels of PFAS compounds, specifically PFOS and PFOA, exceeding the San Francisco Bay RWQCB's ESLs and SWRCB Notification Levels and Response Levels. Other constituents of concern, including hydrocarbons, chloroform, and metals, were detected in groundwater but did not exceed applicable screening levels. Metropolitan would treat groundwater encountered during

construction activities (e.g., shaft and tunneling activities) using a GAC filtration system at the on-site temporary treatment facilities prior to blending with Mills WTP potable water. Use of the GAC method has been shown to be one of the best available methods to reduce PFAS levels in water. Metropolitan will treat PFAS in construction groundwater discharges to non-detect ("ND"). ND means to a level below the PFAS reporting limits used by the contracting laboratory that conducts the analyses. Pursuant to Mitigation Measure HYD-1, Metropolitan and the construction agents would inspect the construction site to verify that all required dewatering measures are implemented. GAC will only be used to treat pumped groundwater; surface water encountered within the Project area (e.g., rain, stormwater runoff) would follow standard BMPs required in the Project's stormwater pollution prevention plan in compliance with the NPDES Construction General Permit.

The proposed modifications may also include decommissioning of 40 monitoring wells. Wells would be over-drilled to remove casings, then backfilled and capped. Given the size of each well (approximately six inches in diameter), decommissioning activities would involve minor ground disturbance. Pursuant to Mitigation Measure HYD-1, all disturbed surfaces would require the implementation of erosion control practices during the rainy season, minimizing potential surface runoff. Decommissioned wells would be backfilled and capped with an inert material, such as bentonite or concrete, which would protect groundwater from pollutants in surface runoff by reducing the potential for surface runoff to enter decommissioned wells.

Because the proposed modifications would require similar construction activities, temporary dewatering facilities would not substantially increase ground disturbance, and dewatering effluent would be treated prior to discharge to the storm drain network, the proposed modifications would not result in new or substantially more severe significant impacts than what was previously analyzed in the certified 2005 EIR. By implementing GAC treatment, complying with the Santa Ana RWQCB discharge permit, and implementing appropriate BMPs and Mitigation Measure HYD-1, impacts associated with water quality would remain less than significant with mitigation incorporated.

HYD-1 The construction agent(s) shall require contractors to implement a program of BMPs and best available technologies to reduce potential impacts to water quality that may result from construction activities. To reduce or eliminate construction-related water quality impacts before the onset of construction activities, the construction agent(s) shall obtain coverage under the NPDES General Construction Permit. Construction activities shall comply with the conditions of this permit that include preparation of a stormwater pollution prevention plan, implementation of BMPs, and monitoring to ensure impacts to water quality are minimized. As part of this process, multiple BMPs shall be implemented to provide effective erosion and sediment control. These BMPs shall be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. BMPs to be implemented as part of this mitigation measure shall include, but are not limited to, the following:

- Temporary erosion control measures such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other groundcover would be employed for disturbed areas.
- Storm drain inlets on the site and in downstream offsite areas shall be protected from sediment with the use of BMPs acceptable to the construction agent(s), local jurisdictions and the California Regional Water Quality Control Board, Santa Ana Region.
- Dirt and debris shall be swept from paved streets in the construction zone on a regular basis, particularly before predicted rainfall events.

- No disturbed surfaces shall be left without erosion control measures in place between October 15 and April 15. The construction agent(s) shall file a Notice of Intent with the Regional Board and require the preparation of a pollution prevention plan prior to commencement of construction. The construction agent(s) shall routinely inspect the construction site to verify that the BMPs specified in the pollution prevention plan are properly installed and maintained. The construction agent(s) shall immediately notify the contractor if there were a noncompliance issue and require immediate compliance.
- Controls on construction site dewatering shall be implemented. If possible, water generated as part of construction dewatering shall be discharged onsite such that there would be no discharge to surface waters. If discharge to surface waters were unavoidable, the construction agent(s) shall obtain coverage under the NPDES General Dewatering Permit prior to commencement of construction. The provisions of this permit are sufficiently protective of water quality to ensure that impacts to surface waters would remain below significance thresholds. During dewatering activities, all permit conditions shall be followed. The construction agent(s) shall routinely inspect the construction site to verify that the measures specified in the permit are properly implemented. The construction agent(s) shall immediately notify the contractor if there were a noncompliance issue and require immediate compliance.

Groundwater Supplies and Recharge

The certified 2005 EIR states the Project would not use groundwater in any way and, therefore, would result in no impact with respect to groundwater supplies or groundwater recharge. However, the certified 2005 EIR does acknowledge construction dewatering may be necessary, and places controls on dewatering activities in Mitigation Measure HYD-1, described above.

The proposed modifications would require temporary pumping, conveyance, and treatment of groundwater during construction-related dewatering activities. Treated dewatering effluent would be subsequently discharged to the storm drain network at several discharge points, approximately 1.5 miles southeast of the modified alignment. Temporary construction-related dewatering activities could potentially result in a minor localized decrease in groundwater elevations near the boring and receiving pits. However, treated dewatering effluent would be discharged to the existing storm drain network, where opportunities for recharge within the San Jacinto Groundwater Basin would exist in unlined portions of the Perris Valley Channel and the San Jacinto River.

As mentioned previously, the proposed modifications may involve removal of approximately 40 groundwater dewatering and monitoring wells. These wells were installed for sampling purposes, and their removal would not affect groundwater supplies or recharge potential. The proposed modifications do not involve long-term groundwater extraction or elements that would interfere with groundwater recharge, such as increased impervious surface area. As described in the *Water Resources Memorandum for the Perris Valley Pipeline Modifications Project within the Caltrans Interstate 215 Right-of-Way*, dewatering activities during construction would involve periodic pumping and discharge of up to 250 gpm of groundwater, which would be treated and blended with Mills WTP water (Rincon Consultants 2021a). Due to the necessity of this temporary dewatering during construction activities, the proposed modifications would result in an increased impact to groundwater supplies and recharge relative to the Project. However, because dewatering activities would be temporary in nature and opportunities for downstream recharge exist following the discharge of dewatering effluent, this impact would be less than significant.

Drainage Alteration

As discussed in the certified 2005 EIR, the Project would be located underground and would not affect existing surface drainage patterns or increase runoff. The certified 2005 EIR concludes the Project would result in no impact with respect to stormwater flows or flooding, stormwater drainage facilities, or changes in drainage patterns that could result in increased erosion or sedimentation.

As with the original Project, the proposed modifications would involve the operation of an underground pipeline and would involve no long-term change in impervious surfaces, runoff, or drainage patterns. Construction activities would require temporary dewatering activities, including pumping, treatment, and discharge of dewatering effluent. Facilities associated with conveyance, treatment, and discharge of dewatering effluent would generally be placed at-grade, involving minimal ground disturbance. Following construction activities, temporary dewatering facilities would be removed, and the area would be returned to its pre-construction condition. Dewatering effluent would be discharged to the existing storm drain network. The discharge of dewatering effluent would be temporary in nature and comply with discharge limits established in the Project's permit received by the Santa Ana RWQCB. Decommissioning of groundwater dewatering and monitoring wells would involve temporary ground disturbance to drill the existing well and remove casings. The wells would then be backfilled and capped with an inert material, such as bentonite or concrete. Given the size of each well (approximately six inches in diameter), over drilling and capping of the wells would not substantially alter drainage patterns or add substantial impervious surface area.

Due to the temporary dewatering activities required, the proposed modifications would result in temporary impacts with respect to drainage patterns and stormwater facilities. However, the 2005 EIR noted that construction in areas of high groundwater could require dewatering with a subsequent discharge to surface waters (WMWD 2005). Given the proposed modifications would involve no long-term change in impervious surface or drainage patterns, dewatering effluent would be temporarily discharged to the existing storm drain network, and such activities were considered in the 2005 EIR, the modifications would not change the conclusion of the certified 2005 EIR and impacts would be less than significant.

Flood, Tsunami, or Seiche Hazards

As discussed in the certified 2005 EIR, no portion of the Project is located within a 100-year floodplain. According to current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, the proposed modifications are located in either Zone X, indicating an area of minimal flood hazard, or Zone D, indicating an area of undetermined flood risk (FEMA 2008, Map 06065C1410G and 06065C0745G, effective August 28, 2008). None of the proposed modifications are located in Zone A (the 100-year flood hazard zone). The nearest inland water body to the Project area is the Perris Reservoir, approximately 3.5 miles east. Given the distance from this water body to the Project area, the proposed modifications would not be subject to inundation by seiche. The proposed modifications are approximately 38 miles east of the Pacific Ocean and, therefore, would not be subject to inundation by a tsunami. The proposed modifications would not change the conclusion of the certified 2005 EIR and no impacts would occur.

Water Quality Management Plan and Sustainable Groundwater Management Plan

The Santa Ana RWQCB updated the Basin Plan in 2019. The Basin Plan designates beneficial uses for surface waters in the Santa Ana region and associated water quality objectives to fulfill such uses. Water from the location of the proposed modifications drains via the storm drain network to the Perris Valley Channel, which ultimately flows to Reach 3 of the San Jacinto River southeast of the city of Perris. Reach 3 of the San Jacinto River has intermittent designated uses of Agricultural Supply, Groundwater

Recharge, Non-Contact Water Recreation, Contact Water Recreation, Warm Freshwater Habitat, and Wildlife Habitat, and an existing or potential designated beneficial use of Rare, Threatened, or Endangered Species (Santa Ana RWQCB 2019). The water body is not currently listed as impaired for any of these uses; Canyon Lake (Railroad Canyon Reservoir), downstream from Reach 3, is listed as impaired for nutrients (SWRCB 2019).

As described above, the proposed modifications would involve the operation of an underground pipeline and would involve no long-term change in impervious surfaces, runoff, or drainage patterns. Construction activities would implement water quality BMPs pursuant to the requirements of the NPDES Construction General Permit and Mitigation Measure HYD-1, reducing potential runoff and surface water pollution during the construction of the proposed modifications. Dewatering activities would involve pumping, treatment, and discharge of groundwater to the existing storm drain network, which might ultimately flow to Reach 3 of the San Jacinto River. Groundwater in the Project area is characterized by elevated concentrations of TDS. As described previously, dewatering effluent would be treated via a GAC filtration system and blended with potable water to achieve water quality objectives, such as TDS limits, specified in the dewatering permit obtained from the Santa Ana RWQCB. Furthermore, neither Reach 3 of the San Jacinto River nor downstream reaches are listed as impaired for TDS. With adherence to applicable permit requirements, neither construction nor operation of the proposed modifications would exacerbate existing impairments in nearby surface water bodies. Low levels of PFOA and PFOS are also present in the groundwater underlying the Project area based on sampling and testing conducted by Parsons (Parsons 2020). While water quality objectives do not currently exist under the Basin Plan for these compounds, GAC treatment and blending of dewatering effluent would reduce concentrations of PFOA and PFOS, TDS, and pH levels. The treated and blending dewatering effluent would be sampled and tested to confirm that PFOA and PFOS are at non-detect level (“ND”) for these compounds. Therefore, the proposed modifications would not impair beneficial uses of downstream water bodies and would not conflict with or obstruct implementation of the Basin Plan.

The proposed modifications are located in the western portion of the San Jacinto Groundwater Basin. The Basin is designated a high-priority basin and, therefore, required to adopt a Groundwater Sustainability Plan (GSP) by 2022. As discussed in Section 3.7.1, *Setting*, EMWD is the GSA for the western portion of the Basin. While work is underway to prepare a GSP for the Basin, no GSP has been adopted to date. The proposed modifications involve no new wells or additional groundwater extraction. Temporary construction-related dewatering activities could potentially result in a localized decrease in groundwater elevations near the boring and receiving pits. However, dewatering effluent would be treated via GAC filtration and blended with potable water prior to discharge to the existing storm drain network, where opportunities for recharge within the San Jacinto Groundwater Basin would exist in unlined portions of the Perris Valley Channel and the San Jacinto River. Because the proposed modifications would involve no long-term impact to groundwater and no GSP has been adopted for the Basin, the proposed modifications would not conflict with or obstruct implementation of a sustainable groundwater management plan.

Overall, with respect to water quality and sustainable groundwater management plans, the proposed modifications would result in less than significant impacts with the implementation of Mitigation Measure HYD-1.

3.7.4 Conclusion

The proposed modifications would not result in any new significant impacts to hydrology and water quality or substantially increase the severity of significant impacts already identified in the certified 2005

EIR. Impacts would be similar to those identified in the certified 2005 EIR. Impacts would remain less than significant with mitigation incorporated and no further mitigation is required.

3.8 Noise

The certified 2005 EIR prepared for the Project concluded that potential environmental impacts to noise would be less than significant with the incorporation of mitigation. This section provides an analysis of the potential impacts of noise associated with the proposed modifications.

3.8.1 Setting

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may, therefore, be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Caltrans 2013).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response. Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Crocker 2007).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or terms of sound energy. Two sources do not “sound twice as loud” as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (8 times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud (10.5x the sound energy) (Crocker 2007).

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line, the path the sound will travel, site conditions, and obstructions). Noise levels from a point source typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance (e.g., construction, industrial machinery, ventilation units). Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about three dBA per doubling of distance (Caltrans 2013a). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, and man-made features such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2017). Structures can substantially reduce exposure to noise as well. The FHWA’s guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows.

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. One of the most frequently used noise metrics is the equivalent noise level (L_{eq}); it considers

both duration and sound power level. L_{eq} is defined as the single steady A-weighted level equivalent to the same amount of energy as that contained in the actual fluctuating levels over time. Typically, L_{eq} is summed over a one-hour period. L_{max} is the highest root mean squared (RMS) sound pressure level within the sampling period, and L_{min} is the lowest RMS sound pressure level within the measuring period (Crocker 2007).

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (L_{DN}), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.); it is also measured using Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013a). Noise levels described by L_{DN} and CNEL usually differ by about one dBA. The relationship between the peak-hour L_{eq} value and the L_{DN}/CNEL depends on the distribution of traffic during the day, evening, and night. Quiet suburban areas typically have CNEL noise levels in the range of 40 to 50 dBA, while areas near arterial streets are in the 50 to 60-plus CNEL range. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (Federal Transit Administration [FTA] 2018).

Some land uses are more sensitive to ambient noise levels than other uses due to the amount of noise exposure and the types of activities involved. For example, residences, motels, hotels, schools, libraries, churches, nursing homes, auditoriums, museums, cultural facilities, parks, and outdoor recreation areas are more sensitive to noise than commercial and industrial land uses.

The County of Riverside Noise Ordinance is codified in Chapter 9.52 of the County Code. The ordinance prohibits any person from creating any sound, or allowing the creation of any sound, on any property that causes the sound level on any other occupied property to exceed daytime or nighttime noise standards. For office commercial, business park, and industrial uses in the Project area, daytime noise standards outlined in the County's noise ordinance are 65-75 dB (from 7 a.m. to 10 p.m.) and nighttime noise standards range from 55-75 dB (from 10 p.m. to 7 a.m.). County of Riverside Section 9.52.020 exempts capital improvement projects of a governmental agency from the provisions of the noise ordinance.

Chapter 7.34 of the City of Perris Municipal Code codifies the City's noise ordinance. The ordinance prohibits any loud excessive or offensive noises or sounds which unreasonably disturb the peace and quiet of any residential neighborhood. Furthermore, the ordinance restricts construction activities to between the hours of 7 a.m. and 8 p.m. on weekdays and states that construction activity shall not exceed 80 dB in residential zones.

No noise measurements were taken for the certified 2005 EIR prepared for the approved Project. Primary sources of noise in the area of the proposed modifications include roadway noise along I-215 and Van Buren Boulevard, railroad noise from the RCTC/BNSF rail line, and air traffic at the March Air Reserve Base. To determine existing noise levels in the Project area, two 15-minute noise measurements were recorded near the Project area between 1:16 p.m. and 2:32 p.m. on June 8, 2018, using an ANSI Type II integrating sound level meter. Noise Measurement (NM) 1 was taken on the western portion of the Project area; measured noise levels are representative of existing ambient noise levels along Van Buren Boulevard, west of I-215. NM 2 was taken adjacent to the March Field Air Museum on the southern portion of the Project area and is representative of existing ambient noise levels along Van Buren Boulevard, east of I-215. Table 9 summarizes noise measurement activities and results. Average noise levels are provided in L_{eq} for a 15-minute measurement period ($L_{eq[15]}$); L_{max} is also provided.

Table 9
Project Area Noise Monitoring Results

Measurement Number	Measurement Location	Sample Times	Approximate Distance to Primary Noise Source	$L_{eq[15]}$ (dBA)	L_{max} (dBA)
1	Intersection of Van Buren Boulevard and Opportunity Way	1:16 – 1:31 p.m.	90 ft[1]	63.6	80.6
2	Entrance of March Air Field Museum	2:17 - 2:32 p.m.	85 ft[2]	67.8	90.1

See Appendix C for noise monitoring data.

[1] Distance to centerline of Van Buren Boulevard.

[2] Distance to centerline of Van Buren Boulevard.

Source: Rincon Consultants, field measurements on June 8, 2018, using ANSI Type II integrating sound level meter.

The proposed modifications fall within the geographic boundaries of the County of Riverside, City of Perris, and the MJPA. Noise-sensitive receptors identified by these jurisdictions include the following:

- Residential areas
- Schools and public libraries
- Hospitals and rest homes
- Places of worship
- Cemeteries
- Offices
- Hotels/Motels
- Outdoor recreation areas

The County of Riverside also considers residential areas, hospitals, concert halls, libraries, sensitive research operations, schools, and offices to be sensitive to vibration.

The certified 2005 EIR identified the sensitive receptors closest to the original Project area to be residences located approximately 200 feet south along Alessandro Boulevard. Although not identified in the certified 2005 EIR, the Project is also adjacent to the Riverside National Cemetery, which is considered a sensitive receptor by the County of Riverside pursuant to Section 9.52.030 of the Riverside County Code, and is located south of Van Buren Boulevard and west of I-215. The only construction activities that would occur near the cemetery are placement and removal of temporary dewatering pipelines, which would not involve substantial ground-disturbance or heavy equipment, and well decommissioning, which would occur over approximately eight weeks, as described in Section 2.2, *Project Location and Description*. Additionally, the cemetery is approximately 50 feet from the nearest wells that may be decommissioned, and approximately 250 feet southwest of the construction trenching, grading, and tunneling activities. Construction noise modeling was conducted for these receptors based on these distances; anticipated construction noise levels at these sites are presented in Section 3.8.3, *Potential Impacts*. The nearest vibration-sensitive receptors are single-family residences approximately 1,900 feet from the proposed Temporary Discharge Point B near the I-215/Harley Knox Boulevard.

3.8.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate impacts to noise associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications would introduce new impacts or substantially increase the severity of previously identified significant impacts associated with:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies

b) Generation of excessive ground-borne vibration or ground-borne noise levels

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels

The certified 2005 EIR found that vibration from construction activity is typically below the threshold of perception when the activity is more than 50 feet from receivers. Therefore, this addendum assesses the potential for the proposed modifications to result in a new significant impact or to increase the severity of an impact related to vibration based on the distance between the proposed modifications and the nearest sensitive receptor (e.g. Riverside National Cemetery, residents along Alessandro Boulevard).

3.8.3 Potential Impacts

Substantial Temporary or Permanent Increase in Noise Levels in Excess of Standards

The certified 2005 EIR determined that construction and operation of the Project would comply with applicable local noise ordinances, and no impact would occur. Similarly, as discussed below, the proposed modifications would not substantially change the construction or operational activities analyzed in the certified 2005 EIR and would comply with applicable local noise ordinances; therefore, no impact would occur.

As discussed in the certified 2005 EIR, the pipeline would be underground and would not generate any noise itself. Noise generated by pipeline maintenance activities would be temporary and intermittent. Placement, use, and removal of dewatering facilities would be temporary in nature and limited to the duration of construction activities. Operation of the four pump stations would generate noise. Mitigation Measure NOISE-3 was recommended to reduce operational noise further. Therefore, the certified 2005 EIR determined that a substantial permanent increase in ambient noise levels (i.e., during operation) in the Project vicinity above levels existing without the Project would not occur. The proposed modifications would not alter the location or operation of the four pumping stations and would not change the conclusion of the certified 2005 EIR and no impact would occur.

NOISE-3 The buildings housing the pump stations shall be insulated and contain sound attenuation materials to meet local noise standards.

As discussed in the certified 2005 EIR, the Project would result in temporary noise-generating construction activities. The Project and proposed modifications would be required to comply with the applicable noise ordinances for construction activities depending on the jurisdiction in which construction activities occur.

Project construction would include site preparation, grading, building construction/pipeline installation, and paving. Table 10 shows the typical peak noise levels associated with common types of heavy construction equipment, based on the Federal Highway Administration (FHWA) *Highway Construction Noise Handbook* (2006). Peak noise levels associated with the use of individual pieces of heavy equipment can range from about 70 to 89 dBA at 50 feet from the construction source, depending on the types of equipment in operation at any given time and phase of construction (FHWA 2006).

Table 10
Typical Noise Levels Generated by Construction Equipment

Equipment	Type	Typical L_{max} (dBA) 50 Feet from the Source
Air Compressor	Stationary	81
Augur Drill Rig	Stationary	84
Backhoe	Mobile	78
Compactor (ground)	Mobile	83
Concrete Mixer	Stationary	85
Crane	Stationary	81
Dozer	Mobile	82
Dump Truck	Mobile	76
Excavator	Mobile	81
Front End Loader	Mobile	79
Generator	Stationary	81
Grader	Mobile	85
Jack Hammer	Mobile	89
Man Lift	Mobile	75
Paver	Mobile	77
Pickup Truck	Mobile	75
Pneumatic Tools	Stationary	85
Roller	Mobile	80
Saw	Stationary	76
Scraper	Mobile	84
Tractor	Mobile	84
Truck	Mobile	88
Warning Horn	Stationary	83
Welder/Torch	Stationary	74

Source: FHWA 2006, Tables 9.1 and 9.9.

The certified 2005 EIR estimated that construction noise levels would range from 60 to 79 dBA at the nearest sensitive receptor, which would be approximately 200 feet from the construction site. To supplement this determination, construction noise from equipment operating onsite was estimated using the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, construction noise levels were estimated at the nearest noise-sensitive receptors.

The nearest sensitive receptor to the Project area is the Riverside National Cemetery located south of Van Buren Boulevard and west of I-215. Most construction activities associated with the proposed modifications would occur approximately 250 feet from the cemetery; however, well-decommissioning activities may occur as close as 50 feet from the cemetery and trenching associated with installation of temporary dewatering discharge lines may occur as close as approximately 200 feet from the cemetery. A single-family residence is located approximately 1,900 feet southwest of the proposed Temporary Discharge Point B near the I-215/Harley Knox Boulevard interchange. However, construction activities at this point would involve placement of temporary dewatering facilities, such as a pH treatment facility and at-grade discharge lines and would not require substantial ground disturbance or regular use of noise-generating heavy equipment. Several residences are located approximately 5,000 feet west of the Project area near the I-215/Van Buren Boulevard interchange, where pipeline tunneling and well-decommissioning activities would occur. For this analysis, it is assumed that construction activities would occur up to the Project area boundary. Table 11 shows the maximum expected construction noise levels at the Riverside National Cemetery and the nearest residences based on the construction equipment anticipated to be used concurrently during each phase of construction (see Table 13-2 of the certified 2005 EIR). Additional factors to consider are that the estimated construction noise levels do not consider that equipment would be dispersed in various areas of the Project area in both time and space. The confined limits of construction within the proposed pipeline alignment will limit the numbers and types of equipment that can operate near a given location at a particular time. Therefore, the noise levels presented in Table 11 represent a conservative estimate of construction noise.

Table 11
Construction Noise Levels by Phase

Construction Phase	Equipment[1]	Estimated Noise at Riverside National Cemetery[2] (dBA L_{eq})	Estimated Noise at Nearest Residences[3] (dBA L_{eq})
Clearing	Air Compressor, Concrete Saw, Pavement Breaker, Sweeper, Pickup Trucks	72.3	46.3
Trenching	Backhoe, Dump Trucks, Utility Trucks, Sweeper, Pickup Trucks, Pumps	72.0	46.0
Backfilling	Dump Trucks, Utility Trucks, Water Truck, Compactor, Sweeper, Pickup Trucks, Pumps	72.4	46.3
Pipelaying	Crane, Dozer, Welder, Generator, Sweeper, Pickup Trucks, Pumps	72.6	46.6
Restoration	Paver, Sweeper, Pickup Trucks	65.6	39.6
Trenching for Temporary Dewatering Lines[4]	Concrete Saw, Dozer, Backhoe (2)	72.5	44.6
Well Decommissioning	Drill Rig Truck, Dump Truck, Backhoe, Pickup Truck	78.4	38.4

[1]Based on Table 13-2 of the certified 2005 EIR. Pumps have been added for the trenching, backfilling, and pipelaying phases to account for temporary dewatering activities.

[2]Based on a distance of 250 feet for clearing, trenching, backfilling, pipelaying, and restoration activities, 200 feet for trenching for temporary dewatering line activities, and 50 feet for well-decommissioning activities.

[3]Based on a distance of 5,000 feet for all construction phases.

[4]Equipment list based on California Emissions Estimator Model (CalEEMod) output for trenching activities. Loudest phase of construction reported.

Note: See Appendix D for RCNM modeling results.

As shown in Table 11, construction noise levels for the proposed modifications would range from 65.6 to 78.4 dBA L_{eq} at the Riverside National Cemetery and from 38.4 to 46.6 dBA L_{eq} at the nearest residences. These modeled noise levels are slightly higher than noise levels from the existing highway, roadway, and air traffic, which were measured in June 2018 as ranging from 63.6 to 67.8 dBA L_{eq}. Construction activities required for the proposed modifications would generally not differ substantially from those of the original Project. Well decommissioning activities, which were not analyzed in the certified 2005 EIR, would result in the highest construction noise levels at the Riverside National Cemetery due to their proximity to the sensitive receptor. This noise increase would be temporary and subject to construction hours limitations. Decommissioning of all 40 wells would occur over approximately eight weeks, as described in Section 2.2, *Project Location and Description*, with activities at a single well site lasting approximately one day. Tunneling and dewatering activities may require nighttime construction work. However, this work would unlikely disturb residential receptors, as it would occur in close proximity to the I-215 freeway and is over 5,000 feet from the nearest residences where people would be expected to sleep. Furthermore, any nighttime noise would be limited to the duration of tunneling activities. Nevertheless, pursuant to Mitigation Measure NOISE-1, any holiday, nighttime, or weekend construction activities would be subject to local permitting requirements. The County of Riverside Code of Ordinances Section 9.52.020 exempts capital improvement projects of a governmental agency and construction projects more than one-quarter mile from an inhabited dwelling from the provisions of the County's noise ordinance. As a result, the proposed modifications would qualify for these exemptions. Impacts related to construction noise associated with the proposed modifications would not result in a new or substantially more severe significant impact than previously identified in the certified 2005 EIR.

The certified 2005 EIR recommended the following mitigation measures to reduce construction-related noise impacts, and these mitigation measures would be implemented for the proposed modifications as well.

NOISE-1 Construction activities shall be limited to between the hours of 7:00 a.m. and 7:00 p.m. and as necessary to comply with local ordinances. Any holiday, nighttime or weekend construction activities shall be subject to local permitting requirements.

NOISE-2 All equipment used during construction shall be muffled and maintained in good operating condition. All internal combustion engineers shall be fitted with well-maintained mufflers in accordance with manufacturers' recommendations.

Groundborne Vibration or Noise Levels

Vibration from construction activity is typically below the threshold of perception when the activity is more than 50 feet from receivers. As discussed in the certified 2005 EIR, the Project was found to create minor ground vibration; however, no vibration-sensitive receptors are located within 50 feet of the Project construction area. Therefore, the Project was not found to expose people or structures to excessive levels of ground-borne vibration. Impacts from the Project were determined to be less than significant, and no mitigation measures were required.

For the proposed modifications, the distance to the nearest vibration-sensitive receptors is approximately 1,900 feet from the proposed Temporary Discharge Point B near the I-215/Harley Knox Boulevard interchange and over 5,000 feet from the proposed modifications near the I-215/Van Buren Boulevard interchange. Because groundborne vibration is perceived through structures (i.e., rattling of walls, windows), the nearby cemetery would not constitute a vibration-sensitive receptor. Construction activities that would occur as part of the proposed modifications would be similar to those that would occur as part of the original Project analyzed in the certified 2005 EIR. Construction activities that generate substantial groundborne vibration, such as pile driving, are not anticipated, and the proposed operation of standard

construction equipment and generators would not be perceptible at the nearest vibration-sensitive receptors given their distance from the location of the proposed modifications. Furthermore, construction activities at the proposed Treatment Facility C near Harley Knox Boulevard would involve placement of temporary dewatering facilities, such as a pH treatment facility and at-grade discharge lines, and would not involve use of equipment that would generate substantial ground-borne vibration. As such, construction activities would not expose people or structures to excessive levels of groundborne vibration, similar to the conclusion reached in the certified 2005 EIR. Impacts would remain less than significant, and no new or substantially more severe significant impacts would occur as a result of the proposed modifications.

Airports and Airstrips

The Project area is located within the March Air Reserve Base Influence Area, which extends several miles from the base. The base accommodates both military and civilian aircraft activities, with maximum civilian aircraft activity limited to 21,000 annual operations (Riverside County Airport Land Use Commission 2014). The Project would not involve construction of new residences or other sensitive receptors where inhabitants would be exposed to air base noise. Construction workers may be subject to aircraft noise associated with operation of the reserve base; however, construction workers would be wearing hearing protection that would attenuate noise to acceptable levels. As with the original Project, the location of the proposed modifications would be located within the 65, 70 and 75-dBA noise contours for the March Air Reserve Base (Air Force Reserve Command 2018, Figure 4-2). The proposed modifications would not change the conclusion of the certified 2005 EIR. The proposed modifications would not expose people working in the area to excessive air traffic noise levels and no impacts related to airport noise exposure would occur.

3.8.4 Conclusion

The proposed modifications would not result in any new significant noise impacts or substantially increase the severity of impacts already identified in the certified 2005 EIR. Impacts would be similar to those identified in the certified 2005 EIR. Therefore, impacts related to noise would be considered less than significant with mitigation incorporated and no further mitigation is required.

3.9 Transportation

The certified 2005 EIR prepared for the original Project concluded that potential environmental impacts to transportation would be less than significant with the incorporation of mitigation. This section provides an analysis of the potential impacts to transportation associated with the proposed modifications.

3.9.1 Setting

As discussed in the certified 2005 EIR, several segments of I-215 along the proposed haul routes to and from the Project area were projected to operate at unacceptable levels of service (LOS) during peak hours, including Eastbridge Avenue to Alessandro Boulevard, Alessandro Boulevard to Frontage Road, and Frontage Road to Van Buren Boulevard. According to the adopted MND for the I-215/Van Buren Boulevard Interchange Project, the I-215 northbound/Van Buren Boulevard intersection will operate at LOS C or better conditions through 2035 following the completion of the interchange improvement project (Caltrans 2009). In 2001, the existing traffic volume on Van Buren Boulevard west of I-215 was estimated at 26,274 average daily trips. See Tables 17-1 and 17-2 in the certified 2005 EIR for further details.

As discussed in the certified 2005 EIR, approximately ten workers would be required daily at the Project area during construction activities. It is anticipated that most of these workers would travel to the Project area in separate vehicles, resulting in up to ten worker vehicle trips to and ten worker trips from the Project area per day. As discussed in the certified 2005 EIR, construction of the Project requires haul trips to and from the Project area on the surrounding road network to remove any excavated material that is not backfilled onsite. Like the original Project, the proposed modifications would also require haul trips to transport project materials to and from the Project area during construction. The proposed modifications would require an estimated 20,759 cy of soil excavated from the tunnel pits to be disposed of offsite. Additionally, an estimated 5,398 cy of imported backfill is assumed to be hauled to the location of the proposed modifications. Assuming a 16-cy haul truck capacity, material import and export would require approximately 1,635 haul trips throughout construction of the proposed modifications.

3.9.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate impacts to transportation/ traffic associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications would introduce new significant impacts or substantially increase the severity of previously identified significant impacts associated with:

a) A conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities

b) A conflict or inconsistency with CEQA Guidelines Section 15064.3(b)

c) An increase in hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)

d) Inadequate emergency access

Threshold b) was not previously analyzed in the certified 2005 EIR, as this threshold was added pursuant to updates to the CEQA Guidelines that took effect in December 2018. As such, this Addendum assesses whether the proposed modifications would result in a potentially significant impact with respect to conflict or inconsistency with CEQA Guidelines Section 15064.3(b).

3.9.3 Potential Impacts

Circulation System Plans, Ordinances, or Policies

As discussed in the certified 2005 EIR, construction activities for the Project generate less than 100 trips per day, and the operation and maintenance of the Project would generate one additional trip per day. Well decommissioning activities, which were not previously analyzed in the certified 2005 EIR, would require up to four additional workers, resulting in as many as eight additional construction trips per day. These trips represent a minor incremental increase in daily traffic as compared to a 2003 traffic volume of approximately 35,000 daily trips on Alessandro Boulevard and a 2001 traffic volume of approximately 26,000 daily trips on Van Buren Boulevard. The proposed modifications would involve similar construction, operation, and maintenance activities and would not substantially change the amount of traffic generated by the Project.

As noted in the certified 2005 EIR, several of the highway segments along the proposed haul routes currently operate at unacceptable LOS, although the I-215 northbound/Van Buren Boulevard intersection will operate at LOS C or better conditions through 2035 as a result of the interchange improvement

project by Caltrans. The limited amount of temporary construction traffic that is associated with the Project was found not to be sufficient to result in long-term changes to traffic volumes or degrade the existing LOS of highway segments in the area. However, the certified 2005 EIR determined that construction of the Project temporarily reduces the number or available width of the travel lanes on Alessandro Boulevard during the construction period, resulting in temporary disruptions of traffic flows and increases in traffic congestion as well as potentially limited access to local businesses. Mitigation measures TRAF-1, TRAF-2, and TRAF-3 were included to reduce impacts from construction-related traffic disruptions to a less than significant level.

The proposed modifications would not result in a substantial increase in the maximum, or worst-case, amount of traffic projected to travel to and from the Project area daily. The proposed modifications would not affect the pipeline configuration near Alessandro Boulevard; therefore, temporary traffic disruptions along this roadway would remain the same as analyzed in the certified 2005 EIR. However, the proposed modifications would require the closure of the southern travel lanes of Van Buren Boulevard for approximately 16 weeks during the tunneling activities between Tunnel Pit 3 and Tunnel Pit 4, which has the potential to disrupt traffic flow and increase traffic congestion. Implementation of Mitigation Measures TRAF-1, TRAF-2, TRAF-3, and TRAF-4 from the certified 2005 EIR would reduce impacts from construction-related traffic disruptions along Van Buren Boulevard to a less than significant level. Therefore, the proposed modifications would not result in a substantial change to the effectiveness of the roadway system in the Project area and would not change the conclusion of the certified 2005 EIR. Impacts would be less than significant with the incorporation of mitigation.

TRAF-1 Traffic control plans shall be prepared by a qualified professional engineer before construction.

TRAF-2 Traffic control plans shall consider the ability of alternative routes to carry additional traffic and identify the least disruptive hours of construction site truck access routes and the type and location of warning signs, lights, and other traffic control devices. Consideration shall be given to maintaining access to commercial parking lots, private driveways and sidewalks, bikeways and equestrian traffic to the greatest extent possible.

TRAF-3 Traffic control plans shall comply with the Work Area Traffic Control Handbook and/or Manual of Traffic Controls as determined by each affected local agency to minimize any traffic and pedestrian hazards that exist during project construction.

TRAF-4 Encroachment permits for all work within public rights-of-way shall be obtained from each involved agency prior to commencement of any construction. The construction agent(s) shall comply with all traffic control requirements of the affected local agencies.

CEQA Guidelines Section 15064.3(b)

CEQA Guidelines Section 15064.3(b) identifies criteria for evaluating transportation impacts. Specifically, the guidelines state vehicle miles traveled (VMT) exceeding an applicable threshold of significance may indicate a significant impact. According to Section 15064.3(b)(3) of the CEQA Guidelines, a lead agency may include a qualitative analysis of operational and construction traffic. The certified 2005 EIR did not address VMT, as such analysis was not included in the CEQA Guidelines at the time the EIR was certified. However, as discussed below, the proposed modifications would not substantially affect VMT in the Project area.

A VMT calculation is typically conducted on a daily or annual basis, for long-range planning purposes. As discussed above, traffic on local roadways may temporarily increase during Project construction, including construction associated with the proposed modifications, due to the presence of construction vehicles and equipment. Increases in VMT from construction would be short-term, minimal, and

temporary. The proposed modifications, like the original Project, are located in heavily-populated southern California. As such, it is expected that construction crews and materials would be locally or regionally sourced, reducing construction worker and vendor commute distances. The proposed modifications are located along a major freeway (I-215), minimizing the travel from major transportation corridors required to reach the proposed modifications. Furthermore, the proposed modifications would require approximately 10 to 14 construction workers; as a result, the construction of the proposed modifications would not involve large construction crews resulting in generation of substantial VMT associated with commuting. In addition, as described in the certified 2005 EIR, maintenance of the proposed Project would consist of approximately one light-duty truck trip per day. This single visit would not substantially contribute to VMT in the Project area. Because the proposed modifications would not substantially increase construction- or maintenance-related trips, impacts associated with VMT per CEQA Guidelines Section 15064.3 would be less than significant.

Hazards, Parking, and Alternative Transportation

As discussed in the certified 2005 EIR, the Project does not change the design of any highway or street, does not impact any parking facilities, and does not affect any bus turnouts or other alternative transportation infrastructure. The proposed modifications would not change the conclusions of the certified 2005 EIR, and no impact related to traffic hazards, parking, or public transit, bicycle, and pedestrian facilities would occur.[9]

Emergency Access

The certified 2005 EIR identified potential impacts to emergency access associated with the temporary reduction of the number or available width of travel lanes on Alessandro Boulevard during the construction period. Therefore, mitigation measure TRAF-3 (outlined above) was included to reduce impacts to a less than significant level. The proposed modifications would require the closure of the southbound travel lanes of Van Buren Boulevard for a period of approximately 16 weeks during tunneling between Tunnel Pit 3 and Tunnel Pit 4. One of the two northbound lanes would remain open for southbound traffic and emergency access to the March Field Air Museum. Implementation of mitigation measure TRAF-3 from the certified 2005 EIR would reduce this impact to a less than significant level. The proposed modifications would not change the conclusions of the certified 2005 EIR; therefore, impacts related to emergency access would remain less than significant with mitigation incorporated.

3.9.4 Conclusion

The proposed modifications would not result in any new significant impacts to transportation or substantially increase the severity of impacts already identified in the certified 2005 EIR. Impacts would be similar to those identified in the certified 2005 EIR. Therefore, impacts related to traffic would be considered less than significant with mitigation incorporated and no further mitigation is required.

3.10 Tribal Cultural Resources

Although not included in the certified 2005 EIR, a discussion of tribal cultural resources is included in this Addendum per the most recent version of the *State CEQA Guidelines*. Changes to the *State CEQA Guidelines* requiring analysis of tribal cultural resources took effect July 2015. Because the certified EIR

[9] Note that assessment of impacts to parking is no longer required with the State CEQA Guidelines Appendix G Checklist but is included here for comparison purposes with the certified 2005 EIR.

was published prior to July 2015, analysis of impacts to tribal cultural resources is not required. The analysis below is included for informational purposes.

3.10.1 Setting

The proposed modifications are located in an area that has been heavily disturbed by highway construction and expansion, pipeline construction, local roadway construction, and railroad construction. As discussed in Section 3.4, *Cultural Resources*, a cultural resources records search and archaeological surveys were completed for the proposed modifications. No prehistoric archaeological resources have been recorded within or immediately adjacent to the Project area. A Native American contact program conducted as part of the adopted MND for the I-215/Van Buren Boulevard Interchange Project, which has a project site similar to that of the proposed modifications, did not identify any Traditional Cultural Properties or other Native American concerns.

For additional discussion of the existing cultural resources setting in the Project area and potential impacts associated with the proposed modifications, refer to the *Cultural Resources Memorandum for the Perris Valley Pipeline Modifications Project Within the Caltrans Interstate 215 Right-of-Way* (Rincon Consultants 2020c).

3.10.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate impacts to tribal cultural resources associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications would introduce new impacts or substantially increase the severity of a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant under criteria outlined in subdivision (c) of Public Resources Code Section 2024.1. In applying the criteria outlined in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe

3.10.3 Potential Impacts

As noted above in Section 3.4, *Cultural Resources*, numerous cultural resources pedestrian surveys have occurred in and immediately adjacent to the area and no prehistoric archaeological resources have been recorded within or immediately adjacent to the Project area. Furthermore, Metropolitan is not aware of any tribal cultural resources within the Project area and no prehistoric archaeological resources have been recorded as a result of ground disturbing activities associated with construction of the completed segments of the Perris Valley Pipeline. Therefore, no impacts to tribal cultural resources would occur as a result of the proposed modifications.

3.10.4 Conclusion

Given that the proposed modifications would occur on previously disturbed land, and that the cultural resources records search, archaeological survey, and previous construction activities resulted in negative findings for archaeological resources, no impacts to tribal cultural resources would occur with the proposed modifications analyzed here. The proposed modifications would not result in any new significant impacts or substantially increase the severity of impacts already identified in the certified 2005 EIR, and no further mitigation is required.

3.11 Wildfire

Although not included in the certified 2005 EIR, a discussion of wildfire is included in this Addendum per the most recent version of the *State CEQA Guidelines*.

3.11.1 Setting

The entire coastal southern California region is prone to large wildfires due to its hot, dry climate and expansive coverage of ignitable vegetation. During the autumn and winter months, strong offshore Santa Ana wind events carry dry, desert air and can fan fast-moving fires that spread rapidly from heavily vegetated wilderness and mountainous areas into developed communities. The Project area is in an urbanized area of Riverside County, which limits the spread of large, uncontrolled wildfires. However, surrounding mountainous areas are prone to regular fires, which can pose a health and safety risk to nearby communities. Recent fires in the Project area vicinity include the 2006 Esperanza Fire (41,173 acres and five fatalities), 2013 Mountain Fire (27,531 acres) and Silver Fire (20,292 acres), and the 2018 Holy Fire (23,136 acres) and Cranston Fire (13,139 acres).

While a natural ecological process in coastal chaparral and forest systems, wildfire return intervals have decreased throughout southern California, resulting in more frequent ecological disturbance, loss of biodiversity, and colonization by non-native grass species (United States Forest Service 2018). Furthermore, post-fire conditions leave exposed mountain slopes and hillsides vulnerable to surface erosion and runoff. Debris flows during post-fire rainy seasons can pose a risk to life and property and occur with little warning. In southern California, as little as 0.3 inches of rain in 30 minutes can produce debris flows on post-fire landscapes (United States Geological Survey 2018).

The proposed modifications are not located in a designated Very High Fire Hazard Severity Zone (VHFHSZ) or a State Responsibility Area (SRA). The nearest VHFHSZ is a Local Responsibility Area (LRA) in the city of Perris, approximately 2 miles south of the proposed modifications. The nearest SRA is a VHFHSZ in the city of Perris approximately 2.2 miles south of the proposed modifications (CAL FIRE 2007 and 2010).

3.11.2 Significance Threshold Criteria

The following CEQA significance threshold criteria were used to evaluate wildfire impacts associated with the proposed modifications. Impacts would be potentially significant if the proposed modifications are located in or near an SRA or lands classified as VHFHSZ, would introduce new impacts or substantially increase the severity of impacts associated with:

a) Substantial impairment of an adopted emergency response plan or emergency evacuation plan

b) The slope, prevailing winds, and other factors exacerbating wildfire risks and thereby exposure of Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire

c) Project-required installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment

d) Exposure of people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes

3.11.3 Potential Impacts

As discussed in Section 3.11.1, *Setting*, the proposed modifications are not located in lands classified as an SRA or VHFHSZ. The nearest such zones are over two miles south of the location of the proposed dewatering effluent discharge point. The proposed modifications involve the construction of underground potable water pipeline segments, placement, operation, and removal of temporary dewatering facilities, and removal of approximately 40 wells.

As discussed in the certified 2005 EIR and reiterated in Section 3.6, *Hazards and Hazardous Materials*, the Project would not physically interfere with an adopted emergency response plan or emergency evacuation plan. The proposed modifications would change the planned alignment of the underground pipeline and would not alter the location of aboveground structures; therefore, the proposed modifications would not change the conclusion of the certified 2005 EIR.

The proposed modifications would not include fuel breaks, power lines, or other aboveground utilities that would exacerbate fire risk or result in temporary or ongoing impacts to the environment. Furthermore, given the proposed modifications do not involve the construction of any aboveground structures and are located on relatively flat land, the proposed modifications would not increase the exposure of people to wildfire or related risks, such as post-fire debris flows or instability. Therefore, no impact related to wildfire would occur.

3.11.4 Conclusion

Given that proposed modifications are not located on or near lands designated as an SRA or VHFHSZ and the proposed modifications involve a change to the alignment of an underground potable water pipeline, no impacts associated with wildfire would occur with the proposed modifications analyzed here. The proposed modifications would not result in any new significant impacts or substantially increase the severity of impacts already identified in the certified 2005 EIR, and no further mitigation is required.

4 List of Preparers

The Metropolitan Water District of Southern California

Brenda Marines, Environmental Specialist

Rincon Consultants

Jennifer Haddow, PhD, Principal Environmental Scientist
Matthew Long, MESc, MPP, Senior Environmental Scientist
Christina Shushnar, Senior Project Manager/Biologist
Brenna Vredeveld, MESc, Senior Biologist/Project Manager
Amy Trost, Biologist
Amanda Antonelli, Environmental Planner
Annaliese Miller, Environmental Planner/Scientist
Hannah Mize, Environmental Planner
John Sisser, MESM, Environmental Planner/Project Manager
Lindsay Porras, MA, Archaeologist
Breana Campbell, MA, Senior Archaeologist
Mark Strother, MA, Archaeologist
Gena Granger, Archaeologist

5 References

Air Force Reserve Command. 2018. Final Air Installations Compatible Use Zones Study, March Air Reserve Base, Riverside California. Available at: http://www.march.afrc.af.mil/Portals/135/documents/MARCH_AICUZ_2018.pdf?ver=2018-02-21-161029-473.

California Air Pollution Control Officers Association (CAPCOA). 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA)*. January 2008.

____. 2017. "CalEEMod – FAQs." Last modified: 2017. http://www.aqmd.gov/caleemod/faqs#upload

California Air Resources Board (CARB). 2014. First Update to the Climate Change Scoping Plan. May 2014. https://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf

____. 2017. California's 2017 Climate Change Scoping Plan. November 2017.

____. 2018. California Greenhouse Gas Emission Inventory - 2018 Edition. https://www.arb.ca.gov/cc/inventory/data/data.htm (accessed April 2019).

California Department of Tax and Fee Administration. 2018. "Net Taxable Gasoline Gallons." http://www.cdtfa.ca.gov/taxes-and-fees/MVF_10_Year_Report.pdf (accessed April 2019).

California Department of Transportation (Caltrans). 2009. *Interstate 215 and Van Buren Boulevard Interchange Project Initial Study [with Mitigated Negative Declaration]/Environmental Assessment with Finding of No Significant Impact. State of California Department of Transportation*. State Clearinghouse No. 2008081120. March 2009.

____. 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol. (CT-HWANP-RT-13-069.25.2)* September. http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf

California Energy Commission (CEC). 2016. Diesel Fuel Data, Facts, and Statistics. https://www.energy.ca.gov/almanac/transportation_data/diesel.html (accessed April 2019).

____.2018. "Renewables Portfolio Standard." Sacramento, CA. http://www.energy.ca.gov/portfolio/ (accessed April 2019).

____. 2019. Total System Electric Generation. https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html (accessed April 2019).

California Environmental Protection Agency (CalEPA). 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*: Executive Summary. March 2006. http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT_EXECSUMMARY.PDF (accessed April 2018).

____. 2010. *Climate Action Team Biennial Report*. April 2010.

County of Riverside. 2016. County of Riverside General Plan. December 6, 2016. http://planning.rctlma.org/ZoningInformation/GeneralPlan.aspx

Crocker, Malcolm J., 2007. *Handbook of Noise and Vibration Control*, John Wiley & Sons.

Eastern Municipal Water District (EMWD). 2018. *West San Jacinto Groundwater Basin Management Area, 2017 Annual Report.* June 2018. https://www.emwd.org/sites/main/files/file-attachments/westsanjacinto2017annualre.pdf

Federal Emergency Management Agency (FEMA). 2008. *FEMA Flood Map Service Center. Maps 06065C1410G and 0606560745G.* Effective August 28, 2008. https://msc.fema.gov/portal/search#searchresultsanchor

Federal Highway Administration (FHWA). 2006. FHWA Highway Construction Noise Handbook. (FHWAHEP-06-015; DOT-VNTSC-FHWA-06-02). August 2006. http://www.fhwa.dot.gov/environment/construction_noise/handbook

____. 2017. *Highway Traffic Noise Analysis and Abatement Policy and Guidance*. August 24.

____. 2019. "Motor Fuel Use – 2017 (1)". https://www.fhwa.dot.gov/policyinformation/statistics/2016/mf21.cfm (accessed April 2019).

Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

March Air Reserve Base. 2003. 5-Year Review Report for Former March Air Force Base and March Air Reserve Base, Riverside County, California. September 2003. https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/7654339015/MarchARB_AFB_5yrRev_Sept2003.pdf

____. 2009. Second 5-Year Review Report for Former March Air Force Base and March Air Reserve Base California. September 2009. https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/5402422845/MarchAFB_ARB_2nd5yearReviewSept2009.pdf

March Joint Powers Authority (MJPA). 2016. Development Code. July 13, 2016. http://marchjpa.com/documents/docs_forms/development_code_2016.pdf

Metropolitan Water District of Southern California. Electronic Mail Correspondence Dated April 24, 2020 from R. Bell to B. Marines on the Subject Title "PVP Discharge."

Parsons. 2020. Data Report on Combined Field Investigations for PFAS, Hydrazine, and Other COCs in Soil and Groundwater. October 7, 2020.

Rincon Consultants, Inc. 2020a. Biological Resources Assessment for the Perris Valley Pipeline Project I-215/Van Buren Boulevard Segment. August 2020.

_____. 2020b. *Biological Resources Memorandum for the Perris Valley Pipeline Modifications Project in the Caltrans Interstate 215 Right-of-Way*. October 13, 2020.

_____. 2020c. *Cultural Resources Memorandum for the Perris Valley Pipeline Modifications Project Within the Caltrans Interstate 215 Right-of-Way*. August 28, 2020.

_____. 2021a. *Water Quality Memorandum for the Perris Valley Pipeline Modifications Project Within the Caltrans Interstate 215 Right-of-Way*. March 2, 2021.

_____. 2021b. *Hazardous Materials Memorandum for the Perris Valley Pipeline Modifications Project Within the Caltrans Interstate 215 Right-of-Way*. March 1, 2021.

Riverside, County of. 2017. Riverside County General Plan Circulation Element. Revised December 12, 2017. https://planning.rctlma.org/Portals/14/genplan/2019/elements/Ch04_Circulation_121217.pdf

____. 2019. Riverside County General Plan Land Use Element. Revised April 16, 2019. https://planning.rctlma.org/Portals/14/genplan/2019/elements/Ch03_Land%20Use_041619.pdf

Riverside County Airport Land Use Commission. 2014. *March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan*. Adopted November 13, 2014. http://www.rcaluc.org/Portals/13/17%20-%20Vol.%201%20March%20Air%20Reserve%20Base%20Final.pdf?ver=2016-08-15-145812-700

Santa Ana Regional Water Quality Control Board (RWQCB). 2016. *Santa Ana Region Basin Plan*. February 2016. https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/

South Coast Air Quality Management District (SCAQMD). 2008a. Final Localized Significance Threshold Methodology. July 2008. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2

____. 2008b. *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans*. December 5. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2

____. 2009. Table C-1. 2006 – 2008 Thresholds for Construction and Operation with Gradual Conversion of NO_X to NO_2. Last modified: October 21, 2009. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2.

____. 2015. SCAQMD Air Quality Significance Thresholds. March 2015. http://www.aqmd.gov/ceqa/hdbk.html, Accessed May 25, 2018.

____. 2016. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) Attainment Status for South Coast Air Basin. February 2016. http://www.aqmd.gov/home/air-quality/clean-air-plans, Accessed May 25, 2018.

State Water Resources Control Board. 2011. “RVSD City Fire #9.” Last modified: July 11, 2011. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500584 (accessed June 2018).

____. 2015a. “Riverside National Cemetery.” Geotracker. Last modified: 2015. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500036 (accessed June 2018).

____. 2015b. “Empire Tractor.” Geotracker. Last modified: 2015. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500575 (accessed May 2019).

____. 2015c. “Bell Grain and Milling.” Last modified: 2015. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500208 (accessed May 2019).

____. 2017. “Mobil #18-A3E.” Last modified: November 17, 2017. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606599291 (accessed June 2018).

____. 2018a. “Arco #6345.” Last modified: June 26, 2018. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500497 (accessed June 2018).

____. 2018b. “Nandina Liquor.” Geotracker. Last modified: 2018. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500307 (accessed May 2019).

____. 2019. 2014 and 2016 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report). Last updated: April 2, 2019. https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml

United States Department of Defense. 2019. *Investigating Per- and Polyfluoroalkyl substances within the Department of Defense Cleanup Program*. Memorandum from Robert H. McMahon for Assistant Secretary of the Army (Installations, Energy and Environment), Assistant Secretary of the Navy (Energy, Installations and Environment), Assistant Secretary of the Air Force (Installations, Environment and Energy), Director, National Guard Bureau (Joint Staff, J8), Director, Defense Logistics Agency (Installation Support). October 2019. Found: https://media.defense.gov/2020/Feb/04/2002243735/-1/-1/1/PFAS-SCREENING-LEVEL-MEMO.PDF (accessed February 2021).

United States Department of Transportation, Bureau of Transportation Statistics. 2018. National Transportation Statistics, 2018. https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntsentire2018q4.pdf (accessed May 2019).

United States Environmental Protection Agency (U.S. EPA). 2015. “Sysco – Riverside” Multisystem Search. Last modified: July 1, 2015. https://oaspub.epa.gov/enviro/multisys2_v2.get_list?facility_uin=110070096850 (accessed June 2018).

____. 2016. “Mobis Parts America.” Multisystem Search. Last modified: September 16, 2016. https://oaspub.epa.gov/enviro/multisys2_v2.get_list?facility_uin=110055376169 (accessed June 2018).

____. 2021. *Superfund Site: March Air Force Base, Riverside CA. Cleanup Activities*. Last updated April 1, 2021. https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0902761 (accessed April 2021).

United States Energy Information Administration. 2018. “California - Profile Overview.” Last modified: November 15, 2018. https://www.eia.gov/state/?sid=CA (accessed April 2019).

United States Forest Service. 2018. “Fire in chaparral ecosystems.” Last modified November 30, 2018. https://www.fs.fed.us/psw/topics/fire_science/ecosystems/chaparral.shtml (accessed May 2019).

United States Geological Survey. 2001. *Geologic map of the Riverside East 7.5’ quadrangle, Riverside County, California* [map]. Tabular digital data and vector digital data. 1:24,000. Douglas M. Morton and Brett F. Cox. https://pubs.er.usgs.gov/publication/ofr01452 (accessed May 2018).

____. 2018. *Post-Fire Flooding and Debris Flow*. Last modified: October 31, 2018. https://ca.water.usgs.gov/wildfires/wildfires-debris-flow.html (accessed May 2019).

Western Municipal Water District (WMWD). Perris Valley Pipeline Project Environmental Impact Report. State Clearinghouse No. 2005061028. October 2005.

6 Conclusion

Section 15164(b) of the *State CEQA Guidelines* states the following:

> "An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred."

The proposed modifications to the approved Project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects. Furthermore, new information associated with the proposed modifications does not indicate that the Project will have one or more significant effects not discussed in the certified 2005 EIR; that significant effects previously examined will be substantially more severe than shown in the certified 2005 EIR; that mitigation measures previously found not to be feasible would in fact be feasible; or that mitigation measures which are considerably different from those analyzed in the certified 2005 EIR would substantially reduce one or more significant effects on the environment, but the Project proponent declines to adopt the mitigation measures or alternative. Accordingly, an Addendum was prepared as opposed to a subsequent environmental impact report or a negative declaration. As the Lead Agency for the proposed Project modifications, Metropolitan is issuing this Addendum in accordance with the State CEQA Guidelines (Section 15164).

The Metropolitan Water District of Southern California

Jennifer Harriger	4-9-2021
Signature	Date
Jennifer Harriger	Unit Manager, Environmental Planning
Printed Name	Title

This page left intentionally blank.

Appendix A

CalEEMod Results

PVP - Temporary Dewatering Facilities

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	18.72	1000sqft	0.43	18,720.00	0
Other Asphalt Surfaces	0.24	1000sqft	0.01	240.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

Project Characteristics - Separate CalEEMod for installation of temporary dewatering facilities.

Land Use - Nonasphalt surface includes two 8,400 sf temp treatment facilities, one 1,200 sf temp treatment facility and approx. 720 sf of disturbance associated with trenching for temp. dewatering lines. Asphalt surf is trenching through pavement for temp dewatering lines

Construction Phase - Demo accounts for asphalt demo for pipe installation, site prep phase extended to account for prep/clearing of treatment facility areas. Building construction phase reduced from default for more realistic est. of temp. facility construction

Off-road Equipment - Equipment remains at default

Off-road Equipment - Equipment remains at default

Off-road Equipment -

Off-road Equipment - Cranes not anticipated for temporary facilities

Off-road Equipment - Equipment remains at default

Grading - Acres graded adjusted to match site area. Substantial material import/export not anticipated for temp. dewatering facilities.

Trips and VMT - Assumes 10 workers per day, consistent with 2005 EIR. 1 vendor trip added to defaults for all phases to account for water truck.

Energy Use -

Construction Off-road Equipment Mitigation - Water Exposed Area applied consistent with SCAQMD Rule 403.

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	40.00
tblConstructionPhase	NumDays	1.00	20.00
tblConstructionPhase	PhaseEndDate	6/9/2021	4/13/2021
tblConstructionPhase	PhaseEndDate	1/20/2021	2/16/2021
tblConstructionPhase	PhaseEndDate	6/16/2021	4/20/2021
tblConstructionPhase	PhaseEndDate	1/18/2021	2/12/2021
tblConstructionPhase	PhaseStartDate	1/21/2021	2/17/2021
tblConstructionPhase	PhaseStartDate	1/19/2021	2/15/2021
tblConstructionPhase	PhaseStartDate	6/10/2021	4/14/2021
tblGrading	AcresOfGrading	10.00	0.44
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	3.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	18.00	10.00

2.0 Emissions Summary

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.8415	7.9431	7.9685	0.0134	0.8709	0.4084	1.2793	0.4453	0.3895	0.8348	0.0000	1,285.4180	1,285.4180	0.3095	0.0000	1,290.8796
Maximum	**0.8415**	**7.9431**	**7.9685**	**0.0134**	**0.8709**	**0.4084**	**1.2793**	**0.4453**	**0.3895**	**0.8348**	**0.0000**	**1,285.4180**	**1,285.4180**	**0.3095**	**0.0000**	**1,290.8796**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.8415	7.9431	7.9685	0.0134	0.4569	0.4084	0.8653	0.2177	0.3895	0.6072	0.0000	1,285.4180	1,285.4180	0.3095	0.0000	1,290.8796
Maximum	**0.8415**	**7.9431**	**7.9685**	**0.0134**	**0.4569**	**0.4084**	**0.8653**	**0.2177**	**0.3895**	**0.6072**	**0.0000**	**1,285.4180**	**1,285.4180**	**0.3095**	**0.0000**	**1,290.8796**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.54**	**0.00**	**32.36**	**51.11**	**0.00**	**27.26**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.3400e-003	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**8.3400e-003**	**2.0000e-005**	**1.9400e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**4.1500e-003**	**4.1500e-003**	**1.0000e-005**	**0.0000**	**4.4200e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.3400e-003	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**8.3400e-003**	**2.0000e-005**	**1.9400e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**4.1500e-003**	**4.1500e-003**	**1.0000e-005**	**0.0000**	**4.4200e-003**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/15/2021	5	10	
2	Site Preparation	Site Preparation	1/16/2021	2/12/2021	5	20	
3	Grading	Grading	2/15/2021	2/16/2021	5	2	
4	Dewatering Pipe/Treatment Facility Install	Building Construction	2/17/2021	4/13/2021	5	40	
5	Paving	Paving	4/14/2021	4/20/2021	5	5	

Acres of Grading (Site Preparation Phase): 0.44

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.44

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Dewatering Pipe/Treatment Facility Install	Cranes	0	4.00	231	0.29
Dewatering Pipe/Treatment Facility Install	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Dewatering Pipe/Treatment Facility Install	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering Pipe/Treatment Facilit	4	10.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**		**0.4073**	**0.4073**		**0.3886**	**0.3886**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7800e-003	0.0954	0.0226	2.6000e-004	6.4000e-003	1.9000e-004	6.5900e-003	1.8400e-003	1.8000e-004	2.0300e-003		27.2439	27.2439	1.6500e-003		27.2851
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0450**	**0.1228**	**0.3994**	**1.3700e-003**	**0.1182**	**1.0100e-003**	**0.1192**	**0.0315**	**9.4000e-004**	**0.0324**		**137.9842**	**137.9842**	**4.6300e-003**		**138.0998**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**		**0.4073**	**0.4073**		**0.3886**	**0.3886**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7800e-003	0.0954	0.0226	2.6000e-004	6.4000e-003	1.9000e-004	6.5900e-003	1.8400e-003	1.8000e-004	2.0300e-003		27.2439	27.2439	1.6500e-003		27.2851
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0450**	**0.1228**	**0.3994**	**1.3700e-003**	**0.1182**	**1.0100e-003**	**0.1192**	**0.0315**	**9.4000e-004**	**0.0324**		**137.9842**	**137.9842**	**4.6300e-003**		**138.0998**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0233	0.0000	0.0233	2.5200e-003	0.0000	2.5200e-003			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.0233**	**0.2995**	**0.3228**	**2.5200e-003**	**0.2755**	**0.2780**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7800e-003	0.0954	0.0226	2.6000e-004	6.4000e-003	1.9000e-004	6.5900e-003	1.8400e-003	1.8000e-004	2.0300e-003		27.2439	27.2439	1.6500e-003		27.2851
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0450**	**0.1228**	**0.3994**	**1.3700e-003**	**0.1182**	**1.0100e-003**	**0.1192**	**0.0315**	**9.4000e-004**	**0.0324**		**137.9842**	**137.9842**	**4.6300e-003**		**138.0998**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

3.3 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0105	0.0000	0.0105	1.1300e-003	0.0000	1.1300e-003			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.0105**	**0.2995**	**0.3100**	**1.1300e-003**	**0.2755**	**0.2766**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7800e-003	0.0954	0.0226	2.6000e-004	6.4000e-003	1.9000e-004	6.5900e-003	1.8400e-003	1.8000e-004	2.0300e-003		27.2439	27.2439	1.6500e-003		27.2851
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0450**	**0.1228**	**0.3994**	**1.3700e-003**	**0.1182**	**1.0100e-003**	**0.1192**	**0.0315**	**9.4000e-004**	**0.0324**		**137.9842**	**137.9842**	**4.6300e-003**		**138.0998**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7528**	**0.4073**	**1.1601**	**0.4138**	**0.3886**	**0.8024**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7800e-003	0.0954	0.0226	2.6000e-004	6.4000e-003	1.9000e-004	6.5900e-003	1.8400e-003	1.8000e-004	2.0300e-003		27.2439	27.2439	1.6500e-003		27.2851
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0450**	**0.1228**	**0.3994**	**1.3700e-003**	**0.1182**	**1.0100e-003**	**0.1192**	**0.0315**	**9.4000e-004**	**0.0324**		**137.9842**	**137.9842**	**4.6300e-003**		**138.0998**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

3.4 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3387	0.0000	0.3387	0.1862	0.0000	0.1862			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.3387**	**0.4073**	**0.7461**	**0.1862**	**0.3886**	**0.5748**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7800e-003	0.0954	0.0226	2.6000e-004	6.4000e-003	1.9000e-004	6.5900e-003	1.8400e-003	1.8000e-004	2.0300e-003		27.2439	27.2439	1.6500e-003		27.2851
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0450**	**0.1228**	**0.3994**	**1.3700e-003**	**0.1182**	**1.0100e-003**	**0.1192**	**0.0315**	**9.4000e-004**	**0.0324**		**137.9842**	**137.9842**	**4.6300e-003**		**138.0998**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

3.5 Dewatering Pipe/Treatment Facility Install - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5685	5.5603	6.2723	8.5100e-003		0.3491	0.3491		0.3212	0.3212		823.8464	823.8464	0.2665		830.5076
Total	**0.5685**	**5.5603**	**6.2723**	**8.5100e-003**		**0.3491**	**0.3491**		**0.3212**	**0.3212**		**823.8464**	**823.8464**	**0.2665**		**830.5076**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0111	0.3815	0.0905	1.0200e-003	0.0256	7.7000e-004	0.0264	7.3700e-003	7.3000e-004	8.1000e-003		108.9754	108.9754	6.5900e-003		109.1402
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0533**	**0.4089**	**0.4673**	**2.1300e-003**	**0.1374**	**1.5900e-003**	**0.1390**	**0.0370**	**1.4900e-003**	**0.0385**		**219.7157**	**219.7157**	**9.5700e-003**		**219.9550**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

3.5 Dewatering Pipe/Treatment Facility Install - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5685	5.5603	6.2723	8.5100e-003		0.3491	0.3491		0.3212	0.3212	0.0000	823.8464	823.8464	0.2665		830.5076
Total	**0.5685**	**5.5603**	**6.2723**	**8.5100e-003**		**0.3491**	**0.3491**		**0.3212**	**0.3212**	**0.0000**	**823.8464**	**823.8464**	**0.2665**		**830.5076**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0111	0.3815	0.0905	1.0200e-003	0.0256	7.7000e-004	0.0264	7.3700e-003	7.3000e-004	8.1000e-003		108.9754	108.9754	6.5900e-003		109.1402
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0533**	**0.4089**	**0.4673**	**2.1300e-003**	**0.1374**	**1.5900e-003**	**0.1390**	**0.0370**	**1.4900e-003**	**0.0385**		**219.7157**	**219.7157**	**9.5700e-003**		**219.9550**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7266**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7800e-003	0.0954	0.0226	2.6000e-004	6.4000e-003	1.9000e-004	6.5900e-003	1.8400e-003	1.8000e-004	2.0300e-003		27.2439	27.2439	1.6500e-003		27.2851
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0450**	**0.1228**	**0.3994**	**1.3700e-003**	**0.1182**	**1.0100e-003**	**0.1192**	**0.0315**	**9.4000e-004**	**0.0324**		**137.9842**	**137.9842**	**4.6300e-003**		**138.0998**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7266**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7800e-003	0.0954	0.0226	2.6000e-004	6.4000e-003	1.9000e-004	6.5900e-003	1.8400e-003	1.8000e-004	2.0300e-003		27.2439	27.2439	1.6500e-003		27.2851
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0450**	**0.1228**	**0.3994**	**1.3700e-003**	**0.1182**	**1.0100e-003**	**0.1192**	**0.0315**	**9.4000e-004**	**0.0324**		**137.9842**	**137.9842**	**4.6300e-003**		**138.0998**

4.0 Operational Detail - Mobile

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Other Non-Asphalt Surfaces	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.3400e-003	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003
Unmitigated	8.3400e-003	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.7200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003
Total	**8.3500e-003**	**2.0000e-005**	**1.9400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.1500e-003**	**4.1500e-003**	**1.0000e-005**		**4.4200e-003**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.7200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003
Total	**8.3500e-003**	**2.0000e-005**	**1.9400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.1500e-003**	**4.1500e-003**	**1.0000e-005**		**4.4200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

PVP - Temporary Dewatering Facilities

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	18.72	1000sqft	0.43	18,720.00	0
Other Asphalt Surfaces	0.24	1000sqft	0.01	240.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

Project Characteristics - Separate CalEEMod for installation of temporary dewatering facilities.

Land Use - Nonasphalt surface includes two 8,400 sf temp treatment facilities, one 1,200 sf temp treatment facility and approx. 720 sf of disturbance associated with trenching for temp. dewatering lines. Asphalt surf is trenching through pavement for temp dewatering lines

Construction Phase - Demo accounts for asphalt demo for pipe installation, site prep phase extended to account for prep/clearing of treatment facility areas. Building construction phase reduced from default for more realistic est. of temp. facility construction

Off-road Equipment - Equipment remains at default

Off-road Equipment - Equipment remains at default

Off-road Equipment -

Off-road Equipment - Cranes not anticipated for temporary facilities

Off-road Equipment - Equipment remains at default

Grading - Acres graded adjusted to match site area. Substantial material import/export not anticipated for temp. dewatering facilities.

Trips and VMT - Assumes 10 workers per day, consistent with 2005 EIR. 1 vendor trip added to defaults for all phases to account for water truck.

Energy Use -

Construction Off-road Equipment Mitigation - Water Exposed Area applied consistent with SCAQMD Rule 403.

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	40.00
tblConstructionPhase	NumDays	1.00	20.00
tblConstructionPhase	PhaseEndDate	6/9/2021	4/13/2021
tblConstructionPhase	PhaseEndDate	1/20/2021	2/16/2021
tblConstructionPhase	PhaseEndDate	6/16/2021	4/20/2021
tblConstructionPhase	PhaseEndDate	1/18/2021	2/12/2021
tblConstructionPhase	PhaseStartDate	1/21/2021	2/17/2021
tblConstructionPhase	PhaseStartDate	1/19/2021	2/15/2021
tblConstructionPhase	PhaseStartDate	6/10/2021	4/14/2021
tblGrading	AcresOfGrading	10.00	0.44
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	3.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	18.00	10.00

2.0 Emissions Summary

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.8456	7.9454	7.9330	0.0133	0.8709	0.4084	1.2793	0.4453	0.3896	0.8348	0.0000	1,277.4556	1,277.4556	0.3094	0.0000	1,282.9152
Maximum	**0.8456**	**7.9454**	**7.9330**	**0.0133**	**0.8709**	**0.4084**	**1.2793**	**0.4453**	**0.3896**	**0.8348**	**0.0000**	**1,277.4556**	**1,277.4556**	**0.3094**	**0.0000**	**1,282.9152**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.8456	7.9454	7.9330	0.0133	0.4569	0.4084	0.8653	0.2177	0.3896	0.6072	0.0000	1,277.4556	1,277.4556	0.3094	0.0000	1,282.9152
Maximum	**0.8456**	**7.9454**	**7.9330**	**0.0133**	**0.4569**	**0.4084**	**0.8653**	**0.2177**	**0.3896**	**0.6072**	**0.0000**	**1,277.4556**	**1,277.4556**	**0.3094**	**0.0000**	**1,282.9152**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**47.54**	**0.00**	**32.36**	**51.11**	**0.00**	**27.26**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.3400e-003	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**8.3400e-003**	**2.0000e-005**	**1.9400e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**4.1500e-003**	**4.1500e-003**	**1.0000e-005**	**0.0000**	**4.4200e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.3400e-003	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**8.3400e-003**	**2.0000e-005**	**1.9400e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**		**4.1500e-003**	**4.1500e-003**	**1.0000e-005**	**0.0000**	**4.4200e-003**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/15/2021	5	10	
2	Site Preparation	Site Preparation	1/16/2021	2/12/2021	5	20	
3	Grading	Grading	2/15/2021	2/16/2021	5	2	
4	Dewatering Pipe/Treatment Facility Install	Building Construction	2/17/2021	4/13/2021	5	40	
5	Paving	Paving	4/14/2021	4/20/2021	5	5	

Acres of Grading (Site Preparation Phase): 0.44

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.44

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Dewatering Pipe/Treatment Facility Install	Cranes	0	4.00	231	0.29
Dewatering Pipe/Treatment Facility Install	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Dewatering Pipe/Treatment Facility Install	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering Pipe/Treatment Facilit	4	10.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**		**0.4073**	**0.4073**		**0.3886**	**0.3886**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9300e-003	0.0951	0.0253	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.4550	26.4550	1.7700e-003		26.4993
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0491**	**0.1250**	**0.3639**	**1.2900e-003**	**0.1182**	**1.0200e-003**	**0.1192**	**0.0315**	**9.5000e-004**	**0.0324**		**130.0218**	**130.0218**	**4.5500e-003**		**130.1355**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**		**0.4073**	**0.4073**		**0.3886**	**0.3886**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9300e-003	0.0951	0.0253	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.4550	26.4550	1.7700e-003		26.4993
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0491**	**0.1250**	**0.3639**	**1.2900e-003**	**0.1182**	**1.0200e-003**	**0.1192**	**0.0315**	**9.5000e-004**	**0.0324**		**130.0218**	**130.0218**	**4.5500e-003**		**130.1355**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0233	0.0000	0.0233	2.5200e-003	0.0000	2.5200e-003			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.0233**	**0.2995**	**0.3228**	**2.5200e-003**	**0.2755**	**0.2780**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9300e-003	0.0951	0.0253	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.4550	26.4550	1.7700e-003		26.4993
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0491**	**0.1250**	**0.3639**	**1.2900e-003**	**0.1182**	**1.0200e-003**	**0.1192**	**0.0315**	**9.5000e-004**	**0.0324**		**130.0218**	**130.0218**	**4.5500e-003**		**130.1355**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

3.3 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0105	0.0000	0.0105	1.1300e-003	0.0000	1.1300e-003			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.0105**	**0.2995**	**0.3100**	**1.1300e-003**	**0.2755**	**0.2766**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9300e-003	0.0951	0.0253	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.4550	26.4550	1.7700e-003		26.4993
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0491**	**0.1250**	**0.3639**	**1.2900e-003**	**0.1182**	**1.0200e-003**	**0.1192**	**0.0315**	**9.5000e-004**	**0.0324**		**130.0218**	**130.0218**	**4.5500e-003**		**130.1355**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886		1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.7528**	**0.4073**	**1.1601**	**0.4138**	**0.3886**	**0.8024**		**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9300e-003	0.0951	0.0253	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.4550	26.4550	1.7700e-003		26.4993
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0491**	**0.1250**	**0.3639**	**1.2900e-003**	**0.1182**	**1.0200e-003**	**0.1192**	**0.0315**	**9.5000e-004**	**0.0324**		**130.0218**	**130.0218**	**4.5500e-003**		**130.1355**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

3.4 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3387	0.0000	0.3387	0.1862	0.0000	0.1862			0.0000			0.0000
Off-Road	0.7965	7.2530	7.5691	0.0120		0.4073	0.4073		0.3886	0.3886	0.0000	1,147.4338	1,147.4338	0.2138		1,152.7797
Total	**0.7965**	**7.2530**	**7.5691**	**0.0120**	**0.3387**	**0.4073**	**0.7461**	**0.1862**	**0.3886**	**0.5748**	**0.0000**	**1,147.4338**	**1,147.4338**	**0.2138**		**1,152.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9300e-003	0.0951	0.0253	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.4550	26.4550	1.7700e-003		26.4993
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0491**	**0.1250**	**0.3639**	**1.2900e-003**	**0.1182**	**1.0200e-003**	**0.1192**	**0.0315**	**9.5000e-004**	**0.0324**		**130.0218**	**130.0218**	**4.5500e-003**		**130.1355**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

3.5 Dewatering Pipe/Treatment Facility Install - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5685	5.5603	6.2723	8.5100e-003		0.3491	0.3491		0.3212	0.3212		823.8464	823.8464	0.2665		830.5076
Total	**0.5685**	**5.5603**	**6.2723**	**8.5100e-003**		**0.3491**	**0.3491**		**0.3212**	**0.3212**		**823.8464**	**823.8464**	**0.2665**		**830.5076**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0117	0.3803	0.1013	9.9000e-004	0.0256	7.9000e-004	0.0264	7.3700e-003	7.6000e-004	8.1300e-003		105.8201	105.8201	7.0800e-003		105.9971
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0578**	**0.4103**	**0.4399**	**2.0300e-003**	**0.1374**	**1.6100e-003**	**0.1390**	**0.0370**	**1.5200e-003**	**0.0385**		**209.3869**	**209.3869**	**9.8600e-003**		**209.6333**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

3.5 Dewatering Pipe/Treatment Facility Install - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5685	5.5603	6.2723	8.5100e-003		0.3491	0.3491		0.3212	0.3212	0.0000	823.8464	823.8464	0.2665		830.5076
Total	**0.5685**	**5.5603**	**6.2723**	**8.5100e-003**		**0.3491**	**0.3491**		**0.3212**	**0.3212**	**0.0000**	**823.8464**	**823.8464**	**0.2665**		**830.5076**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0117	0.3803	0.1013	9.9000e-004	0.0256	7.9000e-004	0.0264	7.3700e-003	7.6000e-004	8.1300e-003		105.8201	105.8201	7.0800e-003		105.9971
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0578**	**0.4103**	**0.4399**	**2.0300e-003**	**0.1374**	**1.6100e-003**	**0.1390**	**0.0370**	**1.5200e-003**	**0.0385**		**209.3869**	**209.3869**	**9.8600e-003**		**209.6333**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7266**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9300e-003	0.0951	0.0253	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.4550	26.4550	1.7700e-003		26.4993
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0491**	**0.1250**	**0.3639**	**1.2900e-003**	**0.1182**	**1.0200e-003**	**0.1192**	**0.0315**	**9.5000e-004**	**0.0324**		**130.0218**	**130.0218**	**4.5500e-003**		**130.1355**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7266**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.9300e-003	0.0951	0.0253	2.5000e-004	6.4000e-003	2.0000e-004	6.6000e-003	1.8400e-003	1.9000e-004	2.0300e-003		26.4550	26.4550	1.7700e-003		26.4993
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0491**	**0.1250**	**0.3639**	**1.2900e-003**	**0.1182**	**1.0200e-003**	**0.1192**	**0.0315**	**9.5000e-004**	**0.0324**		**130.0218**	**130.0218**	**4.5500e-003**		**130.1355**

4.0 Operational Detail - Mobile

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Other Non-Asphalt Surfaces	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.3400e-003	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003
Unmitigated	8.3400e-003	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.7200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003
Total	**8.3500e-003**	**2.0000e-005**	**1.9400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.1500e-003**	**4.1500e-003**	**1.0000e-005**		**4.4200e-003**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.4500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.7200e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1500e-003	4.1500e-003	1.0000e-005		4.4200e-003
Total	**8.3500e-003**	**2.0000e-005**	**1.9400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.1500e-003**	**4.1500e-003**	**1.0000e-005**		**4.4200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

PVP - Temporary Dewatering Facilities

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	18.72	1000sqft	0.43	18,720.00	0
Other Asphalt Surfaces	0.24	1000sqft	0.01	240.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

Project Characteristics - Separate CalEEMod for installation of temporary dewatering facilities.

Land Use - Nonasphalt surface includes two 8,400 sf temp treatment facilities, one 1,200 sf temp treatment facility and approx. 720 sf of disturbance associated with trenching for temp. dewatering lines. Asphalt surf is trenching through pavement for temp dewatering lines

Construction Phase - Demo accounts for asphalt demo for pipe installation, site prep phase extended to account for prep/clearing of treatment facility areas. Building construction phase reduced from default for more realistic est. of temp. facility construction

Off-road Equipment - Equipment remains at default

Off-road Equipment - Equipment remains at default

Off-road Equipment -

Off-road Equipment - Cranes not anticipated for temporary facilities

Off-road Equipment - Equipment remains at default

Grading - Acres graded adjusted to match site area. Substantial material import/export not anticipated for temp. dewatering facilities.

Trips and VMT - Assumes 10 workers per day, consistent with 2005 EIR. 1 vendor trip added to defaults for all phases to account for water truck.

Energy Use -

Construction Off-road Equipment Mitigation - Water Exposed Area applied consistent with SCAQMD Rule 403.

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	40.00
tblConstructionPhase	NumDays	1.00	20.00
tblConstructionPhase	PhaseEndDate	6/9/2021	4/13/2021
tblConstructionPhase	PhaseEndDate	1/20/2021	2/16/2021
tblConstructionPhase	PhaseEndDate	6/16/2021	4/20/2021
tblConstructionPhase	PhaseEndDate	1/18/2021	2/12/2021
tblConstructionPhase	PhaseStartDate	1/21/2021	2/17/2021
tblConstructionPhase	PhaseStartDate	1/19/2021	2/15/2021
tblConstructionPhase	PhaseStartDate	6/10/2021	4/14/2021
tblGrading	AcresOfGrading	10.00	0.44
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	3.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	18.00	10.00

2.0 Emissions Summary

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0263	0.2604	0.2446	4.3000e-004	5.8300e-003	0.0134	0.0192	1.7400e-003	0.0124	0.0141	0.0000	38.1765	38.1765	9.7000e-003	0.0000	38.4189
Maximum	**0.0263**	**0.2604**	**0.2446**	**4.3000e-004**	**5.8300e-003**	**0.0134**	**0.0192**	**1.7400e-003**	**0.0124**	**0.0141**	**0.0000**	**38.1765**	**38.1765**	**9.7000e-003**	**0.0000**	**38.4189**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0263	0.2604	0.2446	4.3000e-004	5.2900e-003	0.0134	0.0186	1.5000e-003	0.0124	0.0139	0.0000	38.1764	38.1764	9.7000e-003	0.0000	38.4189
Maximum	**0.0263**	**0.2604**	**0.2446**	**4.3000e-004**	**5.2900e-003**	**0.0134**	**0.0186**	**1.5000e-003**	**0.0124**	**0.0139**	**0.0000**	**38.1764**	**38.1764**	**9.7000e-003**	**0.0000**	**38.4189**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**9.26**	**0.00**	**2.87**	**13.79**	**0.00**	**1.70**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-4-2021	4-3-2021	0.2358	0.2358
2	4-4-2021	7-3-2021	0.0426	0.0426
		Highest	0.2358	0.2358

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5100e-003	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.7000e-004	4.7000e-004	0.0000	0.0000	5.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5100e-003**	**0.0000**	**2.4000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.7000e-004**	**4.7000e-004**	**0.0000**	**0.0000**	**5.0000e-004**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5100e-003	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.7000e-004	4.7000e-004	0.0000	0.0000	5.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5100e-003**	**0.0000**	**2.4000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.7000e-004**	**4.7000e-004**	**0.0000**	**0.0000**	**5.0000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/15/2021	5	10	
2	Site Preparation	Site Preparation	1/16/2021	2/12/2021	5	20	
3	Grading	Grading	2/15/2021	2/16/2021	5	2	
4	Dewatering Pipe/Treatment Facility Install	Building Construction	2/17/2021	4/13/2021	5	40	
5	Paving	Paving	4/14/2021	4/20/2021	5	5	

Acres of Grading (Site Preparation Phase): 0.44

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.44

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Dewatering Pipe/Treatment Facility Install	Cranes	0	4.00	231	0.29
Dewatering Pipe/Treatment Facility Install	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Dewatering Pipe/Treatment Facility Install	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering Pipe/Treatment Facilit	4	10.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9800e-003	0.0363	0.0379	6.0000e-005		2.0400e-003	2.0400e-003		1.9400e-003	1.9400e-003	0.0000	5.2047	5.2047	9.7000e-004	0.0000	5.2289
Total	**3.9800e-003**	**0.0363**	**0.0379**	**6.0000e-005**		**2.0400e-003**	**2.0400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**5.2047**	**5.2047**	**9.7000e-004**	**0.0000**	**5.2289**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	4.8000e-004	1.2000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1221	0.1221	1.0000e-005	0.0000	0.1223
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4778	0.4778	1.0000e-005	0.0000	0.4782
Total	**2.2000e-004**	**6.3000e-004**	**1.8600e-003**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**5.8000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5999**	**0.5999**	**2.0000e-005**	**0.0000**	**0.6004**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.9800e-003	0.0363	0.0379	6.0000e-005		2.0400e-003	2.0400e-003		1.9400e-003	1.9400e-003	0.0000	5.2047	5.2047	9.7000e-004	0.0000	5.2289
Total	**3.9800e-003**	**0.0363**	**0.0379**	**6.0000e-005**		**2.0400e-003**	**2.0400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**5.2047**	**5.2047**	**9.7000e-004**	**0.0000**	**5.2289**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	4.8000e-004	1.2000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1221	0.1221	1.0000e-005	0.0000	0.1223
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4778	0.4778	1.0000e-005	0.0000	0.4782
Total	**2.2000e-004**	**6.3000e-004**	**1.8600e-003**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**5.8000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5999**	**0.5999**	**2.0000e-005**	**0.0000**	**0.6004**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3000e-004	0.0000	2.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4000e-003	0.0782	0.0403	1.0000e-004		2.9900e-003	2.9900e-003		2.7600e-003	2.7600e-003	0.0000	8.5510	8.5510	2.7700e-003	0.0000	8.6201
Total	**6.4000e-003**	**0.0782**	**0.0403**	**1.0000e-004**	**2.3000e-004**	**2.9900e-003**	**3.2200e-003**	**3.0000e-005**	**2.7600e-003**	**2.7900e-003**	**0.0000**	**8.5510**	**8.5510**	**2.7700e-003**	**0.0000**	**8.6201**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	9.7000e-004	2.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2442	0.2442	2.0000e-005	0.0000	0.2445
Worker	4.2000e-004	3.1000e-004	3.4800e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9557	0.9557	3.0000e-005	0.0000	0.9563
Total	**4.5000e-004**	**1.2800e-003**	**3.7200e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1700e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.1998**	**1.1998**	**5.0000e-005**	**0.0000**	**1.2008**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

3.3 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-004	0.0000	1.0000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.4000e-003	0.0782	0.0403	1.0000e-004		2.9900e-003	2.9900e-003		2.7600e-003	2.7600e-003	0.0000	8.5510	8.5510	2.7700e-003	0.0000	8.6201
Total	**6.4000e-003**	**0.0782**	**0.0403**	**1.0000e-004**	**1.0000e-004**	**2.9900e-003**	**3.0900e-003**	**1.0000e-005**	**2.7600e-003**	**2.7700e-003**	**0.0000**	**8.5510**	**8.5510**	**2.7700e-003**	**0.0000**	**8.6201**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	9.7000e-004	2.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2442	0.2442	2.0000e-005	0.0000	0.2445
Worker	4.2000e-004	3.1000e-004	3.4800e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9557	0.9557	3.0000e-005	0.0000	0.9563
Total	**4.5000e-004**	**1.2800e-003**	**3.7200e-003**	**1.0000e-005**	**1.1600e-003**	**1.0000e-005**	**1.1700e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.1998**	**1.1998**	**5.0000e-005**	**0.0000**	**1.2008**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-004	7.2500e-003	7.5700e-003	1.0000e-005		4.1000e-004	4.1000e-004		3.9000e-004	3.9000e-004	0.0000	1.0409	1.0409	1.9000e-004	0.0000	1.0458
Total	**8.0000e-004**	**7.2500e-003**	**7.5700e-003**	**1.0000e-005**	**7.5000e-004**	**4.1000e-004**	**1.1600e-003**	**4.1000e-004**	**3.9000e-004**	**8.0000e-004**	**0.0000**	**1.0409**	**1.0409**	**1.9000e-004**	**0.0000**	**1.0458**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	1.0000e-004	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0244	0.0244	0.0000	0.0000	0.0245
Worker	4.0000e-005	3.0000e-005	3.5000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0956	0.0956	0.0000	0.0000	0.0956
Total	**4.0000e-005**	**1.3000e-004**	**3.7000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1200**	**0.1200**	**0.0000**	**0.0000**	**0.1201**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

3.4 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.4000e-004	0.0000	3.4000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0000e-004	7.2500e-003	7.5700e-003	1.0000e-005		4.1000e-004	4.1000e-004		3.9000e-004	3.9000e-004	0.0000	1.0409	1.0409	1.9000e-004	0.0000	1.0458
Total	**8.0000e-004**	**7.2500e-003**	**7.5700e-003**	**1.0000e-005**	**3.4000e-004**	**4.1000e-004**	**7.5000e-004**	**1.9000e-004**	**3.9000e-004**	**5.8000e-004**	**0.0000**	**1.0409**	**1.0409**	**1.9000e-004**	**0.0000**	**1.0458**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	1.0000e-004	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0244	0.0244	0.0000	0.0000	0.0245
Worker	4.0000e-005	3.0000e-005	3.5000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0956	0.0956	0.0000	0.0000	0.0956
Total	**4.0000e-005**	**1.3000e-004**	**3.7000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1200**	**0.1200**	**0.0000**	**0.0000**	**0.1201**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

3.5 Dewatering Pipe/Treatment Facility Install - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0114	0.1112	0.1254	1.7000e-004		6.9800e-003	6.9800e-003		6.4200e-003	6.4200e-003	0.0000	14.9476	14.9476	4.8300e-003	0.0000	15.0685
Total	**0.0114**	**0.1112**	**0.1254**	**1.7000e-004**		**6.9800e-003**	**6.9800e-003**		**6.4200e-003**	**6.4200e-003**	**0.0000**	**14.9476**	**14.9476**	**4.8300e-003**	**0.0000**	**15.0685**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	7.7400e-003	1.9200e-003	2.0000e-005	5.0000e-004	2.0000e-005	5.2000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	1.9532	1.9532	1.2000e-004	0.0000	1.9563
Worker	8.3000e-004	6.2000e-004	6.9700e-003	2.0000e-005	2.1900e-003	2.0000e-005	2.2100e-003	5.8000e-004	2.0000e-005	6.0000e-004	0.0000	1.9113	1.9113	5.0000e-005	0.0000	1.9126
Total	**1.0600e-003**	**8.3600e-003**	**8.8900e-003**	**4.0000e-005**	**2.6900e-003**	**4.0000e-005**	**2.7300e-003**	**7.3000e-004**	**3.0000e-005**	**7.6000e-004**	**0.0000**	**3.8645**	**3.8645**	**1.7000e-004**	**0.0000**	**3.8689**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

3.5 Dewatering Pipe/Treatment Facility Install - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0114	0.1112	0.1254	1.7000e-004		6.9800e-003	6.9800e-003		6.4200e-003	6.4200e-003	0.0000	14.9476	14.9476	4.8300e-003	0.0000	15.0685
Total	**0.0114**	**0.1112**	**0.1254**	**1.7000e-004**		**6.9800e-003**	**6.9800e-003**		**6.4200e-003**	**6.4200e-003**	**0.0000**	**14.9476**	**14.9476**	**4.8300e-003**	**0.0000**	**15.0685**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	7.7400e-003	1.9200e-003	2.0000e-005	5.0000e-004	2.0000e-005	5.2000e-004	1.5000e-004	1.0000e-005	1.6000e-004	0.0000	1.9532	1.9532	1.2000e-004	0.0000	1.9563
Worker	8.3000e-004	6.2000e-004	6.9700e-003	2.0000e-005	2.1900e-003	2.0000e-005	2.2100e-003	5.8000e-004	2.0000e-005	6.0000e-004	0.0000	1.9113	1.9113	5.0000e-005	0.0000	1.9126
Total	**1.0600e-003**	**8.3600e-003**	**8.8900e-003**	**4.0000e-005**	**2.6900e-003**	**4.0000e-005**	**2.7300e-003**	**7.3000e-004**	**3.0000e-005**	**7.6000e-004**	**0.0000**	**3.8645**	**3.8645**	**1.7000e-004**	**0.0000**	**3.8689**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0168	0.0177	3.0000e-005		8.8000e-004	8.8000e-004		8.2000e-004	8.2000e-004	0.0000	2.3481	2.3481	6.8000e-004	0.0000	2.3652
Paving	1.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8100e-003**	**0.0168**	**0.0177**	**3.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.3481**	**2.3481**	**6.8000e-004**	**0.0000**	**2.3652**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.4000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0610	0.0610	0.0000	0.0000	0.0611
Worker	1.0000e-004	8.0000e-005	8.7000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2389	0.2389	1.0000e-005	0.0000	0.2391
Total	**1.1000e-004**	**3.2000e-004**	**9.3000e-004**	**0.0000**	**2.9000e-004**	**0.0000**	**3.0000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.3000**	**0.3000**	**1.0000e-005**	**0.0000**	**0.3002**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0168	0.0177	3.0000e-005		8.8000e-004	8.8000e-004		8.2000e-004	8.2000e-004	0.0000	2.3481	2.3481	6.8000e-004	0.0000	2.3652
Paving	1.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8100e-003**	**0.0168**	**0.0177**	**3.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.3481**	**2.3481**	**6.8000e-004**	**0.0000**	**2.3652**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.4000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0610	0.0610	0.0000	0.0000	0.0611
Worker	1.0000e-004	8.0000e-005	8.7000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2389	0.2389	1.0000e-005	0.0000	0.2391
Total	**1.1000e-004**	**3.2000e-004**	**9.3000e-004**	**0.0000**	**2.9000e-004**	**0.0000**	**3.0000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.3000**	**0.3000**	**1.0000e-005**	**0.0000**	**0.3002**

4.0 Operational Detail - Mobile

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Other Non-Asphalt Surfaces	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5100e-003	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.7000e-004	4.7000e-004	0.0000	0.0000	5.0000e-004
Unmitigated	1.5100e-003	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.7000e-004	4.7000e-004	0.0000	0.0000	5.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.7000e-004	4.7000e-004	0.0000	0.0000	5.0000e-004
Total	**1.5100e-003**	**0.0000**	**2.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.7000e-004**	**4.7000e-004**	**0.0000**	**0.0000**	**5.0000e-004**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.7000e-004	4.7000e-004	0.0000	0.0000	5.0000e-004
Total	**1.5100e-003**	**0.0000**	**2.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.7000e-004**	**4.7000e-004**	**0.0000**	**0.0000**	**5.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

PVP - Temporary Dewatering Facilities - South Coast AQMD Air District, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

PVP All Tunnel 2020

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	8.25	1000sqft	0.19	8,250.00	0
Other Asphalt Surfaces	0.01	1000sqft	0.00	14.00	0
Other Non-Asphalt Surfaces	64.00	1000sqft	1.47	64,000.00	0
Other Non-Asphalt Surfaces	11.50	1000sqft	0.26	11,500.00	0
Other Non-Asphalt Surfaces	32.10	1000sqft	0.74	32,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Modeling for all-tunnel construction of PVP alignment. Note: Installation of temp. dewatering facilities (i.e., pipelines, treatment facilities), modeled separately.

Land Use - Non-Asphalt surfaces are contractor work/storage areas around tunnel pits 1, 2, 3. Asphalt surfaces are contractor work storage pits around tunnel pit 4. 14 sf asphalt surface is well removal and capping (assuming 8 inch overdrilling).

Construction Phase - Schedule adjusted to match anticipated schedule (~16 weeks per tunnel segment).

Off-road Equipment - Equipment list per cient. Pumps and generators added to separate phase.

Off-road Equipment - Equipment list per client. Pumps and generators added to separate phase.

Off-road Equipment - Equipment list per client. Generators added to separate phase.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Assumes 3 pumps at Tunnel Pit 3 and two at Tunnel Pit 4. One 1200 kW generator at Tunnel Pit 3 and one 60 kW generator at Tunnel Pit 3.

Off-road Equipment - Generators assume one 1200 kW generator at Tunnel Pit 1 based on Kohler KM1200U generator, and one 60 kW generator at Tunnel Pit 2 based on Generac SD060 diesel generator.

Off-road Equipment - Based on one 1200 kW generator at tunnel pit 3 and one 60 kW generator at Tunnel Pits 2 and 3, each.

Off-road Equipment - Generator sets included in dewatering phase.

Off-road Equipment - Equipment usage per client. Generators added in separate phase.

Off-road Equipment - Equipment usage and HP and LF from client. Generators added to separate phase.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Construction equipment list per client. Pumps added to dewatering phases

Off-road Equipment - Equipment list per client. Pumps added to separate dewatering phase.

Off-road Equipment - Equipment list per client. Pumps added to separate phase.

Off-road Equipment - One 100 kW generator to power construction trailers. Based on Generac SD100 industrial generator set specs.

Off-road Equipment - Equipment list per client. Generators and pumps added to generator and pumping phases.

Off-road Equipment - Equipment list per client. Generators added to separate phase.

Off-road Equipment - Equipment list per client. Generators added to separate phase.

Off-road Equipment - Equipment usage and HP and LF from client. Generators added to separate phase.

Off-road Equipment - Equipment usage, HP and LF from client. Generators added to separate phase.

Off-road Equipment - Equipment hours and LF per client. Generators added to dewatering/generator phases

Off-road Equipment - Demobilization remains at default.

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Off-road Equipment - Paving remains at default.

Off-road Equipment - Adjusted per equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Grading - Quantities obtained from PVP Update powerpoint dated 4/6/2020. Assumes all excavated quantities exported offsite and required backfill imported.

Trips and VMT - Assumes up to 10 workers per day, per 2005 EIR. Workers added to Generators - Trailers phase, as it spans entire construction period. Haul trips based on soil volumes and assumed 16 cy truck cap. Assumes disposal at Badlands Landfill (15.1 mi).

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed area applied pursuant to SCAQMD Rule 403.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	4.00
tblConstructionPhase	NumDays	220.00	6.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	220.00	4.00
tblConstructionPhase	NumDays	220.00	14.00
tblConstructionPhase	NumDays	220.00	12.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	220.00	4.00
tblConstructionPhase	NumDays	220.00	10.00
tblConstructionPhase	NumDays	220.00	8.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	6.00	16.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	34.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblConstructionPhase	NumDays	6.00	23.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	24.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	6.00	23.00
tblConstructionPhase	NumDays	3.00	15.00
tblConstructionPhase	NumDays	3.00	135.00
tblConstructionPhase	NumDays	3.00	493.00
tblConstructionPhase	NumDays	3.00	110.00
tblConstructionPhase	NumDays	3.00	2.00
tblConstructionPhase	NumDays	3.00	22.00
tblConstructionPhase	NumDays	3.00	8.00
tblConstructionPhase	NumDays	3.00	2.00
tblConstructionPhase	NumDays	3.00	141.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblGrading	AcresOfGrading	246.50	0.00
tblGrading	AcresOfGrading	3.00	1.00
tblGrading	AcresOfGrading	12.00	4.00
tblGrading	AcresOfGrading	3.00	1.00
tblGrading	MaterialExported	0.00	13,319.00
tblGrading	MaterialExported	0.00	673.00
tblGrading	MaterialExported	0.00	6,336.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblGrading	MaterialExported	0.00	431.00
tblGrading	MaterialImported	0.00	3,047.00
tblGrading	MaterialImported	0.00	362.00
tblGrading	MaterialImported	0.00	1,385.00
tblGrading	MaterialImported	0.00	604.00
tblLandUse	LandUseSquareFeet	10.00	14.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	78.00	300.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	9.00	750.00
tblOffRoadEquipment	HorsePower	9.00	750.00
tblOffRoadEquipment	HorsePower	9.00	750.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	84.00	1,770.00
tblOffRoadEquipment	HorsePower	84.00	93.00
tblOffRoadEquipment	HorsePower	84.00	152.00
tblOffRoadEquipment	HorsePower	84.00	1,770.00
tblOffRoadEquipment	HorsePower	84.00	93.00
tblOffRoadEquipment	HorsePower	84.00	1,770.00
tblOffRoadEquipment	HorsePower	84.00	93.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	700.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	700.00
tblOffRoadEquipment	HorsePower	172.00	300.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	700.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	100.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	100.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblOffRoadEquipment	HorsePower	88.00	100.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	400.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	400.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	400.00
tblOffRoadEquipment	HorsePower	84.00	5.00
tblOffRoadEquipment	HorsePower	84.00	5.00
tblOffRoadEquipment	HorsePower	84.00	5.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.45
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.56	0.75
tblOffRoadEquipment	LoadFactor	0.56	0.75
tblOffRoadEquipment	LoadFactor	0.56	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75

tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75

tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.20
tblOffRoadEquipment	UsageHours	8.00	4.20
tblOffRoadEquipment	UsageHours	8.00	4.20
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripNumber	381.00	190.00
tblTripsAndVMT	HaulingTripNumber	1,665.00	832.00
tblTripsAndVMT	HaulingTripNumber	45.00	23.00
tblTripsAndVMT	HaulingTripNumber	84.00	42.00
tblTripsAndVMT	HaulingTripNumber	173.00	87.00
tblTripsAndVMT	HaulingTripNumber	76.00	38.00
tblTripsAndVMT	HaulingTripNumber	792.00	396.00
tblTripsAndVMT	HaulingTripNumber	54.00	27.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	30.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00

tblTripsAndVMT	WorkerTripNumber	25.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	28.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00

2.0 Emissions Summary

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	45.4506	627.9143	269.0912	0.9738	13.8412	16.1673	30.0085	5.6109	15.8548	21.4657	0.0000	106,142.0200	106,142.0200	7.5609	0.0000	106,331.0416
2022	39.2819	551.1984	242.5786	0.9039	11.5626	13.2042	21.4269	5.2608	13.0196	15.9223	0.0000	99,091.7107	99,091.7107	5.9357	0.0000	99,240.1024
Maximum	**45.4506**	**627.9143**	**269.0912**	**0.9738**	**13.8412**	**16.1673**	**30.0085**	**5.6109**	**15.8548**	**21.4657**	**0.0000**	**106,142.0200**	**106,142.0200**	**7.5609**	**0.0000**	**106,331.0416**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	45.4506	627.9143	269.0912	0.9738	6.6380	16.1673	22.8052	2.6366	15.8548	18.4914	0.0000	106,142.0199	106,142.0199	7.5609	0.0000	106,331.0415
2022	39.2819	551.1984	242.5786	0.9039	5.2799	13.2042	16.9732	2.3878	13.0196	14.3441	0.0000	99,091.7106	99,091.7106	5.9357	0.0000	99,240.1023
Maximum	**45.4506**	**627.9143**	**269.0912**	**0.9738**	**6.6380**	**16.1673**	**22.8052**	**2.6366**	**15.8548**	**18.4914**	**0.0000**	**106,142.0199**	**106,142.0199**	**7.5609**	**0.0000**	**106,331.0415**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**53.09**	**0.00**	**22.66**	**53.78**	**0.00**	**12.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0510	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0510**	**1.1000e-004**	**0.0118**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**4.0000e-005**		**0.0254**	**0.0254**	**7.0000e-005**	**0.0000**	**0.0270**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0510	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0510**	**1.1000e-004**	**0.0118**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**4.0000e-005**		**0.0254**	**0.0254**	**7.0000e-005**	**0.0000**	**0.0270**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	SP Tunnel Pit 1	Site Preparation	4/21/2021	5/11/2021	5	15	
2	Generator - Trailers	Site Preparation	4/21/2021	8/26/2022	7	493	
3	SP Tunnel Pit 2	Site Preparation	5/12/2021	5/13/2021	5	2	
4	SP Tunnel Pit 3	Site Preparation	5/14/2021	5/25/2021	5	8	
5	SP Tunnel Pit 4	Site Preparation	5/26/2021	5/27/2021	5	2	
6	Dewatering - Tunnel Pits 1 and 2	Site Preparation	5/28/2021	10/15/2021	7	141	
7	Excavating Tunnel Pit 1	Grading	5/28/2021	7/8/2021	5	30	
8	Excavating Tunnel Pit 2	Grading	7/9/2021	8/10/2021	5	23	
9	Erect MTBM 215 Tunnel	Building Construction	7/22/2021	7/28/2021	5	5	
10	Excavation and Jacking 215 Tunnel	Grading	7/29/2021	8/19/2021	5	16	
11	Remove MTBM215 Tunnel	Building Construction	8/20/2021	8/25/2021	5	4	
12	Install Pipeline 215 Tunnel	Building Construction	8/23/2021	8/30/2021	5	6	
13	Annular Grout 215 Tunnel	Building Construction	8/30/2021	9/3/2021	5	5	
14	Backfill Tunnel Pit 1	Grading	9/6/2021	10/15/2021	5	30	
15	Dewatering - Tunnel Pits 2 and 3	Site Preparation	10/15/2021	2/26/2022	7	135	
16	Excavating Tunnel Pit 3	Grading	10/15/2021	11/11/2021	5	20	
17	Erect MTBM MARB Tunnel	Building Construction	10/28/2021	11/3/2021	5	5	
18	Excavation and Jacking MARB Tunnel	Grading	11/4/2021	12/21/2021	5	34	

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

19	Remove MTBM MARB Tunnel	Building Construction	12/22/2021	12/27/2021	5	4	
20	Install Pipeline MARB Tunnel	Building Construction	12/23/2021	1/11/2022	5	14	
21	Annular Grout MARB Tunnel	Building Construction	1/11/2022	1/26/2022	5	12	
22	Backfill Tunnel Pit 2	Grading	1/27/2022	2/28/2022	5	23	
23	Dewatering - Tunnel Pit 3	Site Preparation	2/26/2022	6/15/2022	7	110	
24	Excavating Tunnel Pit 4	Grading	3/1/2022	3/28/2022	5	20	
25	Erect MTBM Van Buren Tunnel	Building Construction	3/12/2022	3/18/2022	5	5	
26	Excavation and Jacking Van Buren Tunnel	Grading	3/21/2022	4/21/2022	5	24	
27	Remove MTBM Van Buren Tunnel	Building Construction	4/23/2022	4/28/2022	5	4	
28	Install Pipeline Van Buren Tunnel	Building Construction	4/26/2022	5/9/2022	5	10	
29	Annular Grout Van Buren Tunnel	Building Construction	5/7/2022	5/18/2022	5	8	
30	Backfill Tunnel Pit 3	Grading	5/19/2022	6/15/2022	5	20	
31	Backfill Tunnel Pit 4	Grading	6/16/2022	7/13/2022	5	20	
32	Site Restoration - Paving	Paving	7/14/2022	7/27/2022	5	10	
33	Site Restoration - Other/Demobilization	Site Preparation	7/28/2022	8/26/2022	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.66

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
SP Tunnel Pit 1	Graders	1	8.00	187	0.41
SP Tunnel Pit 1	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 1	Rubber Tired Dozers	1	7.00	247	0.40

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

SP Tunnel Pit 1	Scrapers	0	8.00	367	0.48
SP Tunnel Pit 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
SP Tunnel Pit 2	Graders	1	8.00	187	0.41
SP Tunnel Pit 2	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 2	Rubber Tired Dozers	1	7.00	247	0.40
SP Tunnel Pit 2	Tractors/Loaders/Backhoes	1	8.00	97	0.37
SP Tunnel Pit 3	Graders	1	8.00	187	0.41
SP Tunnel Pit 3	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 3	Rubber Tired Dozers	1	8.00	247	0.40
SP Tunnel Pit 3	Tractors/Loaders/Backhoes	1	8.00	97	0.37
SP Tunnel Pit 4	Graders	1	8.00	187	0.41
SP Tunnel Pit 4	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 4	Rubber Tired Dozers	1	8.00	247	0.40
SP Tunnel Pit 4	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavating Tunnel Pit 1	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 1	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 1	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 1	Graders	1	6.00	187	0.41
Excavating Tunnel Pit 1	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 1	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 1	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 1	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 1	Welders	1	6.40	40	0.75
Excavating Tunnel Pit 2	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 2	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 2	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 2	Graders	1	6.00	187	0.41

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Excavating Tunnel Pit 2	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 2	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 2	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 2	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 2	Welders	1	6.40	40	0.75
Erect MTBM 215 Tunnel	Cranes	1	2.80	300	0.75
Erect MTBM 215 Tunnel	Forklifts	1	6.00	89	0.20
Erect MTBM 215 Tunnel	Generator Sets	0	8.00	84	0.74
Erect MTBM 215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Erect MTBM 215 Tunnel	Welders	3	8.00	46	0.45
Excavation and Jacking 215 Tunnel	Air Compressors	1	2.80	300	0.75
Excavation and Jacking 215 Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Excavation and Jacking 215 Tunnel	Graders	1	6.00	187	0.41
Excavation and Jacking 215 Tunnel	Other Construction Equipment	1	5.60	700	0.75
Excavation and Jacking 215 Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Excavation and Jacking 215 Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Excavation and Jacking 215 Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Excavation and Jacking 215 Tunnel	Rubber Tired Dozers	1	6.00	247	0.40
Excavation and Jacking 215 Tunnel	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Remove MTBM215 Tunnel	Cranes	1	2.80	300	0.75
Remove MTBM215 Tunnel	Forklifts	1	6.00	89	0.20
Remove MTBM215 Tunnel	Generator Sets	0	8.00	84	0.74
Remove MTBM215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Remove MTBM215 Tunnel	Welders	3	8.00	46	0.45
Install Pipeline 215 Tunnel	Air Compressors	1	2.80	300	0.75
Install Pipeline 215 Tunnel	Cranes	1	2.80	300	0.75
Install Pipeline 215 Tunnel	Dumpers/Tenders	1	2.80	350	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Install Pipeline 215 Tunnel	Forklifts	1	6.00	89	0.20
Install Pipeline 215 Tunnel	Generator Sets	0	8.00	84	0.74
Install Pipeline 215 Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Install Pipeline 215 Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Install Pipeline 215 Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Install Pipeline 215 Tunnel	Other Material Handling Equipment	2	1.40	400	0.75
Install Pipeline 215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Install Pipeline 215 Tunnel	Welders	2	4.20	40	0.75
Annular Grout 215 Tunnel	Air Compressors	1	2.80	300	0.75
Annular Grout 215 Tunnel	Cement and Mortar Mixers	3	0.50	750	0.75
Annular Grout 215 Tunnel	Cranes	1	6.00	231	0.29
Annular Grout 215 Tunnel	Forklifts	1	6.00	89	0.20
Annular Grout 215 Tunnel	Generator Sets	0	8.00	84	0.74
Annular Grout 215 Tunnel	Other General Industrial Equipment	1	2.80	100	0.75
Annular Grout 215 Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Annular Grout 215 Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Annular Grout 215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Annular Grout 215 Tunnel	Welders	3	8.00	46	0.45
Backfill Tunnel Pit 1	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 1	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 1	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 1	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 1	Other Construction Equipment	1	4.30	300	0.75
Backfill Tunnel Pit 1	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 1	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 1	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 1	Welders	1	6.40	40	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Excavating Tunnel Pit 3	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 3	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 3	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 3	Graders	1	6.00	187	0.41
Excavating Tunnel Pit 3	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 3	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 3	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 3	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 3	Welders	1	6.40	40	0.75
Erect MTBM MARB Tunnel	Cranes	1	2.80	300	0.75
Erect MTBM MARB Tunnel	Forklifts	1	6.00	89	0.20
Erect MTBM MARB Tunnel	Generator Sets	0	8.00	84	0.74
Erect MTBM MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Erect MTBM MARB Tunnel	Welders	3	8.00	46	0.45
Excavation and Jacking MARB Tunnel	Air Compressors	1	2.80	300	0.75
Excavation and Jacking MARB Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Excavation and Jacking MARB Tunnel	Graders	1	6.00	187	0.41
Excavation and Jacking MARB Tunnel	Other Construction Equipment	1	5.60	700	0.75
Excavation and Jacking MARB Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Excavation and Jacking MARB Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Excavation and Jacking MARB Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Excavation and Jacking MARB Tunnel	Rubber Tired Dozers	1	6.00	247	0.40
Excavation and Jacking MARB Tunnel	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Remove MTBM MARB Tunnel	Cranes	1	2.80	300	0.75
Remove MTBM MARB Tunnel	Forklifts	1	6.00	89	0.20
Remove MTBM MARB Tunnel	Generator Sets	0	8.00	84	0.74
Remove MTBM MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Remove MTBM MARB Tunnel	Welders	3	8.00	46	0.45
Install Pipeline MARB Tunnel	Air Compressors	1	2.80	300	0.75
Install Pipeline MARB Tunnel	Cranes	1	2.80	300	0.75
Install Pipeline MARB Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Install Pipeline MARB Tunnel	Forklifts	1	6.00	89	0.20
Install Pipeline MARB Tunnel	Generator Sets	0	8.00	84	0.74
Install Pipeline MARB Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Install Pipeline MARB Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Install Pipeline MARB Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Install Pipeline MARB Tunnel	Other Material Handling Equipment	2	1.40	400	0.75
Install Pipeline MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Install Pipeline MARB Tunnel	Welders	2	4.20	40	0.75
Annular Grout MARB Tunnel	Air Compressors	1	2.80	300	0.75
Annular Grout MARB Tunnel	Cement and Mortar Mixers	3	0.50	750	0.75
Annular Grout MARB Tunnel	Cranes	1	6.00	231	0.29
Annular Grout MARB Tunnel	Forklifts	1	6.00	89	0.20
Annular Grout MARB Tunnel	Generator Sets	0	8.00	84	0.74
Annular Grout MARB Tunnel	Other General Industrial Equipment	1	2.80	100	0.75
Annular Grout MARB Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Annular Grout MARB Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Annular Grout MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Annular Grout MARB Tunnel	Welders	3	8.00	46	0.45
Backfill Tunnel Pit 2	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 2	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 2	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 2	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 2	Other Construction Equipment	1	4.30	300	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Backfill Tunnel Pit 2	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 2	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 2	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 2	Welders	1	6.40	40	0.75
Excavating Tunnel Pit 4	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 4	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 4	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 4	Graders	1	6.00	187	0.41
Excavating Tunnel Pit 4	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 4	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 4	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 4	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 4	Welders	1	6.40	40	0.75
Erect MTBM Van Buren Tunnel	Cranes	1	2.80	300	0.75
Erect MTBM Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Erect MTBM Van Buren Tunnel	Generator Sets	0	8.00	84	0.74
Erect MTBM Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Erect MTBM Van Buren Tunnel	Welders	3	8.00	46	0.45
Excavation and Jacking Van Buren Tunnel	Air Compressors	1	2.80	300	0.75
Excavation and Jacking Van Buren Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Excavation and Jacking Van Buren Tunnel	Graders	1	6.00	187	0.41
Excavation and Jacking Van Buren Tunnel	Other Construction Equipment	1	5.60	700	0.75
Excavation and Jacking Van Buren Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Excavation and Jacking Van Buren Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Excavation and Jacking Van Buren Tunnel	Other Material Handling Equipment	1	2.30	200	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Excavation and Jacking Van Buren Tunnel	Rubber Tired Dozers	1	6.00	247	0.40
Excavation and Jacking Van Buren Tunnel	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Remove MTBM Van Buren Tunnel	Cranes	1	2.80	300	0.75
Remove MTBM Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Remove MTBM Van Buren Tunnel	Generator Sets	0	8.00	84	0.74
Remove MTBM Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Remove MTBM Van Buren Tunnel	Welders	3	8.00	46	0.45
Install Pipeline Van Buren Tunnel	Air Compressors	1	2.80	300	0.75
Install Pipeline Van Buren Tunnel	Cranes	1	2.80	300	0.75
Install Pipeline Van Buren Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Install Pipeline Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Install Pipeline Van Buren Tunnel	Generator Sets	0	8.00	84	0.74
Install Pipeline Van Buren Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Install Pipeline Van Buren Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Install Pipeline Van Buren Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Install Pipeline Van Buren Tunnel	Other Material Handling Equipment	2	1.40	400	0.75
Install Pipeline Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Install Pipeline Van Buren Tunnel	Welders	2	4.20	40	0.75
Annular Grout Van Buren Tunnel	Air Compressors	1	2.80	300	0.75
Annular Grout Van Buren Tunnel	Cement and Mortar Mixers	3	0.50	750	0.75
Annular Grout Van Buren Tunnel	Cranes	1	6.00	231	0.29
Annular Grout Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Annular Grout Van Buren Tunnel	Generator Sets	0	8.00	84	0.45
Annular Grout Van Buren Tunnel	Other General Industrial Equipment	1	2.80	100	0.75
Annular Grout Van Buren Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Annular Grout Van Buren Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Annular Grout Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Annular Grout Van Buren Tunnel	Welders	3	8.00	46	0.45
Backfill Tunnel Pit 3	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 3	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 3	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 3	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 3	Other Construction Equipment	1	4.30	300	0.75
Backfill Tunnel Pit 3	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 3	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 3	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 3	Welders	1	6.40	40	0.75
Backfill Tunnel Pit 4	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 4	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 4	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 4	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 4	Other Construction Equipment	1	4.30	300	0.75
Backfill Tunnel Pit 4	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 4	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 4	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 4	Welders	1	6.40	40	0.75
Site Restoration - Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Site Restoration - Paving	Pavers	1	8.00	130	0.42
Site Restoration - Paving	Paving Equipment	1	8.00	132	0.36
Site Restoration - Paving	Rollers	2	8.00	80	0.38
Site Restoration - Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Restoration - Other/Demobilization	Graders	1	8.00	187	0.41
Site Restoration - Other/Demobilization	Scrapers	1	8.00	367	0.48
Site Restoration - Other/Demobilization	Tractors/Loaders/Backhoes	1	7.00	97	0.37

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Dewatering - Tunnel Pits 1 and 2	Generator Sets	1	24.00	1770	0.75
Dewatering - Tunnel Pits 1 and 2	Generator Sets	1	24.00	93	0.75
Dewatering - Tunnel Pits 1 and 2	Pumps	6	24.00	5	0.75
Dewatering - Tunnel Pits 2 and 3	Generator Sets	1	24.00	1770	0.75
Dewatering - Tunnel Pits 2 and 3	Generator Sets	2	24.00	93	0.75
Dewatering - Tunnel Pits 2 and 3	Pumps	6	24.00	5	0.75
Dewatering - Tunnel Pit 3	Generator Sets	1	24.00	1770	0.75
Dewatering - Tunnel Pit 3	Generator Sets	1	24.00	93	0.75
Dewatering - Tunnel Pit 3	Pumps	5	24.00	5	0.75
Generator - Trailers	Generator Sets	1	24.00	152	0.75
Generator - Trailers	Scrapers	0	8.00	367	0.48
Generator - Trailers	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Dewatering - Tunnel Pits 2 and 3	Graders	1	8.00	187	0.41
Generator - Trailers	Graders	1	8.00	187	0.41
Dewatering - Tunnel Pit 3	Graders	1	8.00	187	0.41
Dewatering - Tunnel Pits 1 and 2	Graders	1	8.00	187	0.41
Dewatering - Tunnel Pits 2 and 3	Scrapers	1	8.00	367	0.48
Dewatering - Tunnel Pit 3	Scrapers	1	8.00	367	0.48
SP Tunnel Pit 2	Scrapers	1	8.00	367	0.48
SP Tunnel Pit 3	Scrapers	1	8.00	367	0.48
SP Tunnel Pit 4	Scrapers	1	8.00	367	0.48
Dewatering - Tunnel Pits 1 and 2	Scrapers	1	8.00	367	0.48
Dewatering - Tunnel Pits 2 and 3	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Dewatering - Tunnel Pit 3	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Dewatering - Tunnel Pits 1 and 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
SP Tunnel Pit 1	4	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SP Tunnel Pit 2	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SP Tunnel Pit 3	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SP Tunnel Pit 4	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 1	9	0.00	0.00	396.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 2	9	0.00	0.00	27.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Erect MTBM 215 Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Jacking 215 Tunnel	9	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove MTBM215 Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Install Pipeline 215 Tunnel	12	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Annular Grout 215 Tunnel	13	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Backfill Tunnel Pit 1	9	0.00	0.00	190.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 3	9	0.00	0.00	832.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Erect MTBM MARB Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Jacking MARB Tunnel	9	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove MTBM MARB Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Install Pipeline MARB Tunnel	12	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Annular Grout MARB Tunnel	13	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Backfill Tunnel Pit 2	9	0.00	0.00	23.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 4	9	0.00	0.00	42.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Erect MTBM Van Buren Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Jacking Van Buren Tu	9	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove MTBM Van Buren Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Install Pipeline Van Buren Tunnel	12	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Annular Grout Van Buren Tunnel	13	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Backfill Tunnel Pit 3	9	0.00	0.00	87.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Backfill Tunnel Pit 4	9	0.00	0.00	38.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Site Restoration - Paving	6	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration - Other/Demobilization	3	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering - Tunnel Pits 1 and 2	11	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering - Tunnel Pits 2 and 3	12	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering - Tunnel Pit 3	10	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Generator - Trailers	2	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 SP Tunnel Pit 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.5324	17.1833	7.2780	0.0168		0.7514	0.7514		0.6913	0.6913		1,628.9049	1,628.9049	0.5268		1,642.0754
Total	**1.5324**	**17.1833**	**7.2780**	**0.0168**	**5.7996**	**0.7514**	**6.5510**	**2.9537**	**0.6913**	**3.6450**		**1,628.9049**	**1,628.9049**	**0.5268**		**1,642.0754**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.2 SP Tunnel Pit 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6098	0.0000	2.6098	1.3292	0.0000	1.3292			0.0000			0.0000
Off-Road	1.5324	17.1833	7.2780	0.0168		0.7514	0.7514		0.6913	0.6913	0.0000	1,628.9049	1,628.9049	0.5268		1,642.0754
Total	**1.5324**	**17.1833**	**7.2780**	**0.0168**	**2.6098**	**0.7514**	**3.3612**	**1.3292**	**0.6913**	**2.0205**	**0.0000**	**1,628.9049**	**1,628.9049**	**0.5268**		**1,642.0754**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.2 SP Tunnel Pit 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Generator - Trailers - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.9187	18.3984	19.4103	0.0428		0.7366	0.7366		0.7216	0.7216		4,069.5770	4,069.5770	0.3342		4,077.9321
Total	**1.9187**	**18.3984**	**19.4103**	**0.0428**	**0.0000**	**0.7366**	**0.7366**	**0.0000**	**0.7216**	**0.7216**		**4,069.5770**	**4,069.5770**	**0.3342**		**4,077.9321**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.3 Generator - Trailers - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0422**	**0.0274**	**0.3767**	**1.1100e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**110.7403**	**110.7403**	**2.9800e-003**		**110.8148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.9187	18.3984	19.4103	0.0428		0.7366	0.7366		0.7216	0.7216	0.0000	4,069.5770	4,069.5770	0.3342		4,077.9321
Total	**1.9187**	**18.3984**	**19.4103**	**0.0428**	**0.0000**	**0.7366**	**0.7366**	**0.0000**	**0.7216**	**0.7216**	**0.0000**	**4,069.5770**	**4,069.5770**	**0.3342**		**4,077.9321**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.3 Generator - Trailers - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0422	0.0274	0.3767	1.1100e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.7403	110.7403	2.9800e-003		110.8148
Total	**0.0422**	**0.0274**	**0.3767**	**1.1100e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**110.7403**	**110.7403**	**2.9800e-003**		**110.8148**

3.3 Generator - Trailers - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.7782	16.2959	19.3709	0.0428		0.6558	0.6558		0.6424	0.6424		4,069.1718	4,069.1718	0.3280		4,077.3728
Total	**1.7782**	**16.2959**	**19.3709**	**0.0428**	**0.0000**	**0.6558**	**0.6558**	**0.0000**	**0.6424**	**0.6424**		**4,069.1718**	**4,069.1718**	**0.3280**		**4,077.3728**

3.3 Generator - Trailers - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0396	0.0247	0.3484	1.0700e-003	0.1118	8.0000e-004	0.1126	0.0296	7.4000e-004	0.0304		106.7724	106.7724	2.6900e-003		106.8397
Total	**0.0396**	**0.0247**	**0.3484**	**1.0700e-003**	**0.1118**	**8.0000e-004**	**0.1126**	**0.0296**	**7.4000e-004**	**0.0304**		**106.7724**	**106.7724**	**2.6900e-003**		**106.8397**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.7782	16.2959	19.3709	0.0428		0.6558	0.6558		0.6424	0.6424	0.0000	4,069.1718	4,069.1718	0.3280		4,077.3728
Total	**1.7782**	**16.2959**	**19.3709**	**0.0428**	**0.0000**	**0.6558**	**0.6558**	**0.0000**	**0.6424**	**0.6424**	**0.0000**	**4,069.1718**	**4,069.1718**	**0.3280**		**4,077.3728**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.3 Generator - Trailers - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0396	0.0247	0.3484	1.0700e-003	0.1118	8.0000e-004	0.1126	0.0296	7.4000e-004	0.0304		106.7724	106.7724	2.6900e-003		106.8397
Total	**0.0396**	**0.0247**	**0.3484**	**1.0700e-003**	**0.1118**	**8.0000e-004**	**0.1126**	**0.0296**	**7.4000e-004**	**0.0304**		**106.7724**	**106.7724**	**2.6900e-003**		**106.8397**

3.4 SP Tunnel Pit 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.4853	28.1230	14.5652	0.0324		1.1818	1.1818		1.0872	1.0872		3,134.4289	3,134.4289	1.0137		3,159.7723
Total	**2.4853**	**28.1230**	**14.5652**	**0.0324**	**5.7996**	**1.1818**	**6.9813**	**2.9537**	**1.0872**	**4.0409**		**3,134.4289**	**3,134.4289**	**1.0137**		**3,159.7723**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.4 SP Tunnel Pit 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6098	0.0000	2.6098	1.3292	0.0000	1.3292			0.0000			0.0000
Off-Road	2.4853	28.1230	14.5652	0.0324		1.1818	1.1818		1.0872	1.0872	0.0000	3,134.4289	3,134.4289	1.0137		3,159.7723
Total	**2.4853**	**28.1230**	**14.5652**	**0.0324**	**2.6098**	**1.1818**	**3.7916**	**1.3292**	**1.0872**	**2.4164**	**0.0000**	**3,134.4289**	**3,134.4289**	**1.0137**		**3,159.7723**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.4 SP Tunnel Pit 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 SP Tunnel Pit 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.6161	29.4945	15.0699	0.0334		1.2483	1.2483		1.1484	1.1484		3,237.8479	3,237.8479	1.0472		3,264.0275
Total	**2.6161**	**29.4945**	**15.0699**	**0.0334**	**6.5523**	**1.2483**	**7.8006**	**3.3675**	**1.1484**	**4.5159**		**3,237.8479**	**3,237.8479**	**1.0472**		**3,264.0275**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.5 SP Tunnel Pit 3 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	2.6161	29.4945	15.0699	0.0334		1.2483	1.2483		1.1484	1.1484	0.0000	3,237.8479	3,237.8479	1.0472		3,264.0275
Total	**2.6161**	**29.4945**	**15.0699**	**0.0334**	**2.9486**	**1.2483**	**4.1969**	**1.5154**	**1.1484**	**2.6638**	**0.0000**	**3,237.8479**	**3,237.8479**	**1.0472**		**3,264.0275**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.5 SP Tunnel Pit 3 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 SP Tunnel Pit 4 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.6161	29.4945	15.0699	0.0334		1.2483	1.2483		1.1484	1.1484		3,237.8479	3,237.8479	1.0472		3,264.0275
Total	**2.6161**	**29.4945**	**15.0699**	**0.0334**	**6.5523**	**1.2483**	**7.8006**	**3.3675**	**1.1484**	**4.5159**		**3,237.8479**	**3,237.8479**	**1.0472**		**3,264.0275**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.6 SP Tunnel Pit 4 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	2.6161	29.4945	15.0699	0.0334		1.2483	1.2483		1.1484	1.1484	0.0000	3,237.8479	3,237.8479	1.0472		3,264.0275
Total	**2.6161**	**29.4945**	**15.0699**	**0.0334**	**2.9486**	**1.2483**	**4.1969**	**1.5154**	**1.1484**	**2.6638**	**0.0000**	**3,237.8479**	**3,237.8479**	**1.0472**		**3,264.0275**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.6 SP Tunnel Pit 4 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Dewatering - Tunnel Pits 1 and 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	18.2021	265.7913	97.6071	0.3978		6.1833	6.1833		6.1271	6.1271		44,387.1934	44,387.1934	2.2090		44,442.4186
Total	**18.2021**	**265.7913**	**97.6071**	**0.3978**	**1.5908**	**6.1833**	**7.7740**	**0.1718**	**6.1271**	**6.2989**		**44,387.1934**	**44,387.1934**	**2.2090**		**44,442.4186**

3.7 Dewatering - Tunnel Pits 1 and 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	18.2021	265.7913	97.6071	0.3978		6.1833	6.1833		6.1271	6.1271	0.0000	44,387.1933	44,387.1933	2.2090		44,442.4186
Total	**18.2021**	**265.7913**	**97.6071**	**0.3978**	**0.7158**	**6.1833**	**6.8991**	**0.0773**	**6.1271**	**6.2044**	**0.0000**	**44,387.1933**	**44,387.1933**	**2.2090**		**44,442.4186**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.7 Dewatering - Tunnel Pits 1 and 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 Excavating Tunnel Pit 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9381	0.0000	4.9381	2.5292	0.0000	2.5292			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430		3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**4.9381**	**1.2349**	**6.1731**	**2.5292**	**1.1430**	**3.6722**		**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.8 Excavating Tunnel Pit 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0775	2.8279	0.5680	8.0000e-003	0.1742	7.9300e-003	0.1821	0.0478	7.5800e-003	0.0553		865.3110	865.3110	0.0609		866.8334
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0775**	**2.8279**	**0.5680**	**8.0000e-003**	**0.1742**	**7.9300e-003**	**0.1821**	**0.0478**	**7.5800e-003**	**0.0553**		**865.3110**	**865.3110**	**0.0609**		**866.8334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2222	0.0000	2.2222	1.1382	0.0000	1.1382			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430	0.0000	3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**2.2222**	**1.2349**	**3.4571**	**1.1382**	**1.1430**	**2.2812**	**0.0000**	**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

3.8 Excavating Tunnel Pit 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0775	2.8279	0.5680	8.0000e-003	0.1742	7.9300e-003	0.1821	0.0478	7.5800e-003	0.0553		865.3110	865.3110	0.0609		866.8334
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0775**	**2.8279**	**0.5680**	**8.0000e-003**	**0.1742**	**7.9300e-003**	**0.1821**	**0.0478**	**7.5800e-003**	**0.0553**		**865.3110**	**865.3110**	**0.0609**		**866.8334**

3.9 Excavating Tunnel Pit 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9166	0.0000	4.9166	2.5260	0.0000	2.5260			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430		3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**4.9166**	**1.2349**	**6.1515**	**2.5260**	**1.1430**	**3.6690**		**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.9 Excavating Tunnel Pit 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.8900e-003	0.2515	0.0505	7.1000e-004	0.0155	7.1000e-004	0.0162	4.2500e-003	6.7000e-004	4.9200e-003		76.9545	76.9545	5.4200e-003		77.0899
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**6.8900e-003**	**0.2515**	**0.0505**	**7.1000e-004**	**0.0155**	**7.1000e-004**	**0.0162**	**4.2500e-003**	**6.7000e-004**	**4.9200e-003**		**76.9545**	**76.9545**	**5.4200e-003**		**77.0899**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2125	0.0000	2.2125	1.1367	0.0000	1.1367			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430	0.0000	3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**2.2125**	**1.2349**	**3.4474**	**1.1367**	**1.1430**	**2.2797**	**0.0000**	**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.9 Excavating Tunnel Pit 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.8900e-003	0.2515	0.0505	7.1000e-004	0.0155	7.1000e-004	0.0162	4.2500e-003	6.7000e-004	4.9200e-003		76.9545	76.9545	5.4200e-003		77.0899
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**6.8900e-003**	**0.2515**	**0.0505**	**7.1000e-004**	**0.0155**	**7.1000e-004**	**0.0162**	**4.2500e-003**	**6.7000e-004**	**4.9200e-003**		**76.9545**	**76.9545**	**5.4200e-003**		**77.0899**

3.10 Erect MTBM 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342		1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**		**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.10 Erect MTBM 215 Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342	0.0000	1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**	**0.0000**	**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.10 Erect MTBM 215 Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

3.11 Excavation and Jacking 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	2.9973	28.7049	15.5959	0.0446		1.1907	1.1907		1.1019	1.1019		4,435.1283	4,435.1283	1.2111		4,465.4052
Total	**2.9973**	**28.7049**	**15.5959**	**0.0446**	**4.9143**	**1.1907**	**6.1049**	**2.5256**	**1.1019**	**3.6275**		**4,435.1283**	**4,435.1283**	**1.2111**		**4,465.4052**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.11 Excavation and Jacking 215 Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2114	0.0000	2.2114	1.1365	0.0000	1.1365			0.0000			0.0000
Off-Road	2.9973	28.7049	15.5959	0.0446		1.1907	1.1907		1.1019	1.1019	0.0000	4,435.1283	4,435.1283	1.2111		4,465.4052
Total	**2.9973**	**28.7049**	**15.5959**	**0.0446**	**2.2114**	**1.1907**	**3.4021**	**1.1365**	**1.1019**	**2.2384**	**0.0000**	**4,435.1283**	**4,435.1283**	**1.2111**		**4,465.4052**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.11 Excavation and Jacking 215 Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.12 Remove MTBM215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342		1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**		**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.12 Remove MTBM215 Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342	0.0000	1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**	**0.0000**	**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.12 Remove MTBM215 Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

3.13 Install Pipeline 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2878	28.5759	20.5218	0.0536		1.1918	1.1918		1.1119	1.1119		5,249.6231	5,249.6231	1.4135		5,284.9605
Total	**3.2878**	**28.5759**	**20.5218**	**0.0536**		**1.1918**	**1.1918**		**1.1119**	**1.1119**		**5,249.6231**	**5,249.6231**	**1.4135**		**5,284.9605**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.13 Install Pipeline 215 Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2878	28.5759	20.5218	0.0536		1.1918	1.1918		1.1119	1.1119	0.0000	5,249.6231	5,249.6231	1.4135		5,284.9605
Total	**3.2878**	**28.5759**	**20.5218**	**0.0536**		**1.1918**	**1.1918**		**1.1119**	**1.1119**	**0.0000**	**5,249.6231**	**5,249.6231**	**1.4135**		**5,284.9605**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.13 Install Pipeline 215 Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

3.14 Annular Grout 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1015	23.7116	18.9986	0.0437		1.0930	1.0930		1.0298	1.0298		4,229.2803	4,229.2803	1.0242		4,254.8863
Total	**3.1015**	**23.7116**	**18.9986**	**0.0437**		**1.0930**	**1.0930**		**1.0298**	**1.0298**		**4,229.2803**	**4,229.2803**	**1.0242**		**4,254.8863**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.14 Annular Grout 215 Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1015	23.7116	18.9986	0.0437		1.0930	1.0930		1.0298	1.0298	0.0000	4,229.2803	4,229.2803	1.0242		4,254.8863
Total	**3.1015**	**23.7116**	**18.9986**	**0.0437**		**1.0930**	**1.0930**		**1.0298**	**1.0298**	**0.0000**	**4,229.2803**	**4,229.2803**	**1.0242**		**4,254.8863**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.14 Annular Grout 215 Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

3.15 Backfill Tunnel Pit 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9257	0.0000	4.9257	2.5274	0.0000	2.5274			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430		3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**4.9257**	**1.2349**	**6.1607**	**2.5274**	**1.1430**	**3.6704**		**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.15 Backfill Tunnel Pit 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0372	1.3568	0.2725	3.8400e-003	0.0836	3.8000e-003	0.0874	0.0229	3.6400e-003	0.0266		415.1745	415.1745	0.0292		415.9049
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0372**	**1.3568**	**0.2725**	**3.8400e-003**	**0.0836**	**3.8000e-003**	**0.0874**	**0.0229**	**3.6400e-003**	**0.0266**		**415.1745**	**415.1745**	**0.0292**		**415.9049**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2166	0.0000	2.2166	1.1373	0.0000	1.1373			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430	0.0000	3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**2.2166**	**1.2349**	**3.4515**	**1.1373**	**1.1430**	**2.2803**	**0.0000**	**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.15 Backfill Tunnel Pit 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0372	1.3568	0.2725	3.8400e-003	0.0836	3.8000e-003	0.0874	0.0229	3.6400e-003	0.0266		415.1745	415.1745	0.0292		415.9049
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0372**	**1.3568**	**0.2725**	**3.8400e-003**	**0.0836**	**3.8000e-003**	**0.0874**	**0.0229**	**3.6400e-003**	**0.0266**		**415.1745**	**415.1745**	**0.0292**		**415.9049**

3.16 Dewatering - Tunnel Pits 2 and 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	19.4052	276.4496	110.0110	0.4200		6.7479	6.7479		6.6918	6.6918		46,484.5226	46,484.5226	2.3160		46,542.4235
Total	**19.4052**	**276.4496**	**110.0110**	**0.4200**	**1.5908**	**6.7479**	**8.3387**	**0.1718**	**6.6918**	**6.8635**		**46,484.5226**	**46,484.5226**	**2.3160**		**46,542.4235**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.16 Dewatering - Tunnel Pits 2 and 3 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	19.4052	276.4496	110.0110	0.4200		6.7479	6.7479		6.6918	6.6918	0.0000	46,484.5225	46,484.5225	2.3160		46,542.4234
Total	**19.4052**	**276.4496**	**110.0110**	**0.4200**	**0.7158**	**6.7479**	**7.4638**	**0.0773**	**6.6918**	**6.7691**	**0.0000**	**46,484.5225**	**46,484.5225**	**2.3160**		**46,542.4234**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.16 Dewatering - Tunnel Pits 2 and 3 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.16 Dewatering - Tunnel Pits 2 and 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	18.0693	260.2883	108.2045	0.4200		6.0093	6.0093		5.9617	5.9617		46,486.7261	46,486.7261	2.2318		46,542.5203
Total	**18.0693**	**260.2883**	**108.2045**	**0.4200**	**1.5908**	**6.0093**	**7.6001**	**0.1718**	**5.9617**	**6.1335**		**46,486.7261**	**46,486.7261**	**2.2318**		**46,542.5203**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.16 Dewatering - Tunnel Pits 2 and 3 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	18.0693	260.2883	108.2045	0.4200		6.0093	6.0093		5.9617	5.9617	0.0000	46,486.7260	46,486.7260	2.2318		46,542.5203
Total	**18.0693**	**260.2883**	**108.2045**	**0.4200**	**0.7158**	**6.0093**	**6.7252**	**0.0773**	**5.9617**	**6.0390**	**0.0000**	**46,486.7260**	**46,486.7260**	**2.2318**		**46,542.5203**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.16 Dewatering - Tunnel Pits 2 and 3 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.17 Excavating Tunnel Pit 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9896	0.0000	4.9896	2.5370	0.0000	2.5370			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430		3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**4.9896**	**1.2349**	**6.2245**	**2.5370**	**1.1430**	**3.6800**		**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.17 Excavating Tunnel Pit 3 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2443	8.9120	1.7900	0.0252	0.5490	0.0250	0.5740	0.1505	0.0239	0.1744		2,727.0409	2,727.0409	0.1919		2,731.8385
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2443**	**8.9120**	**1.7900**	**0.0252**	**0.5490**	**0.0250**	**0.5740**	**0.1505**	**0.0239**	**0.1744**		**2,727.0409**	**2,727.0409**	**0.1919**		**2,731.8385**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2453	0.0000	2.2453	1.1417	0.0000	1.1417			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430	0.0000	3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**2.2453**	**1.2349**	**3.4802**	**1.1417**	**1.1430**	**2.2847**	**0.0000**	**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.17 Excavating Tunnel Pit 3 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2443	8.9120	1.7900	0.0252	0.5490	0.0250	0.5740	0.1505	0.0239	0.1744		2,727.0409	2,727.0409	0.1919		2,731.8385
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2443**	**8.9120**	**1.7900**	**0.0252**	**0.5490**	**0.0250**	**0.5740**	**0.1505**	**0.0239**	**0.1744**		**2,727.0409**	**2,727.0409**	**0.1919**		**2,731.8385**

3.18 Erect MTBM MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342		1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**		**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.18 Erect MTBM MARB Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342	0.0000	1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**	**0.0000**	**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.18 Erect MTBM MARB Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

3.19 Excavation and Jacking MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	2.9973	28.7049	15.5959	0.0446		1.1907	1.1907		1.1019	1.1019		4,435.1283	4,435.1283	1.2111		4,465.4052
Total	**2.9973**	**28.7049**	**15.5959**	**0.0446**	**4.9143**	**1.1907**	**6.1049**	**2.5256**	**1.1019**	**3.6275**		**4,435.1283**	**4,435.1283**	**1.2111**		**4,465.4052**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.19 Excavation and Jacking MARB Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2114	0.0000	2.2114	1.1365	0.0000	1.1365			0.0000			0.0000
Off-Road	2.9973	28.7049	15.5959	0.0446		1.1907	1.1907		1.1019	1.1019	0.0000	4,435.1283	4,435.1283	1.2111		4,465.4052
Total	**2.9973**	**28.7049**	**15.5959**	**0.0446**	**2.2114**	**1.1907**	**3.4021**	**1.1365**	**1.1019**	**2.2384**	**0.0000**	**4,435.1283**	**4,435.1283**	**1.2111**		**4,465.4052**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.19 Excavation and Jacking MARB Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.20 Remove MTBM MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342		1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**		**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.20 Remove MTBM MARB Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342	0.0000	1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**	**0.0000**	**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.20 Remove MTBM MARB Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

3.21 Install Pipeline MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2878	28.5759	20.5218	0.0536		1.1918	1.1918		1.1119	1.1119		5,249.6231	5,249.6231	1.4135		5,284.9605
Total	**3.2878**	**28.5759**	**20.5218**	**0.0536**		**1.1918**	**1.1918**		**1.1119**	**1.1119**		**5,249.6231**	**5,249.6231**	**1.4135**		**5,284.9605**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.21 Install Pipeline MARB Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2878	28.5759	20.5218	0.0536		1.1918	1.1918		1.1119	1.1119	0.0000	5,249.6231	5,249.6231	1.4135		5,284.9605
Total	**3.2878**	**28.5759**	**20.5218**	**0.0536**		**1.1918**	**1.1918**		**1.1119**	**1.1119**	**0.0000**	**5,249.6231**	**5,249.6231**	**1.4135**		**5,284.9605**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.21 Install Pipeline MARB Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0529	1.8121	0.4300	4.8500e-003	0.1216	3.6500e-003	0.1253	0.0350	3.4900e-003	0.0385		517.6331	517.6331	0.0313		518.4159
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0529**	**1.8121**	**0.4300**	**4.8500e-003**	**0.1216**	**3.6500e-003**	**0.1253**	**0.0350**	**3.4900e-003**	**0.0385**		**517.6331**	**517.6331**	**0.0313**		**518.4159**

3.21 Install Pipeline MARB Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9445	24.3798	19.6498	0.0536		0.9909	0.9909		0.9251	0.9251		5,249.4958	5,249.4958	1.4087		5,284.7141
Total	**2.9445**	**24.3798**	**19.6498**	**0.0536**		**0.9909**	**0.9909**		**0.9251**	**0.9251**		**5,249.4958**	**5,249.4958**	**1.4087**		**5,284.7141**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.21 Install Pipeline MARB Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9445	24.3798	19.6498	0.0536		0.9909	0.9909		0.9251	0.9251	0.0000	5,249.4958	5,249.4958	1.4087		5,284.7141
Total	**2.9445**	**24.3798**	**19.6498**	**0.0536**		**0.9909**	**0.9909**		**0.9251**	**0.9251**	**0.0000**	**5,249.4958**	**5,249.4958**	**1.4087**		**5,284.7141**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.21 Install Pipeline MARB Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

3.22 Annular Grout MARB Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7966	21.0775	18.5620	0.0437		0.9141	0.9141		0.8619	0.8619		4,229.6032	4,229.6032	1.0164		4,255.0128
Total	**2.7966**	**21.0775**	**18.5620**	**0.0437**		**0.9141**	**0.9141**		**0.8619**	**0.8619**		**4,229.6032**	**4,229.6032**	**1.0164**		**4,255.0128**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.22 Annular Grout MARB Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7966	21.0775	18.5620	0.0437		0.9141	0.9141		0.8619	0.8619	0.0000	4,229.6032	4,229.6032	1.0164		4,255.0128
Total	**2.7966**	**21.0775**	**18.5620**	**0.0437**		**0.9141**	**0.9141**		**0.8619**	**0.8619**	**0.0000**	**4,229.6032**	**4,229.6032**	**1.0164**		**4,255.0128**

3.22 Annular Grout MARB Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

3.23 Backfill Tunnel Pit 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9163	0.0000	4.9163	2.5259	0.0000	2.5259			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471		3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**4.9163**	**1.0230**	**5.9392**	**2.5259**	**0.9471**	**3.4730**		**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.23 Backfill Tunnel Pit 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5700e-003	0.1990	0.0425	6.0000e-004	0.0132	5.2000e-004	0.0137	3.6200e-003	4.9000e-004	4.1100e-003		64.7899	64.7899	4.5100e-003		64.9027
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**5.5700e-003**	**0.1990**	**0.0425**	**6.0000e-004**	**0.0132**	**5.2000e-004**	**0.0137**	**3.6200e-003**	**4.9000e-004**	**4.1100e-003**		**64.7899**	**64.7899**	**4.5100e-003**		**64.9027**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2123	0.0000	2.2123	1.1367	0.0000	1.1367			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471	0.0000	3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**2.2123**	**1.0230**	**3.2353**	**1.1367**	**0.9471**	**2.0837**	**0.0000**	**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.23 Backfill Tunnel Pit 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.5700e-003	0.1990	0.0425	6.0000e-004	0.0132	5.2000e-004	0.0137	3.6200e-003	4.9000e-004	4.1100e-003		64.7899	64.7899	4.5100e-003		64.9027
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**5.5700e-003**	**0.1990**	**0.0425**	**6.0000e-004**	**0.0132**	**5.2000e-004**	**0.0137**	**3.6200e-003**	**4.9000e-004**	**4.1100e-003**		**64.7899**	**64.7899**	**4.5100e-003**		**64.9027**

3.24 Dewatering - Tunnel Pit 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	16.9585	250.4309	95.8302	0.3979		5.5148	5.5148		5.4672	5.4672		44,389.3969	44,389.3969	2.1321		44,442.7000
Total	**16.9585**	**250.4309**	**95.8302**	**0.3979**	**1.5908**	**5.5148**	**7.1055**	**0.1718**	**5.4672**	**5.6389**		**44,389.3969**	**44,389.3969**	**2.1321**		**44,442.7000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.24 Dewatering - Tunnel Pit 3 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	16.9585	250.4309	95.8302	0.3979		5.5148	5.5148		5.4672	5.4672	0.0000	44,389.3968	44,389.3968	2.1321		44,442.7000
Total	**16.9585**	**250.4309**	**95.8302**	**0.3979**	**0.7158**	**5.5148**	**6.2306**	**0.0773**	**5.4672**	**5.5445**	**0.0000**	**44,389.3968**	**44,389.3968**	**2.1321**		**44,442.7000**

3.24 Dewatering - Tunnel Pit 3 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.25 Excavating Tunnel Pit 4 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9181	0.0000	4.9181	2.5262	0.0000	2.5262			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471		3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**4.9181**	**1.0230**	**5.9410**	**2.5262**	**0.9471**	**3.4733**		**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

3.25 Excavating Tunnel Pit 4 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0117	0.4178	0.0892	1.2600e-003	0.0277	1.0800e-003	0.0288	7.6000e-003	1.0400e-003	8.6300e-003		136.0588	136.0588	9.4800e-003		136.2958
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0117**	**0.4178**	**0.0892**	**1.2600e-003**	**0.0277**	**1.0800e-003**	**0.0288**	**7.6000e-003**	**1.0400e-003**	**8.6300e-003**		**136.0588**	**136.0588**	**9.4800e-003**		**136.2958**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2131	0.0000	2.2131	1.1368	0.0000	1.1368			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471	0.0000	3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**2.2131**	**1.0230**	**3.2361**	**1.1368**	**0.9471**	**2.0838**	**0.0000**	**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.25 Excavating Tunnel Pit 4 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0117	0.4178	0.0892	1.2600e-003	0.0277	1.0800e-003	0.0288	7.6000e-003	1.0400e-003	8.6300e-003		136.0588	136.0588	9.4800e-003		136.2958
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0117**	**0.4178**	**0.0892**	**1.2600e-003**	**0.0277**	**1.0800e-003**	**0.0288**	**7.6000e-003**	**1.0400e-003**	**8.6300e-003**		**136.0588**	**136.0588**	**9.4800e-003**		**136.2958**

3.26 Erect MTBM Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4013	10.4557	10.7035	0.0179		0.4746	0.4746		0.4520	0.4520		1,615.2030	1,615.2030	0.3956		1,625.0920
Total	**1.4013**	**10.4557**	**10.7035**	**0.0179**		**0.4746**	**0.4746**		**0.4520**	**0.4520**		**1,615.2030**	**1,615.2030**	**0.3956**		**1,625.0920**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.26 Erect MTBM Van Buren Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4013	10.4557	10.7035	0.0179		0.4746	0.4746		0.4520	0.4520	0.0000	1,615.2030	1,615.2030	0.3956		1,625.0920
Total	**1.4013**	**10.4557**	**10.7035**	**0.0179**		**0.4746**	**0.4746**		**0.4520**	**0.4520**	**0.0000**	**1,615.2030**	**1,615.2030**	**0.3956**		**1,625.0920**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.26 Erect MTBM Van Buren Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

3.27 Excavation and Jacking Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	2.5783	23.8707	14.6917	0.0438		0.9601	0.9601		0.8889	0.8889		4,356.9253	4,356.9253	1.1844		4,386.5351
Total	**2.5783**	**23.8707**	**14.6917**	**0.0438**	**4.9143**	**0.9601**	**5.8743**	**2.5256**	**0.8889**	**3.4145**		**4,356.9253**	**4,356.9253**	**1.1844**		**4,386.5351**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.27 Excavation and Jacking Van Buren Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2114	0.0000	2.2114	1.1365	0.0000	1.1365			0.0000			0.0000
Off-Road	2.5783	23.8707	14.6917	0.0438		0.9601	0.9601		0.8889	0.8889	0.0000	4,356.9253	4,356.9253	1.1844		4,386.5351
Total	**2.5783**	**23.8707**	**14.6917**	**0.0438**	**2.2114**	**0.9601**	**3.1715**	**1.1365**	**0.8889**	**2.0255**	**0.0000**	**4,356.9253**	**4,356.9253**	**1.1844**		**4,386.5351**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.27 Excavation and Jacking Van Buren Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.28 Remove MTBM Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4013	10.4557	10.7035	0.0179		0.4746	0.4746		0.4520	0.4520		1,615.2030	1,615.2030	0.3956		1,625.0920
Total	**1.4013**	**10.4557**	**10.7035**	**0.0179**		**0.4746**	**0.4746**		**0.4520**	**0.4520**		**1,615.2030**	**1,615.2030**	**0.3956**		**1,625.0920**

3.28 Remove MTBM Van Buren Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4013	10.4557	10.7035	0.0179		0.4746	0.4746		0.4520	0.4520	0.0000	1,615.2030	1,615.2030	0.3956		1,625.0920
Total	**1.4013**	**10.4557**	**10.7035**	**0.0179**		**0.4746**	**0.4746**		**0.4520**	**0.4520**	**0.0000**	**1,615.2030**	**1,615.2030**	**0.3956**		**1,625.0920**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.28 Remove MTBM Van Buren Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

3.29 Install Pipeline Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9445	24.3798	19.6498	0.0536		0.9909	0.9909		0.9251	0.9251		5,249.4958	5,249.4958	1.4087		5,284.7141
Total	**2.9445**	**24.3798**	**19.6498**	**0.0536**		**0.9909**	**0.9909**		**0.9251**	**0.9251**		**5,249.4958**	**5,249.4958**	**1.4087**		**5,284.7141**

3.29 Install Pipeline Van Buren Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9445	24.3798	19.6498	0.0536		0.9909	0.9909		0.9251	0.9251	0.0000	5,249.4958	5,249.4958	1.4087		5,284.7141
Total	**2.9445**	**24.3798**	**19.6498**	**0.0536**		**0.9909**	**0.9909**		**0.9251**	**0.9251**	**0.0000**	**5,249.4958**	**5,249.4958**	**1.4087**		**5,284.7141**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.29 Install Pipeline Van Buren Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

3.30 Annular Grout Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7966	21.0775	18.5620	0.0437		0.9141	0.9141		0.8619	0.8619		4,229.6032	4,229.6032	1.0164		4,255.0128
Total	**2.7966**	**21.0775**	**18.5620**	**0.0437**		**0.9141**	**0.9141**		**0.8619**	**0.8619**		**4,229.6032**	**4,229.6032**	**1.0164**		**4,255.0128**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.30 Annular Grout Van Buren Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7966	21.0775	18.5620	0.0437		0.9141	0.9141		0.8619	0.8619	0.0000	4,229.6032	4,229.6032	1.0164		4,255.0128
Total	**2.7966**	**21.0775**	**18.5620**	**0.0437**		**0.9141**	**0.9141**		**0.8619**	**0.8619**	**0.0000**	**4,229.6032**	**4,229.6032**	**1.0164**		**4,255.0128**

3.30 Annular Grout Van Buren Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0496	1.7201	0.4064	4.8000e-003	0.1216	3.1600e-003	0.1248	0.0350	3.0200e-003	0.0380		513.1123	513.1123	0.0301		513.8659
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0496**	**1.7201**	**0.4064**	**4.8000e-003**	**0.1216**	**3.1600e-003**	**0.1248**	**0.0350**	**3.0200e-003**	**0.0380**		**513.1123**	**513.1123**	**0.0301**		**513.8659**

3.31 Backfill Tunnel Pit 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9221	0.0000	4.9221	2.5268	0.0000	2.5268			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471		3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**4.9221**	**1.0230**	**5.9451**	**2.5268**	**0.9471**	**3.4739**		**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

3.31 Backfill Tunnel Pit 3 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0242	0.8655	0.1848	2.6000e-003	0.0574	2.2400e-003	0.0597	0.0157	2.1500e-003	0.0179		281.8362	281.8362	0.0196		282.3269
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0242**	**0.8655**	**0.1848**	**2.6000e-003**	**0.0574**	**2.2400e-003**	**0.0597**	**0.0157**	**2.1500e-003**	**0.0179**		**281.8362**	**281.8362**	**0.0196**		**282.3269**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2149	0.0000	2.2149	1.1371	0.0000	1.1371			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471	0.0000	3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**2.2149**	**1.0230**	**3.2379**	**1.1371**	**0.9471**	**2.0841**	**0.0000**	**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.31 Backfill Tunnel Pit 3 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0242	0.8655	0.1848	2.6000e-003	0.0574	2.2400e-003	0.0597	0.0157	2.1500e-003	0.0179		281.8362	281.8362	0.0196		282.3269
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0242**	**0.8655**	**0.1848**	**2.6000e-003**	**0.0574**	**2.2400e-003**	**0.0597**	**0.0157**	**2.1500e-003**	**0.0179**		**281.8362**	**281.8362**	**0.0196**		**282.3269**

3.32 Backfill Tunnel Pit 4 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9177	0.0000	4.9177	2.5261	0.0000	2.5261			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471		3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**4.9177**	**1.0230**	**5.9406**	**2.5261**	**0.9471**	**3.4732**		**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.32 Backfill Tunnel Pit 4 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0106	0.3780	0.0807	1.1400e-003	0.0251	9.8000e-004	0.0261	6.8700e-003	9.4000e-004	7.8100e-003		123.1009	123.1009	8.5700e-003		123.3152
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0106**	**0.3780**	**0.0807**	**1.1400e-003**	**0.0251**	**9.8000e-004**	**0.0261**	**6.8700e-003**	**9.4000e-004**	**7.8100e-003**		**123.1009**	**123.1009**	**8.5700e-003**		**123.3152**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2130	0.0000	2.2130	1.1368	0.0000	1.1368			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471	0.0000	3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**2.2130**	**1.0230**	**3.2359**	**1.1368**	**0.9471**	**2.0838**	**0.0000**	**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.32 Backfill Tunnel Pit 4 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0106	0.3780	0.0807	1.1400e-003	0.0251	9.8000e-004	0.0261	6.8700e-003	9.4000e-004	7.8100e-003		123.1009	123.1009	8.5700e-003		123.3152
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0106**	**0.3780**	**0.0807**	**1.1400e-003**	**0.0251**	**9.8000e-004**	**0.0261**	**6.8700e-003**	**9.4000e-004**	**7.8100e-003**		**123.1009**	**123.1009**	**8.5700e-003**		**123.3152**

3.33 Site Restoration - Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500		1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	0.0498					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9909**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**		**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.33 Site Restoration - Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500	0.0000	1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	0.0498					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9909**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**	**0.0000**	**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.33 Site Restoration - Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.34 Site Restoration - Other/Demobilization - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476		2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**1.5908**	**0.5952**	**2.1859**	**0.1718**	**0.5476**	**0.7193**		**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

3.34 Site Restoration - Other/Demobilization - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476	0.0000	2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**0.7158**	**0.5952**	**1.3110**	**0.0773**	**0.5476**	**0.6249**	**0.0000**	**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

3.34 Site Restoration - Other/Demobilization - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Other Non-Asphalt Surfaces	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0510	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270
Unmitigated	0.0510	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	8.8300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1000e-003	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270
Total	**0.0510**	**1.1000e-004**	**0.0118**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0254**	**0.0254**	**7.0000e-005**		**0.0270**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	8.8300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1000e-003	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270
Total	**0.0510**	**1.1000e-004**	**0.0118**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0254**	**0.0254**	**7.0000e-005**		**0.0270**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

PVP All Tunnel 2020 - South Coast AQMD Air District, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

PVP All Tunnel 2020

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	8.25	1000sqft	0.19	8,250.00	0
Other Asphalt Surfaces	0.01	1000sqft	0.00	14.00	0
Other Non-Asphalt Surfaces	64.00	1000sqft	1.47	64,000.00	0
Other Non-Asphalt Surfaces	11.50	1000sqft	0.26	11,500.00	0
Other Non-Asphalt Surfaces	32.10	1000sqft	0.74	32,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Modeling for all-tunnel construction of PVP alignment. Note: Installation of temp. dewatering facilities (i.e., pipelines, treatment facilities), modeled separately.

Land Use - Non-Asphalt surfaces are contractor work/storage areas around tunnel pits 1, 2, 3. Asphalt surfaces are contractor work storage pits around tunnel pit 4. 14 sf asphalt surface is well removal and capping (assuming 8 inch overdrilling).

Construction Phase - Schedule adjusted to match anticipated schedule (~16 weeks per tunnel segment).

Off-road Equipment - Equipment list per cient. Pumps and generators added to separate phase.

Off-road Equipment - Equipment list per client. Pumps and generators added to separate phase.

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Off-road Equipment - Equipment list per client. Generators added to separate phase.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Assumes 3 pumps at Tunnel Pit 3 and two at Tunnel Pit 4. One 1200 kW generator at Tunnel Pit 3 and one 60 kW generator at Tunnel Pit 3.

Off-road Equipment - Generators assume one 1200 kW generator at Tunnel Pit 1 based on Kohler KM1200U generator, and one 60 kW generator at Tunnel Pit 2 based on Generac SD060 diesel generator.

Off-road Equipment - Based on one 1200 kW generator at tunnel pit 3 and one 60 kW generator at Tunnel Pits 2 and 3, each.

Off-road Equipment - Generator sets included in dewatering phase.

Off-road Equipment - Equipment usage per client. Generators added in separate phase.

Off-road Equipment - Equipment usage and HP and LF from client. Generators added to separate phase.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Construction equipment list per client. Pumps added to dewatering phases

Off-road Equipment - Equipment list per client. Pumps added to separate dewatering phase.

Off-road Equipment - Equipment list per client. Pumps added to separate phase.

Off-road Equipment - One 100 kW generator to power construction trailers. Based on Generac SD100 industrial generator set specs.

Off-road Equipment - Equipment list per client. Generators and pumps added to generator and pumping phases.

Off-road Equipment - Equipment list per client. Generators added to separate phase.

Off-road Equipment - Equipment list per client. Generators added to separate phase.

Off-road Equipment - Equipment usage and HP and LF from client. Generators added to separate phase.

Off-road Equipment - Equipment usage, HP and LF from client. Generators added to separate phase.

Off-road Equipment - Equipment hours and LF per client. Generators added to dewatering/generator phases

Off-road Equipment - Demobilization remains at default.

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Off-road Equipment - Paving remains at default.

Off-road Equipment - Adjusted per equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Grading - Quantities obtained from PVP Update powerpoint dated 4/6/2020. Assumes all excavated quantities exported offsite and required backfill imported.

Trips and VMT - Assumes up to 10 workers per day, per 2005 EIR. Workers added to Generators - Trailers phase, as it spans entire construction period. Haul trips based on soil volumes and assumed 16 cy truck cap. Assumes disposal at Badlands Landfill (15.1 mi).

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed area applied pursuant to SCAQMD Rule 403.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	4.00
tblConstructionPhase	NumDays	220.00	6.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	220.00	4.00
tblConstructionPhase	NumDays	220.00	14.00
tblConstructionPhase	NumDays	220.00	12.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	220.00	4.00
tblConstructionPhase	NumDays	220.00	10.00
tblConstructionPhase	NumDays	220.00	8.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	6.00	16.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	34.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblConstructionPhase	NumDays	6.00	23.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	24.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	6.00	23.00
tblConstructionPhase	NumDays	3.00	15.00
tblConstructionPhase	NumDays	3.00	135.00
tblConstructionPhase	NumDays	3.00	493.00
tblConstructionPhase	NumDays	3.00	110.00
tblConstructionPhase	NumDays	3.00	2.00
tblConstructionPhase	NumDays	3.00	22.00
tblConstructionPhase	NumDays	3.00	8.00
tblConstructionPhase	NumDays	3.00	2.00
tblConstructionPhase	NumDays	3.00	141.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblGrading	AcresOfGrading	246.50	0.00
tblGrading	AcresOfGrading	3.00	1.00
tblGrading	AcresOfGrading	12.00	4.00
tblGrading	AcresOfGrading	3.00	1.00
tblGrading	MaterialExported	0.00	13,319.00
tblGrading	MaterialExported	0.00	673.00
tblGrading	MaterialExported	0.00	6,336.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblGrading	MaterialExported	0.00	431.00
tblGrading	MaterialImported	0.00	3,047.00
tblGrading	MaterialImported	0.00	362.00
tblGrading	MaterialImported	0.00	1,385.00
tblGrading	MaterialImported	0.00	604.00
tblLandUse	LandUseSquareFeet	10.00	14.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	78.00	300.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	9.00	750.00
tblOffRoadEquipment	HorsePower	9.00	750.00
tblOffRoadEquipment	HorsePower	9.00	750.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	84.00	1,770.00
tblOffRoadEquipment	HorsePower	84.00	93.00
tblOffRoadEquipment	HorsePower	84.00	152.00
tblOffRoadEquipment	HorsePower	84.00	1,770.00
tblOffRoadEquipment	HorsePower	84.00	93.00
tblOffRoadEquipment	HorsePower	84.00	1,770.00
tblOffRoadEquipment	HorsePower	84.00	93.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	700.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	700.00
tblOffRoadEquipment	HorsePower	172.00	300.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	700.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	100.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	100.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	HorsePower	88.00	100.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	400.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	400.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	400.00
tblOffRoadEquipment	HorsePower	84.00	5.00
tblOffRoadEquipment	HorsePower	84.00	5.00
tblOffRoadEquipment	HorsePower	84.00	5.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.45
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.56	0.75
tblOffRoadEquipment	LoadFactor	0.56	0.75
tblOffRoadEquipment	LoadFactor	0.56	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75

tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.20
tblOffRoadEquipment	UsageHours	8.00	4.20
tblOffRoadEquipment	UsageHours	8.00	4.20
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripNumber	381.00	190.00
tblTripsAndVMT	HaulingTripNumber	1,665.00	832.00
tblTripsAndVMT	HaulingTripNumber	45.00	23.00
tblTripsAndVMT	HaulingTripNumber	84.00	42.00
tblTripsAndVMT	HaulingTripNumber	173.00	87.00
tblTripsAndVMT	HaulingTripNumber	76.00	38.00
tblTripsAndVMT	HaulingTripNumber	792.00	396.00
tblTripsAndVMT	HaulingTripNumber	54.00	27.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	30.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

tblTripsAndVMT	WorkerTripNumber	25.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	28.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00

2.0 Emissions Summary

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	45.4644	627.9828	269.2449	0.9731	13.8412	16.1678	30.0091	5.6109	15.8554	21.4663	0.0000	106,061.2964	106,061.2964	7.5719	0.0000	106,250.5935
2022	39.2858	551.2017	242.5466	0.9038	11.5626	13.2042	21.4269	5.2608	13.0196	15.9223	0.0000	99,083.2628	99,083.2628	5.9357	0.0000	99,231.6555
Maximum	**45.4644**	**627.9828**	**269.2449**	**0.9731**	**13.8412**	**16.1678**	**30.0091**	**5.6109**	**15.8554**	**21.4663**	**0.0000**	**106,061.2964**	**106,061.2964**	**7.5719**	**0.0000**	**106,250.5935**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	45.4644	627.9828	269.2449	0.9731	6.6380	16.1678	22.8058	2.6366	15.8554	18.4919	0.0000	106,061.2963	106,061.2963	7.5719	0.0000	106,250.5934
2022	39.2858	551.2017	242.5466	0.9038	5.2799	13.2042	16.9732	2.3878	13.0196	14.3441	0.0000	99,083.2627	99,083.2627	5.9357	0.0000	99,231.6554
Maximum	**45.4644**	**627.9828**	**269.2449**	**0.9731**	**6.6380**	**16.1678**	**22.8058**	**2.6366**	**15.8554**	**18.4919**	**0.0000**	**106,061.2963**	**106,061.2963**	**7.5719**	**0.0000**	**106,250.5934**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**53.09**	**0.00**	**22.66**	**53.78**	**0.00**	**12.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0510	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0510**	**1.1000e-004**	**0.0118**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**4.0000e-005**		**0.0254**	**0.0254**	**7.0000e-005**	**0.0000**	**0.0270**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0510	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0510**	**1.1000e-004**	**0.0118**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**4.0000e-005**		**0.0254**	**0.0254**	**7.0000e-005**	**0.0000**	**0.0270**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	SP Tunnel Pit 1	Site Preparation	4/21/2021	5/11/2021	5	15	
2	Generator - Trailers	Site Preparation	4/21/2021	8/26/2022	7	493	
3	SP Tunnel Pit 2	Site Preparation	5/12/2021	5/13/2021	5	2	
4	SP Tunnel Pit 3	Site Preparation	5/14/2021	5/25/2021	5	8	
5	SP Tunnel Pit 4	Site Preparation	5/26/2021	5/27/2021	5	2	
6	Dewatering - Tunnel Pits 1 and 2	Site Preparation	5/28/2021	10/15/2021	7	141	
7	Excavating Tunnel Pit 1	Grading	5/28/2021	7/8/2021	5	30	
8	Excavating Tunnel Pit 2	Grading	7/9/2021	8/10/2021	5	23	
9	Erect MTBM 215 Tunnel	Building Construction	7/22/2021	7/28/2021	5	5	
10	Excavation and Jacking 215 Tunnel	Grading	7/29/2021	8/19/2021	5	16	
11	Remove MTBM215 Tunnel	Building Construction	8/20/2021	8/25/2021	5	4	
12	Install Pipeline 215 Tunnel	Building Construction	8/23/2021	8/30/2021	5	6	
13	Annular Grout 215 Tunnel	Building Construction	8/30/2021	9/3/2021	5	5	
14	Backfill Tunnel Pit 1	Grading	9/6/2021	10/15/2021	5	30	
15	Dewatering - Tunnel Pits 2 and 3	Site Preparation	10/15/2021	2/26/2022	7	135	
16	Excavating Tunnel Pit 3	Grading	10/15/2021	11/11/2021	5	20	
17	Erect MTBM MARB Tunnel	Building Construction	10/28/2021	11/3/2021	5	5	
18	Excavation and Jacking MARB Tunnel	Grading	11/4/2021	12/21/2021	5	34	

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

19	Remove MTBM MARB Tunnel	Building Construction	12/22/2021	12/27/2021	5	4	
20	Install Pipeline MARB Tunnel	Building Construction	12/23/2021	1/11/2022	5	14	
21	Annular Grout MARB Tunnel	Building Construction	1/11/2022	1/26/2022	5	12	
22	Backfill Tunnel Pit 2	Grading	1/27/2022	2/28/2022	5	23	
23	Dewatering - Tunnel Pit 3	Site Preparation	2/26/2022	6/15/2022	7	110	
24	Excavating Tunnel Pit 4	Grading	3/1/2022	3/28/2022	5	20	
25	Erect MTBM Van Buren Tunnel	Building Construction	3/12/2022	3/18/2022	5	5	
26	Excavation and Jacking Van Buren Tunnel	Grading	3/21/2022	4/21/2022	5	24	
27	Remove MTBM Van Buren Tunnel	Building Construction	4/23/2022	4/28/2022	5	4	
28	Install Pipeline Van Buren Tunnel	Building Construction	4/26/2022	5/9/2022	5	10	
29	Annular Grout Van Buren Tunnel	Building Construction	5/7/2022	5/18/2022	5	8	
30	Backfill Tunnel Pit 3	Grading	5/19/2022	6/15/2022	5	20	
31	Backfill Tunnel Pit 4	Grading	6/16/2022	7/13/2022	5	20	
32	Site Restoration - Paving	Paving	7/14/2022	7/27/2022	5	10	
33	Site Restoration - Other/Demobilization	Site Preparation	7/28/2022	8/26/2022	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.66

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
SP Tunnel Pit 1	Graders	1	8.00	187	0.41
SP Tunnel Pit 1	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 1	Rubber Tired Dozers	1	7.00	247	0.40

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

SP Tunnel Pit 1	Scrapers	0	8.00	367	0.48
SP Tunnel Pit 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
SP Tunnel Pit 2	Graders	1	8.00	187	0.41
SP Tunnel Pit 2	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 2	Rubber Tired Dozers	1	7.00	247	0.40
SP Tunnel Pit 2	Tractors/Loaders/Backhoes	1	8.00	97	0.37
SP Tunnel Pit 3	Graders	1	8.00	187	0.41
SP Tunnel Pit 3	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 3	Rubber Tired Dozers	1	8.00	247	0.40
SP Tunnel Pit 3	Tractors/Loaders/Backhoes	1	8.00	97	0.37
SP Tunnel Pit 4	Graders	1	8.00	187	0.41
SP Tunnel Pit 4	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 4	Rubber Tired Dozers	1	8.00	247	0.40
SP Tunnel Pit 4	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavating Tunnel Pit 1	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 1	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 1	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 1	Graders	1	6.00	187	0.41
Excavating Tunnel Pit 1	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 1	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 1	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 1	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 1	Welders	1	6.40	40	0.75
Excavating Tunnel Pit 2	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 2	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 2	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 2	Graders	1	6.00	187	0.41

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Excavating Tunnel Pit 2	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 2	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 2	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 2	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 2	Welders	1	6.40	40	0.75
Erect MTBM 215 Tunnel	Cranes	1	2.80	300	0.75
Erect MTBM 215 Tunnel	Forklifts	1	6.00	89	0.20
Erect MTBM 215 Tunnel	Generator Sets	0	8.00	84	0.74
Erect MTBM 215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Erect MTBM 215 Tunnel	Welders	3	8.00	46	0.45
Excavation and Jacking 215 Tunnel	Air Compressors	1	2.80	300	0.75
Excavation and Jacking 215 Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Excavation and Jacking 215 Tunnel	Graders	1	6.00	187	0.41
Excavation and Jacking 215 Tunnel	Other Construction Equipment	1	5.60	700	0.75
Excavation and Jacking 215 Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Excavation and Jacking 215 Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Excavation and Jacking 215 Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Excavation and Jacking 215 Tunnel	Rubber Tired Dozers	1	6.00	247	0.40
Excavation and Jacking 215 Tunnel	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Remove MTBM215 Tunnel	Cranes	1	2.80	300	0.75
Remove MTBM215 Tunnel	Forklifts	1	6.00	89	0.20
Remove MTBM215 Tunnel	Generator Sets	0	8.00	84	0.74
Remove MTBM215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Remove MTBM215 Tunnel	Welders	3	8.00	46	0.45
Install Pipeline 215 Tunnel	Air Compressors	1	2.80	300	0.75
Install Pipeline 215 Tunnel	Cranes	1	2.80	300	0.75
Install Pipeline 215 Tunnel	Dumpers/Tenders	1	2.80	350	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Install Pipeline 215 Tunnel	Forklifts	1	6.00	89	0.20
Install Pipeline 215 Tunnel	Generator Sets	0	8.00	84	0.74
Install Pipeline 215 Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Install Pipeline 215 Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Install Pipeline 215 Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Install Pipeline 215 Tunnel	Other Material Handling Equipment	2	1.40	400	0.75
Install Pipeline 215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Install Pipeline 215 Tunnel	Welders	2	4.20	40	0.75
Annular Grout 215 Tunnel	Air Compressors	1	2.80	300	0.75
Annular Grout 215 Tunnel	Cement and Mortar Mixers	3	0.50	750	0.75
Annular Grout 215 Tunnel	Cranes	1	6.00	231	0.29
Annular Grout 215 Tunnel	Forklifts	1	6.00	89	0.20
Annular Grout 215 Tunnel	Generator Sets	0	8.00	84	0.74
Annular Grout 215 Tunnel	Other General Industrial Equipment	1	2.80	100	0.75
Annular Grout 215 Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Annular Grout 215 Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Annular Grout 215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Annular Grout 215 Tunnel	Welders	3	8.00	46	0.45
Backfill Tunnel Pit 1	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 1	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 1	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 1	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 1	Other Construction Equipment	1	4.30	300	0.75
Backfill Tunnel Pit 1	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 1	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 1	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 1	Welders	1	6.40	40	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Excavating Tunnel Pit 3	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 3	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 3	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 3	Graders	1	6.00	187	0.41
Excavating Tunnel Pit 3	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 3	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 3	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 3	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 3	Welders	1	6.40	40	0.75
Erect MTBM MARB Tunnel	Cranes	1	2.80	300	0.75
Erect MTBM MARB Tunnel	Forklifts	1	6.00	89	0.20
Erect MTBM MARB Tunnel	Generator Sets	0	8.00	84	0.74
Erect MTBM MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Erect MTBM MARB Tunnel	Welders	3	8.00	46	0.45
Excavation and Jacking MARB Tunnel	Air Compressors	1	2.80	300	0.75
Excavation and Jacking MARB Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Excavation and Jacking MARB Tunnel	Graders	1	6.00	187	0.41
Excavation and Jacking MARB Tunnel	Other Construction Equipment	1	5.60	700	0.75
Excavation and Jacking MARB Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Excavation and Jacking MARB Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Excavation and Jacking MARB Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Excavation and Jacking MARB Tunnel	Rubber Tired Dozers	1	6.00	247	0.40
Excavation and Jacking MARB Tunnel	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Remove MTBM MARB Tunnel	Cranes	1	2.80	300	0.75
Remove MTBM MARB Tunnel	Forklifts	1	6.00	89	0.20
Remove MTBM MARB Tunnel	Generator Sets	0	8.00	84	0.74
Remove MTBM MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Remove MTBM MARB Tunnel	Welders	3	8.00	46	0.45
Install Pipeline MARB Tunnel	Air Compressors	1	2.80	300	0.75
Install Pipeline MARB Tunnel	Cranes	1	2.80	300	0.75
Install Pipeline MARB Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Install Pipeline MARB Tunnel	Forklifts	1	6.00	89	0.20
Install Pipeline MARB Tunnel	Generator Sets	0	8.00	84	0.74
Install Pipeline MARB Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Install Pipeline MARB Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Install Pipeline MARB Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Install Pipeline MARB Tunnel	Other Material Handling Equipment	2	1.40	400	0.75
Install Pipeline MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Install Pipeline MARB Tunnel	Welders	2	4.20	40	0.75
Annular Grout MARB Tunnel	Air Compressors	1	2.80	300	0.75
Annular Grout MARB Tunnel	Cement and Mortar Mixers	3	0.50	750	0.75
Annular Grout MARB Tunnel	Cranes	1	6.00	231	0.29
Annular Grout MARB Tunnel	Forklifts	1	6.00	89	0.20
Annular Grout MARB Tunnel	Generator Sets	0	8.00	84	0.74
Annular Grout MARB Tunnel	Other General Industrial Equipment	1	2.80	100	0.75
Annular Grout MARB Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Annular Grout MARB Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Annular Grout MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Annular Grout MARB Tunnel	Welders	3	8.00	46	0.45
Backfill Tunnel Pit 2	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 2	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 2	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 2	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 2	Other Construction Equipment	1	4.30	300	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Backfill Tunnel Pit 2	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 2	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 2	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 2	Welders	1	6.40	40	0.75
Excavating Tunnel Pit 4	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 4	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 4	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 4	Graders	1	6.00	187	0.41
Excavating Tunnel Pit 4	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 4	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 4	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 4	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 4	Welders	1	6.40	40	0.75
Erect MTBM Van Buren Tunnel	Cranes	1	2.80	300	0.75
Erect MTBM Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Erect MTBM Van Buren Tunnel	Generator Sets	0	8.00	84	0.74
Erect MTBM Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Erect MTBM Van Buren Tunnel	Welders	3	8.00	46	0.45
Excavation and Jacking Van Buren Tunnel	Air Compressors	1	2.80	300	0.75
Excavation and Jacking Van Buren Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Excavation and Jacking Van Buren Tunnel	Graders	1	6.00	187	0.41
Excavation and Jacking Van Buren Tunnel	Other Construction Equipment	1	5.60	700	0.75
Excavation and Jacking Van Buren Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Excavation and Jacking Van Buren Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Excavation and Jacking Van Buren Tunnel	Other Material Handling Equipment	1	2.30	200	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Excavation and Jacking Van Buren Tunnel	Rubber Tired Dozers	1	6.00	247	0.40
Excavation and Jacking Van Buren Tunnel	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Remove MTBM Van Buren Tunnel	Cranes	1	2.80	300	0.75
Remove MTBM Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Remove MTBM Van Buren Tunnel	Generator Sets	0	8.00	84	0.74
Remove MTBM Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Remove MTBM Van Buren Tunnel	Welders	3	8.00	46	0.45
Install Pipeline Van Buren Tunnel	Air Compressors	1	2.80	300	0.75
Install Pipeline Van Buren Tunnel	Cranes	1	2.80	300	0.75
Install Pipeline Van Buren Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Install Pipeline Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Install Pipeline Van Buren Tunnel	Generator Sets	0	8.00	84	0.74
Install Pipeline Van Buren Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Install Pipeline Van Buren Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Install Pipeline Van Buren Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Install Pipeline Van Buren Tunnel	Other Material Handling Equipment	2	1.40	400	0.75
Install Pipeline Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Install Pipeline Van Buren Tunnel	Welders	2	4.20	40	0.75
Annular Grout Van Buren Tunnel	Air Compressors	1	2.80	300	0.75
Annular Grout Van Buren Tunnel	Cement and Mortar Mixers	3	0.50	750	0.75
Annular Grout Van Buren Tunnel	Cranes	1	6.00	231	0.29
Annular Grout Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Annular Grout Van Buren Tunnel	Generator Sets	0	8.00	84	0.45
Annular Grout Van Buren Tunnel	Other General Industrial Equipment	1	2.80	100	0.75
Annular Grout Van Buren Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Annular Grout Van Buren Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Annular Grout Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Annular Grout Van Buren Tunnel	Welders	3	8.00	46	0.45
Backfill Tunnel Pit 3	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 3	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 3	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 3	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 3	Other Construction Equipment	1	4.30	300	0.75
Backfill Tunnel Pit 3	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 3	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 3	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 3	Welders	1	6.40	40	0.75
Backfill Tunnel Pit 4	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 4	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 4	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 4	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 4	Other Construction Equipment	1	4.30	300	0.75
Backfill Tunnel Pit 4	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 4	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 4	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 4	Welders	1	6.40	40	0.75
Site Restoration - Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Site Restoration - Paving	Pavers	1	8.00	130	0.42
Site Restoration - Paving	Paving Equipment	1	8.00	132	0.36
Site Restoration - Paving	Rollers	2	8.00	80	0.38
Site Restoration - Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Restoration - Other/Demobilization	Graders	1	8.00	187	0.41
Site Restoration - Other/Demobilization	Scrapers	1	8.00	367	0.48
Site Restoration - Other/Demobilization	Tractors/Loaders/Backhoes	1	7.00	97	0.37

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Dewatering - Tunnel Pits 1 and 2	Generator Sets	1	24.00	1770	0.75
Dewatering - Tunnel Pits 1 and 2	Generator Sets	1	24.00	93	0.75
Dewatering - Tunnel Pits 1 and 2	Pumps	6	24.00	5	0.75
Dewatering - Tunnel Pits 2 and 3	Generator Sets	1	24.00	1770	0.75
Dewatering - Tunnel Pits 2 and 3	Generator Sets	2	24.00	93	0.75
Dewatering - Tunnel Pits 2 and 3	Pumps	6	24.00	5	0.75
Dewatering - Tunnel Pit 3	Generator Sets	1	24.00	1770	0.75
Dewatering - Tunnel Pit 3	Generator Sets	1	24.00	93	0.75
Dewatering - Tunnel Pit 3	Pumps	5	24.00	5	0.75
Generator - Trailers	Generator Sets	1	24.00	152	0.75
Generator - Trailers	Scrapers	0	8.00	367	0.48
Generator - Trailers	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Dewatering - Tunnel Pits 2 and 3	Graders	1	8.00	187	0.41
Generator - Trailers	Graders	1	8.00	187	0.41
Dewatering - Tunnel Pit 3	Graders	1	8.00	187	0.41
Dewatering - Tunnel Pits 1 and 2	Graders	1	8.00	187	0.41
Dewatering - Tunnel Pits 2 and 3	Scrapers	1	8.00	367	0.48
Dewatering - Tunnel Pit 3	Scrapers	1	8.00	367	0.48
SP Tunnel Pit 2	Scrapers	1	8.00	367	0.48
SP Tunnel Pit 3	Scrapers	1	8.00	367	0.48
SP Tunnel Pit 4	Scrapers	1	8.00	367	0.48
Dewatering - Tunnel Pits 1 and 2	Scrapers	1	8.00	367	0.48
Dewatering - Tunnel Pits 2 and 3	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Dewatering - Tunnel Pit 3	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Dewatering - Tunnel Pits 1 and 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
SP Tunnel Pit 1	4	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SP Tunnel Pit 2	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SP Tunnel Pit 3	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SP Tunnel Pit 4	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 1	9	0.00	0.00	396.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 2	9	0.00	0.00	27.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Erect MTBM 215 Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Jacking 215 Tunnel	9	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove MTBM215 Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Install Pipeline 215 Tunnel	12	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Annular Grout 215 Tunnel	13	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Backfill Tunnel Pit 1	9	0.00	0.00	190.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 3	9	0.00	0.00	832.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Erect MTBM MARB Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Jacking MARB Tunnel	9	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove MTBM MARB Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Install Pipeline MARB Tunnel	12	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Annular Grout MARB Tunnel	13	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Backfill Tunnel Pit 2	9	0.00	0.00	23.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 4	9	0.00	0.00	42.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Erect MTBM Van Buren Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Jacking Van Buren Tu	9	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove MTBM Van Buren Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Install Pipeline Van Buren Tunnel	12	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Annular Grout Van Buren Tunnel	13	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Backfill Tunnel Pit 3	9	0.00	0.00	87.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Backfill Tunnel Pit 4	9	0.00	0.00	38.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Site Restoration - Paving	6	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration - Other/Demobilization	3	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering - Tunnel Pits 1 and 2	11	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering - Tunnel Pits 2 and 3	12	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering - Tunnel Pit 3	10	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Generator - Trailers	2	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 SP Tunnel Pit 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.5324	17.1833	7.2780	0.0168		0.7514	0.7514		0.6913	0.6913		1,628.9049	1,628.9049	0.5268		1,642.0754
Total	**1.5324**	**17.1833**	**7.2780**	**0.0168**	**5.7996**	**0.7514**	**6.5510**	**2.9537**	**0.6913**	**3.6450**		**1,628.9049**	**1,628.9049**	**0.5268**		**1,642.0754**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.2 SP Tunnel Pit 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6098	0.0000	2.6098	1.3292	0.0000	1.3292			0.0000			0.0000
Off-Road	1.5324	17.1833	7.2780	0.0168		0.7514	0.7514		0.6913	0.6913	0.0000	1,628.9049	1,628.9049	0.5268		1,642.0754
Total	**1.5324**	**17.1833**	**7.2780**	**0.0168**	**2.6098**	**0.7514**	**3.3612**	**1.3292**	**0.6913**	**2.0205**	**0.0000**	**1,628.9049**	**1,628.9049**	**0.5268**		**1,642.0754**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.2 SP Tunnel Pit 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Generator - Trailers - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.9187	18.3984	19.4103	0.0428		0.7366	0.7366		0.7216	0.7216		4,069.5770	4,069.5770	0.3342		4,077.9321
Total	**1.9187**	**18.3984**	**19.4103**	**0.0428**	**0.0000**	**0.7366**	**0.7366**	**0.0000**	**0.7216**	**0.7216**		**4,069.5770**	**4,069.5770**	**0.3342**		**4,077.9321**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.3 Generator - Trailers - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0461**	**0.0300**	**0.3385**	**1.0400e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**103.5668**	**103.5668**	**2.7800e-003**		**103.6362**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.9187	18.3984	19.4103	0.0428		0.7366	0.7366		0.7216	0.7216	0.0000	4,069.5770	4,069.5770	0.3342		4,077.9321
Total	**1.9187**	**18.3984**	**19.4103**	**0.0428**	**0.0000**	**0.7366**	**0.7366**	**0.0000**	**0.7216**	**0.7216**	**0.0000**	**4,069.5770**	**4,069.5770**	**0.3342**		**4,077.9321**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.3 Generator - Trailers - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3385	1.0400e-003	0.1118	8.2000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.5668	103.5668	2.7800e-003		103.6362
Total	**0.0461**	**0.0300**	**0.3385**	**1.0400e-003**	**0.1118**	**8.2000e-004**	**0.1126**	**0.0296**	**7.6000e-004**	**0.0304**		**103.5668**	**103.5668**	**2.7800e-003**		**103.6362**

3.3 Generator - Trailers - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.7782	16.2959	19.3709	0.0428		0.6558	0.6558		0.6424	0.6424		4,069.1718	4,069.1718	0.3280		4,077.3728
Total	**1.7782**	**16.2959**	**19.3709**	**0.0428**	**0.0000**	**0.6558**	**0.6558**	**0.0000**	**0.6424**	**0.6424**		**4,069.1718**	**4,069.1718**	**0.3280**		**4,077.3728**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.3 Generator - Trailers - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0434	0.0271	0.3125	1.0000e-003	0.1118	8.0000e-004	0.1126	0.0296	7.4000e-004	0.0304		99.8537	99.8537	2.5100e-003		99.9163
Total	**0.0434**	**0.0271**	**0.3125**	**1.0000e-003**	**0.1118**	**8.0000e-004**	**0.1126**	**0.0296**	**7.4000e-004**	**0.0304**		**99.8537**	**99.8537**	**2.5100e-003**		**99.9163**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.7782	16.2959	19.3709	0.0428		0.6558	0.6558		0.6424	0.6424	0.0000	4,069.1718	4,069.1718	0.3280		4,077.3728
Total	**1.7782**	**16.2959**	**19.3709**	**0.0428**	**0.0000**	**0.6558**	**0.6558**	**0.0000**	**0.6424**	**0.6424**	**0.0000**	**4,069.1718**	**4,069.1718**	**0.3280**		**4,077.3728**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.3 Generator - Trailers - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0434	0.0271	0.3125	1.0000e-003	0.1118	8.0000e-004	0.1126	0.0296	7.4000e-004	0.0304		99.8537	99.8537	2.5100e-003		99.9163
Total	**0.0434**	**0.0271**	**0.3125**	**1.0000e-003**	**0.1118**	**8.0000e-004**	**0.1126**	**0.0296**	**7.4000e-004**	**0.0304**		**99.8537**	**99.8537**	**2.5100e-003**		**99.9163**

3.4 SP Tunnel Pit 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.4853	28.1230	14.5652	0.0324		1.1818	1.1818		1.0872	1.0872		3,134.4289	3,134.4289	1.0137		3,159.7723
Total	**2.4853**	**28.1230**	**14.5652**	**0.0324**	**5.7996**	**1.1818**	**6.9813**	**2.9537**	**1.0872**	**4.0409**		**3,134.4289**	**3,134.4289**	**1.0137**		**3,159.7723**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.4 SP Tunnel Pit 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6098	0.0000	2.6098	1.3292	0.0000	1.3292			0.0000			0.0000
Off-Road	2.4853	28.1230	14.5652	0.0324		1.1818	1.1818		1.0872	1.0872	0.0000	3,134.4289	3,134.4289	1.0137		3,159.7723
Total	**2.4853**	**28.1230**	**14.5652**	**0.0324**	**2.6098**	**1.1818**	**3.7916**	**1.3292**	**1.0872**	**2.4164**	**0.0000**	**3,134.4289**	**3,134.4289**	**1.0137**		**3,159.7723**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.4 SP Tunnel Pit 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 SP Tunnel Pit 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.6161	29.4945	15.0699	0.0334		1.2483	1.2483		1.1484	1.1484		3,237.8479	3,237.8479	1.0472		3,264.0275
Total	**2.6161**	**29.4945**	**15.0699**	**0.0334**	**6.5523**	**1.2483**	**7.8006**	**3.3675**	**1.1484**	**4.5159**		**3,237.8479**	**3,237.8479**	**1.0472**		**3,264.0275**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.5 SP Tunnel Pit 3 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	2.6161	29.4945	15.0699	0.0334		1.2483	1.2483		1.1484	1.1484	0.0000	3,237.8479	3,237.8479	1.0472		3,264.0275
Total	**2.6161**	**29.4945**	**15.0699**	**0.0334**	**2.9486**	**1.2483**	**4.1969**	**1.5154**	**1.1484**	**2.6638**	**0.0000**	**3,237.8479**	**3,237.8479**	**1.0472**		**3,264.0275**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.5 SP Tunnel Pit 3 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 SP Tunnel Pit 4 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.6161	29.4945	15.0699	0.0334		1.2483	1.2483		1.1484	1.1484		3,237.8479	3,237.8479	1.0472		3,264.0275
Total	**2.6161**	**29.4945**	**15.0699**	**0.0334**	**6.5523**	**1.2483**	**7.8006**	**3.3675**	**1.1484**	**4.5159**		**3,237.8479**	**3,237.8479**	**1.0472**		**3,264.0275**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.6 SP Tunnel Pit 4 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	2.6161	29.4945	15.0699	0.0334		1.2483	1.2483		1.1484	1.1484	0.0000	3,237.8479	3,237.8479	1.0472		3,264.0275
Total	**2.6161**	**29.4945**	**15.0699**	**0.0334**	**2.9486**	**1.2483**	**4.1969**	**1.5154**	**1.1484**	**2.6638**	**0.0000**	**3,237.8479**	**3,237.8479**	**1.0472**		**3,264.0275**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.6 SP Tunnel Pit 4 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Dewatering - Tunnel Pits 1 and 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	18.2021	265.7913	97.6071	0.3978		6.1833	6.1833		6.1271	6.1271		44,387.1934	44,387.1934	2.2090		44,442.4186
Total	**18.2021**	**265.7913**	**97.6071**	**0.3978**	**1.5908**	**6.1833**	**7.7740**	**0.1718**	**6.1271**	**6.2989**		**44,387.1934**	**44,387.1934**	**2.2090**		**44,442.4186**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.7 Dewatering - Tunnel Pits 1 and 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	18.2021	265.7913	97.6071	0.3978		6.1833	6.1833		6.1271	6.1271	0.0000	44,387.1933	44,387.1933	2.2090		44,442.4186
Total	**18.2021**	**265.7913**	**97.6071**	**0.3978**	**0.7158**	**6.1833**	**6.8991**	**0.0773**	**6.1271**	**6.2044**	**0.0000**	**44,387.1933**	**44,387.1933**	**2.2090**		**44,442.4186**

3.7 Dewatering - Tunnel Pits 1 and 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 Excavating Tunnel Pit 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9381	0.0000	4.9381	2.5292	0.0000	2.5292			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430		3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**4.9381**	**1.2349**	**6.1731**	**2.5292**	**1.1430**	**3.6722**		**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.8 Excavating Tunnel Pit 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0802	2.8460	0.6208	7.8100e-003	0.1742	8.0900e-003	0.1823	0.0478	7.7400e-003	0.0555		845.0566	845.0566	0.0640		846.6562
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0802**	**2.8460**	**0.6208**	**7.8100e-003**	**0.1742**	**8.0900e-003**	**0.1823**	**0.0478**	**7.7400e-003**	**0.0555**		**845.0566**	**845.0566**	**0.0640**		**846.6562**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2222	0.0000	2.2222	1.1382	0.0000	1.1382			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430	0.0000	3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**2.2222**	**1.2349**	**3.4571**	**1.1382**	**1.1430**	**2.2812**	**0.0000**	**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.8 Excavating Tunnel Pit 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0802	2.8460	0.6208	7.8100e-003	0.1742	8.0900e-003	0.1823	0.0478	7.7400e-003	0.0555		845.0566	845.0566	0.0640		846.6562
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0802**	**2.8460**	**0.6208**	**7.8100e-003**	**0.1742**	**8.0900e-003**	**0.1823**	**0.0478**	**7.7400e-003**	**0.0555**		**845.0566**	**845.0566**	**0.0640**		**846.6562**

3.9 Excavating Tunnel Pit 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9166	0.0000	4.9166	2.5260	0.0000	2.5260			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430		3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**4.9166**	**1.2349**	**6.1515**	**2.5260**	**1.1430**	**3.6690**		**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.9 Excavating Tunnel Pit 2 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.1400e-003	0.2531	0.0552	6.9000e-004	0.0155	7.2000e-004	0.0162	4.2500e-003	6.9000e-004	4.9300e-003		75.1533	75.1533	5.6900e-003		75.2955
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**7.1400e-003**	**0.2531**	**0.0552**	**6.9000e-004**	**0.0155**	**7.2000e-004**	**0.0162**	**4.2500e-003**	**6.9000e-004**	**4.9300e-003**		**75.1533**	**75.1533**	**5.6900e-003**		**75.2955**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2125	0.0000	2.2125	1.1367	0.0000	1.1367			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430	0.0000	3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**2.2125**	**1.2349**	**3.4474**	**1.1367**	**1.1430**	**2.2797**	**0.0000**	**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.9 Excavating Tunnel Pit 2 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.1400e-003	0.2531	0.0552	6.9000e-004	0.0155	7.2000e-004	0.0162	4.2500e-003	6.9000e-004	4.9300e-003		75.1533	75.1533	5.6900e-003		75.2955
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**7.1400e-003**	**0.2531**	**0.0552**	**6.9000e-004**	**0.0155**	**7.2000e-004**	**0.0162**	**4.2500e-003**	**6.9000e-004**	**4.9300e-003**		**75.1533**	**75.1533**	**5.6900e-003**		**75.2955**

3.10 Erect MTBM 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342		1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**		**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.10 Erect MTBM 215 Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342	0.0000	1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**	**0.0000**	**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.10 Erect MTBM 215 Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

3.11 Excavation and Jacking 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	2.9973	28.7049	15.5959	0.0446		1.1907	1.1907		1.1019	1.1019		4,435.1283	4,435.1283	1.2111		4,465.4052
Total	**2.9973**	**28.7049**	**15.5959**	**0.0446**	**4.9143**	**1.1907**	**6.1049**	**2.5256**	**1.1019**	**3.6275**		**4,435.1283**	**4,435.1283**	**1.2111**		**4,465.4052**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.11 Excavation and Jacking 215 Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2114	0.0000	2.2114	1.1365	0.0000	1.1365			0.0000			0.0000
Off-Road	2.9973	28.7049	15.5959	0.0446		1.1907	1.1907		1.1019	1.1019	0.0000	4,435.1283	4,435.1283	1.2111		4,465.4052
Total	**2.9973**	**28.7049**	**15.5959**	**0.0446**	**2.2114**	**1.1907**	**3.4021**	**1.1365**	**1.1019**	**2.2384**	**0.0000**	**4,435.1283**	**4,435.1283**	**1.2111**		**4,465.4052**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.11 Excavation and Jacking 215 Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.12 Remove MTBM215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342		1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**		**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.12 Remove MTBM215 Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342	0.0000	1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**	**0.0000**	**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.12 Remove MTBM215 Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

3.13 Install Pipeline 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2878	28.5759	20.5218	0.0536		1.1918	1.1918		1.1119	1.1119		5,249.6231	5,249.6231	1.4135		5,284.9605
Total	**3.2878**	**28.5759**	**20.5218**	**0.0536**		**1.1918**	**1.1918**		**1.1119**	**1.1119**		**5,249.6231**	**5,249.6231**	**1.4135**		**5,284.9605**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.13 Install Pipeline 215 Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2878	28.5759	20.5218	0.0536		1.1918	1.1918		1.1119	1.1119	0.0000	5,249.6231	5,249.6231	1.4135		5,284.9605
Total	**3.2878**	**28.5759**	**20.5218**	**0.0536**		**1.1918**	**1.1918**		**1.1119**	**1.1119**	**0.0000**	**5,249.6231**	**5,249.6231**	**1.4135**		**5,284.9605**

3.13 Install Pipeline 215 Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

3.14 Annular Grout 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1015	23.7116	18.9986	0.0437		1.0930	1.0930		1.0298	1.0298		4,229.2803	4,229.2803	1.0242		4,254.8863
Total	**3.1015**	**23.7116**	**18.9986**	**0.0437**		**1.0930**	**1.0930**		**1.0298**	**1.0298**		**4,229.2803**	**4,229.2803**	**1.0242**		**4,254.8863**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.14 Annular Grout 215 Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1015	23.7116	18.9986	0.0437		1.0930	1.0930		1.0298	1.0298	0.0000	4,229.2803	4,229.2803	1.0242		4,254.8863
Total	**3.1015**	**23.7116**	**18.9986**	**0.0437**		**1.0930**	**1.0930**		**1.0298**	**1.0298**	**0.0000**	**4,229.2803**	**4,229.2803**	**1.0242**		**4,254.8863**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.14 Annular Grout 215 Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

3.15 Backfill Tunnel Pit 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9257	0.0000	4.9257	2.5274	0.0000	2.5274			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430		3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**4.9257**	**1.2349**	**6.1607**	**2.5274**	**1.1430**	**3.6704**		**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.15 Backfill Tunnel Pit 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0385	1.3655	0.2979	3.7500e-003	0.0836	3.8800e-003	0.0875	0.0229	3.7100e-003	0.0266		405.4565	405.4565	0.0307		406.2240
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0385**	**1.3655**	**0.2979**	**3.7500e-003**	**0.0836**	**3.8800e-003**	**0.0875**	**0.0229**	**3.7100e-003**	**0.0266**		**405.4565**	**405.4565**	**0.0307**		**406.2240**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2166	0.0000	2.2166	1.1373	0.0000	1.1373			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430	0.0000	3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**2.2166**	**1.2349**	**3.4515**	**1.1373**	**1.1430**	**2.2803**	**0.0000**	**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.15 Backfill Tunnel Pit 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0385	1.3655	0.2979	3.7500e-003	0.0836	3.8800e-003	0.0875	0.0229	3.7100e-003	0.0266		405.4565	405.4565	0.0307		406.2240
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0385**	**1.3655**	**0.2979**	**3.7500e-003**	**0.0836**	**3.8800e-003**	**0.0875**	**0.0229**	**3.7100e-003**	**0.0266**		**405.4565**	**405.4565**	**0.0307**		**406.2240**

3.16 Dewatering - Tunnel Pits 2 and 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	19.4052	276.4496	110.0110	0.4200		6.7479	6.7479		6.6918	6.6918		46,484.5226	46,484.5226	2.3160		46,542.4235
Total	**19.4052**	**276.4496**	**110.0110**	**0.4200**	**1.5908**	**6.7479**	**8.3387**	**0.1718**	**6.6918**	**6.8635**		**46,484.5226**	**46,484.5226**	**2.3160**		**46,542.4235**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.16 Dewatering - Tunnel Pits 2 and 3 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	19.4052	276.4496	110.0110	0.4200		6.7479	6.7479		6.6918	6.6918	0.0000	46,484.5225	46,484.5225	2.3160		46,542.4234
Total	**19.4052**	**276.4496**	**110.0110**	**0.4200**	**0.7158**	**6.7479**	**7.4638**	**0.0773**	**6.6918**	**6.7691**	**0.0000**	**46,484.5225**	**46,484.5225**	**2.3160**		**46,542.4234**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.16 Dewatering - Tunnel Pits 2 and 3 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.16 Dewatering - Tunnel Pits 2 and 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	18.0693	260.2883	108.2045	0.4200		6.0093	6.0093		5.9617	5.9617		46,486.7261	46,486.7261	2.2318		46,542.5203
Total	**18.0693**	**260.2883**	**108.2045**	**0.4200**	**1.5908**	**6.0093**	**7.6001**	**0.1718**	**5.9617**	**6.1335**		**46,486.7261**	**46,486.7261**	**2.2318**		**46,542.5203**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.16 Dewatering - Tunnel Pits 2 and 3 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	18.0693	260.2883	108.2045	0.4200		6.0093	6.0093		5.9617	5.9617	0.0000	46,486.7260	46,486.7260	2.2318		46,542.5203
Total	**18.0693**	**260.2883**	**108.2045**	**0.4200**	**0.7158**	**6.0093**	**6.7252**	**0.0773**	**5.9617**	**6.0390**	**0.0000**	**46,486.7260**	**46,486.7260**	**2.2318**		**46,542.5203**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.16 Dewatering - Tunnel Pits 2 and 3 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.17 Excavating Tunnel Pit 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9896	0.0000	4.9896	2.5370	0.0000	2.5370			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430		3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**4.9896**	**1.2349**	**6.2245**	**2.5370**	**1.1430**	**3.6800**		**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.17 Excavating Tunnel Pit 3 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2529	8.9692	1.9565	0.0246	0.5490	0.0255	0.5745	0.1505	0.0244	0.1749		2,663.2088	2,663.2088	0.2016		2,668.2499
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2529**	**8.9692**	**1.9565**	**0.0246**	**0.5490**	**0.0255**	**0.5745**	**0.1505**	**0.0244**	**0.1749**		**2,663.2088**	**2,663.2088**	**0.2016**		**2,668.2499**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2453	0.0000	2.2453	1.1417	0.0000	1.1417			0.0000			0.0000
Off-Road	2.8005	28.4894	19.8117	0.0415		1.2349	1.2349		1.1430	1.1430	0.0000	3,973.8857	3,973.8857	1.2388		4,004.8546
Total	**2.8005**	**28.4894**	**19.8117**	**0.0415**	**2.2453**	**1.2349**	**3.4802**	**1.1417**	**1.1430**	**2.2847**	**0.0000**	**3,973.8857**	**3,973.8857**	**1.2388**		**4,004.8546**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.17 Excavating Tunnel Pit 3 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2529	8.9692	1.9565	0.0246	0.5490	0.0255	0.5745	0.1505	0.0244	0.1749		2,663.2088	2,663.2088	0.2016		2,668.2499
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2529**	**8.9692**	**1.9565**	**0.0246**	**0.5490**	**0.0255**	**0.5745**	**0.1505**	**0.0244**	**0.1749**		**2,663.2088**	**2,663.2088**	**0.2016**		**2,668.2499**

3.18 Erect MTBM MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342		1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**		**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.18 Erect MTBM MARB Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342	0.0000	1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**	**0.0000**	**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.18 Erect MTBM MARB Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

3.19 Excavation and Jacking MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	2.9973	28.7049	15.5959	0.0446		1.1907	1.1907		1.1019	1.1019		4,435.1283	4,435.1283	1.2111		4,465.4052
Total	**2.9973**	**28.7049**	**15.5959**	**0.0446**	**4.9143**	**1.1907**	**6.1049**	**2.5256**	**1.1019**	**3.6275**		**4,435.1283**	**4,435.1283**	**1.2111**		**4,465.4052**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.19 Excavation and Jacking MARB Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2114	0.0000	2.2114	1.1365	0.0000	1.1365			0.0000			0.0000
Off-Road	2.9973	28.7049	15.5959	0.0446		1.1907	1.1907		1.1019	1.1019	0.0000	4,435.1283	4,435.1283	1.2111		4,465.4052
Total	**2.9973**	**28.7049**	**15.5959**	**0.0446**	**2.2114**	**1.1907**	**3.4021**	**1.1365**	**1.1019**	**2.2384**	**0.0000**	**4,435.1283**	**4,435.1283**	**1.2111**		**4,465.4052**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.19 Excavation and Jacking MARB Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.20 Remove MTBM MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342		1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**		**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.20 Remove MTBM MARB Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5556	11.6143	11.1280	0.0179		0.5613	0.5613		0.5342	0.5342	0.0000	1,615.3303	1,615.3303	0.4022		1,625.3846
Total	**1.5556**	**11.6143**	**11.1280**	**0.0179**		**0.5613**	**0.5613**		**0.5342**	**0.5342**	**0.0000**	**1,615.3303**	**1,615.3303**	**0.4022**		**1,625.3846**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.20 Remove MTBM MARB Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

3.21 Install Pipeline MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2878	28.5759	20.5218	0.0536		1.1918	1.1918		1.1119	1.1119		5,249.6231	5,249.6231	1.4135		5,284.9605
Total	**3.2878**	**28.5759**	**20.5218**	**0.0536**		**1.1918**	**1.1918**		**1.1119**	**1.1119**		**5,249.6231**	**5,249.6231**	**1.4135**		**5,284.9605**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.21 Install Pipeline MARB Tunnel - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2878	28.5759	20.5218	0.0536		1.1918	1.1918		1.1119	1.1119	0.0000	5,249.6231	5,249.6231	1.4135		5,284.9605
Total	**3.2878**	**28.5759**	**20.5218**	**0.0536**		**1.1918**	**1.1918**		**1.1119**	**1.1119**	**0.0000**	**5,249.6231**	**5,249.6231**	**1.4135**		**5,284.9605**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.21 Install Pipeline MARB Tunnel - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0557	1.8064	0.4812	4.7100e-003	0.1216	3.7700e-003	0.1254	0.0350	3.6000e-003	0.0386		502.6454	502.6454	0.0336		503.4861
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0557**	**1.8064**	**0.4812**	**4.7100e-003**	**0.1216**	**3.7700e-003**	**0.1254**	**0.0350**	**3.6000e-003**	**0.0386**		**502.6454**	**502.6454**	**0.0336**		**503.4861**

3.21 Install Pipeline MARB Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9445	24.3798	19.6498	0.0536		0.9909	0.9909		0.9251	0.9251		5,249.4958	5,249.4958	1.4087		5,284.7141
Total	**2.9445**	**24.3798**	**19.6498**	**0.0536**		**0.9909**	**0.9909**		**0.9251**	**0.9251**		**5,249.4958**	**5,249.4958**	**1.4087**		**5,284.7141**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.21 Install Pipeline MARB Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9445	24.3798	19.6498	0.0536		0.9909	0.9909		0.9251	0.9251	0.0000	5,249.4958	5,249.4958	1.4087		5,284.7141
Total	**2.9445**	**24.3798**	**19.6498**	**0.0536**		**0.9909**	**0.9909**		**0.9251**	**0.9251**	**0.0000**	**5,249.4958**	**5,249.4958**	**1.4087**		**5,284.7141**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.21 Install Pipeline MARB Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

3.22 Annular Grout MARB Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7966	21.0775	18.5620	0.0437		0.9141	0.9141		0.8619	0.8619		4,229.6032	4,229.6032	1.0164		4,255.0128
Total	**2.7966**	**21.0775**	**18.5620**	**0.0437**		**0.9141**	**0.9141**		**0.8619**	**0.8619**		**4,229.6032**	**4,229.6032**	**1.0164**		**4,255.0128**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.22 Annular Grout MARB Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7966	21.0775	18.5620	0.0437		0.9141	0.9141		0.8619	0.8619	0.0000	4,229.6032	4,229.6032	1.0164		4,255.0128
Total	**2.7966**	**21.0775**	**18.5620**	**0.0437**		**0.9141**	**0.9141**		**0.8619**	**0.8619**	**0.0000**	**4,229.6032**	**4,229.6032**	**1.0164**		**4,255.0128**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.22 Annular Grout MARB Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

3.23 Backfill Tunnel Pit 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9163	0.0000	4.9163	2.5259	0.0000	2.5259			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471		3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**4.9163**	**1.0230**	**5.9392**	**2.5259**	**0.9471**	**3.4730**		**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.23 Backfill Tunnel Pit 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.7700e-003	0.2000	0.0463	5.8000e-004	0.0132	5.3000e-004	0.0137	3.6200e-003	5.0000e-004	4.1200e-003		63.2608	63.2608	4.7400e-003		63.3791
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**5.7700e-003**	**0.2000**	**0.0463**	**5.8000e-004**	**0.0132**	**5.3000e-004**	**0.0137**	**3.6200e-003**	**5.0000e-004**	**4.1200e-003**		**63.2608**	**63.2608**	**4.7400e-003**		**63.3791**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2123	0.0000	2.2123	1.1367	0.0000	1.1367			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471	0.0000	3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**2.2123**	**1.0230**	**3.2353**	**1.1367**	**0.9471**	**2.0837**	**0.0000**	**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.23 Backfill Tunnel Pit 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.7700e-003	0.2000	0.0463	5.8000e-004	0.0132	5.3000e-004	0.0137	3.6200e-003	5.0000e-004	4.1200e-003		63.2608	63.2608	4.7400e-003		63.3791
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**5.7700e-003**	**0.2000**	**0.0463**	**5.8000e-004**	**0.0132**	**5.3000e-004**	**0.0137**	**3.6200e-003**	**5.0000e-004**	**4.1200e-003**		**63.2608**	**63.2608**	**4.7400e-003**		**63.3791**

3.24 Dewatering - Tunnel Pit 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	16.9585	250.4309	95.8302	0.3979		5.5148	5.5148		5.4672	5.4672		44,389.3969	44,389.3969	2.1321		44,442.7000
Total	**16.9585**	**250.4309**	**95.8302**	**0.3979**	**1.5908**	**5.5148**	**7.1055**	**0.1718**	**5.4672**	**5.6389**		**44,389.3969**	**44,389.3969**	**2.1321**		**44,442.7000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.24 Dewatering - Tunnel Pit 3 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	16.9585	250.4309	95.8302	0.3979		5.5148	5.5148		5.4672	5.4672	0.0000	44,389.3968	44,389.3968	2.1321		44,442.7000
Total	**16.9585**	**250.4309**	**95.8302**	**0.3979**	**0.7158**	**5.5148**	**6.2306**	**0.0773**	**5.4672**	**5.5445**	**0.0000**	**44,389.3968**	**44,389.3968**	**2.1321**		**44,442.7000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.24 Dewatering - Tunnel Pit 3 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.25 Excavating Tunnel Pit 4 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9181	0.0000	4.9181	2.5262	0.0000	2.5262			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471		3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**4.9181**	**1.0230**	**5.9410**	**2.5262**	**0.9471**	**3.4733**		**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

3.25 Excavating Tunnel Pit 4 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0121	0.4200	0.0972	1.2300e-003	0.0277	1.1100e-003	0.0288	7.6000e-003	1.0600e-003	8.6500e-003		132.8476	132.8476	9.9400e-003		133.0962
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0121**	**0.4200**	**0.0972**	**1.2300e-003**	**0.0277**	**1.1100e-003**	**0.0288**	**7.6000e-003**	**1.0600e-003**	**8.6500e-003**		**132.8476**	**132.8476**	**9.9400e-003**		**133.0962**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2131	0.0000	2.2131	1.1368	0.0000	1.1368			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471	0.0000	3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**2.2131**	**1.0230**	**3.2361**	**1.1368**	**0.9471**	**2.0838**	**0.0000**	**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.25 Excavating Tunnel Pit 4 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0121	0.4200	0.0972	1.2300e-003	0.0277	1.1100e-003	0.0288	7.6000e-003	1.0600e-003	8.6500e-003		132.8476	132.8476	9.9400e-003		133.0962
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0121**	**0.4200**	**0.0972**	**1.2300e-003**	**0.0277**	**1.1100e-003**	**0.0288**	**7.6000e-003**	**1.0600e-003**	**8.6500e-003**		**132.8476**	**132.8476**	**9.9400e-003**		**133.0962**

3.26 Erect MTBM Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4013	10.4557	10.7035	0.0179		0.4746	0.4746		0.4520	0.4520		1,615.2030	1,615.2030	0.3956		1,625.0920
Total	**1.4013**	**10.4557**	**10.7035**	**0.0179**		**0.4746**	**0.4746**		**0.4520**	**0.4520**		**1,615.2030**	**1,615.2030**	**0.3956**		**1,625.0920**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.26 Erect MTBM Van Buren Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4013	10.4557	10.7035	0.0179		0.4746	0.4746		0.4520	0.4520	0.0000	1,615.2030	1,615.2030	0.3956		1,625.0920
Total	**1.4013**	**10.4557**	**10.7035**	**0.0179**		**0.4746**	**0.4746**		**0.4520**	**0.4520**	**0.0000**	**1,615.2030**	**1,615.2030**	**0.3956**		**1,625.0920**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.26 Erect MTBM Van Buren Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

3.27 Excavation and Jacking Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	2.5783	23.8707	14.6917	0.0438		0.9601	0.9601		0.8889	0.8889		4,356.9253	4,356.9253	1.1844		4,386.5351
Total	**2.5783**	**23.8707**	**14.6917**	**0.0438**	**4.9143**	**0.9601**	**5.8743**	**2.5256**	**0.8889**	**3.4145**		**4,356.9253**	**4,356.9253**	**1.1844**		**4,386.5351**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.27 Excavation and Jacking Van Buren Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2114	0.0000	2.2114	1.1365	0.0000	1.1365			0.0000			0.0000
Off-Road	2.5783	23.8707	14.6917	0.0438		0.9601	0.9601		0.8889	0.8889	0.0000	4,356.9253	4,356.9253	1.1844		4,386.5351
Total	**2.5783**	**23.8707**	**14.6917**	**0.0438**	**2.2114**	**0.9601**	**3.1715**	**1.1365**	**0.8889**	**2.0255**	**0.0000**	**4,356.9253**	**4,356.9253**	**1.1844**		**4,386.5351**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.27 Excavation and Jacking Van Buren Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.28 Remove MTBM Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4013	10.4557	10.7035	0.0179		0.4746	0.4746		0.4520	0.4520		1,615.2030	1,615.2030	0.3956		1,625.0920
Total	**1.4013**	**10.4557**	**10.7035**	**0.0179**		**0.4746**	**0.4746**		**0.4520**	**0.4520**		**1,615.2030**	**1,615.2030**	**0.3956**		**1,625.0920**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.28 Remove MTBM Van Buren Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4013	10.4557	10.7035	0.0179		0.4746	0.4746		0.4520	0.4520	0.0000	1,615.2030	1,615.2030	0.3956		1,625.0920
Total	**1.4013**	**10.4557**	**10.7035**	**0.0179**		**0.4746**	**0.4746**		**0.4520**	**0.4520**	**0.0000**	**1,615.2030**	**1,615.2030**	**0.3956**		**1,625.0920**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.28 Remove MTBM Van Buren Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

3.29 Install Pipeline Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9445	24.3798	19.6498	0.0536		0.9909	0.9909		0.9251	0.9251		5,249.4958	5,249.4958	1.4087		5,284.7141
Total	**2.9445**	**24.3798**	**19.6498**	**0.0536**		**0.9909**	**0.9909**		**0.9251**	**0.9251**		**5,249.4958**	**5,249.4958**	**1.4087**		**5,284.7141**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.29 Install Pipeline Van Buren Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9445	24.3798	19.6498	0.0536		0.9909	0.9909		0.9251	0.9251	0.0000	5,249.4958	5,249.4958	1.4087		5,284.7141
Total	**2.9445**	**24.3798**	**19.6498**	**0.0536**		**0.9909**	**0.9909**		**0.9251**	**0.9251**	**0.0000**	**5,249.4958**	**5,249.4958**	**1.4087**		**5,284.7141**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.29 Install Pipeline Van Buren Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

3.30 Annular Grout Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7966	21.0775	18.5620	0.0437		0.9141	0.9141		0.8619	0.8619		4,229.6032	4,229.6032	1.0164		4,255.0128
Total	**2.7966**	**21.0775**	**18.5620**	**0.0437**		**0.9141**	**0.9141**		**0.8619**	**0.8619**		**4,229.6032**	**4,229.6032**	**1.0164**		**4,255.0128**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.30 Annular Grout Van Buren Tunnel - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7966	21.0775	18.5620	0.0437		0.9141	0.9141		0.8619	0.8619	0.0000	4,229.6032	4,229.6032	1.0164		4,255.0128
Total	**2.7966**	**21.0775**	**18.5620**	**0.0437**		**0.9141**	**0.9141**		**0.8619**	**0.8619**	**0.0000**	**4,229.6032**	**4,229.6032**	**1.0164**		**4,255.0128**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.30 Annular Grout Van Buren Tunnel - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0522	1.7133	0.4550	4.6600e-003	0.1216	3.2700e-003	0.1249	0.0350	3.1200e-003	0.0381		498.1690	498.1690	0.0324		498.9779
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0522**	**1.7133**	**0.4550**	**4.6600e-003**	**0.1216**	**3.2700e-003**	**0.1249**	**0.0350**	**3.1200e-003**	**0.0381**		**498.1690**	**498.1690**	**0.0324**		**498.9779**

3.31 Backfill Tunnel Pit 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9221	0.0000	4.9221	2.5268	0.0000	2.5268			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471		3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**4.9221**	**1.0230**	**5.9451**	**2.5268**	**0.9471**	**3.4739**		**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.31 Backfill Tunnel Pit 3 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0251	0.8700	0.2014	2.5400e-003	0.0574	2.2900e-003	0.0597	0.0157	2.1900e-003	0.0179		275.1843	275.1843	0.0206		275.6993
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0251**	**0.8700**	**0.2014**	**2.5400e-003**	**0.0574**	**2.2900e-003**	**0.0597**	**0.0157**	**2.1900e-003**	**0.0179**		**275.1843**	**275.1843**	**0.0206**		**275.6993**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2149	0.0000	2.2149	1.1371	0.0000	1.1371			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471	0.0000	3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**2.2149**	**1.0230**	**3.2379**	**1.1371**	**0.9471**	**2.0841**	**0.0000**	**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.31 Backfill Tunnel Pit 3 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0251	0.8700	0.2014	2.5400e-003	0.0574	2.2900e-003	0.0597	0.0157	2.1900e-003	0.0179		275.1843	275.1843	0.0206		275.6993
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0251**	**0.8700**	**0.2014**	**2.5400e-003**	**0.0574**	**2.2900e-003**	**0.0597**	**0.0157**	**2.1900e-003**	**0.0179**		**275.1843**	**275.1843**	**0.0206**		**275.6993**

3.32 Backfill Tunnel Pit 4 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9177	0.0000	4.9177	2.5261	0.0000	2.5261			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471		3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**4.9177**	**1.0230**	**5.9406**	**2.5261**	**0.9471**	**3.4732**		**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.32 Backfill Tunnel Pit 4 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0110	0.3800	0.0880	1.1100e-003	0.0251	1.0000e-003	0.0261	6.8700e-003	9.6000e-004	7.8300e-003		120.1954	120.1954	9.0000e-003		120.4204
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0110**	**0.3800**	**0.0880**	**1.1100e-003**	**0.0251**	**1.0000e-003**	**0.0261**	**6.8700e-003**	**9.6000e-004**	**7.8300e-003**		**120.1954**	**120.1954**	**9.0000e-003**		**120.4204**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2130	0.0000	2.2130	1.1368	0.0000	1.1368			0.0000			0.0000
Off-Road	2.4307	23.9596	18.7822	0.0415		1.0230	1.0230		0.9471	0.9471	0.0000	3,974.8536	3,974.8536	1.2365		4,005.7669
Total	**2.4307**	**23.9596**	**18.7822**	**0.0415**	**2.2130**	**1.0230**	**3.2359**	**1.1368**	**0.9471**	**2.0838**	**0.0000**	**3,974.8536**	**3,974.8536**	**1.2365**		**4,005.7669**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.32 Backfill Tunnel Pit 4 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0110	0.3800	0.0880	1.1100e-003	0.0251	1.0000e-003	0.0261	6.8700e-003	9.6000e-004	7.8300e-003		120.1954	120.1954	9.0000e-003		120.4204
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0110**	**0.3800**	**0.0880**	**1.1100e-003**	**0.0251**	**1.0000e-003**	**0.0261**	**6.8700e-003**	**9.6000e-004**	**7.8300e-003**		**120.1954**	**120.1954**	**9.0000e-003**		**120.4204**

3.33 Site Restoration - Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500		1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	0.0498					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9909**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**		**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.33 Site Restoration - Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500	0.0000	1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	0.0498					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9909**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**	**0.0000**	**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.33 Site Restoration - Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.34 Site Restoration - Other/Demobilization - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476		2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**1.5908**	**0.5952**	**2.1859**	**0.1718**	**0.5476**	**0.7193**		**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

3.34 Site Restoration - Other/Demobilization - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476	0.0000	2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**0.7158**	**0.5952**	**1.3110**	**0.0773**	**0.5476**	**0.6249**	**0.0000**	**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

3.34 Site Restoration - Other/Demobilization - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Other Non-Asphalt Surfaces	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0510	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270
Unmitigated	0.0510	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	8.8300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1000e-003	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270
Total	**0.0510**	**1.1000e-004**	**0.0118**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0254**	**0.0254**	**7.0000e-005**		**0.0270**

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	8.8300e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1000e-003	1.1000e-004	0.0118	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0254	0.0254	7.0000e-005		0.0270
Total	**0.0510**	**1.1000e-004**	**0.0118**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0254**	**0.0254**	**7.0000e-005**		**0.0270**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

PVP All Tunnel 2020 - South Coast AQMD Air District, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

PVP All Tunnel 2020

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	8.25	1000sqft	0.19	8,250.00	0
Other Asphalt Surfaces	0.01	1000sqft	0.00	14.00	0
Other Non-Asphalt Surfaces	64.00	1000sqft	1.47	64,000.00	0
Other Non-Asphalt Surfaces	11.50	1000sqft	0.26	11,500.00	0
Other Non-Asphalt Surfaces	32.10	1000sqft	0.74	32,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Modeling for all-tunnel construction of PVP alignment. Note: Installation of temp. dewatering facilities (i.e., pipelines, treatment facilities), modeled separately.

Land Use - Non-Asphalt surfaces are contractor work/storage areas around tunnel pits 1, 2, 3. Asphalt surfaces are contractor work storage pits around tunnel pit 4. 14 sf asphalt surface is well removal and capping (assuming 8 inch overdrilling).

Construction Phase - Schedule adjusted to match anticipated schedule (~16 weeks per tunnel segment).

Off-road Equipment - Equipment list per cient. Pumps and generators added to separate phase.

Off-road Equipment - Equipment list per client. Pumps and generators added to separate phase.

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Off-road Equipment - Equipment list per client. Generators added to separate phase.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Assumes 3 pumps at Tunnel Pit 3 and two at Tunnel Pit 4. One 1200 kW generator at Tunnel Pit 3 and one 60 kW generator at Tunnel Pit 3.

Off-road Equipment - Generators assume one 1200 kW generator at Tunnel Pit 1 based on Kohler KM1200U generator, and one 60 kW generator at Tunnel Pit 2 based on Generac SD060 diesel generator.

Off-road Equipment - Based on one 1200 kW generator at tunnel pit 3 and one 60 kW generator at Tunnel Pits 2 and 3, each.

Off-road Equipment - Generator sets included in dewatering phase.

Off-road Equipment - Equipment usage per client. Generators added in separate phase.

Off-road Equipment - Equipment usage and HP and LF from client. Generators added to separate phase.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Equipment list per client.

Off-road Equipment - Construction equipment list per client. Pumps added to dewatering phases

Off-road Equipment - Equipment list per client. Pumps added to separate dewatering phase.

Off-road Equipment - Equipment list per client. Pumps added to separate phase.

Off-road Equipment - One 100 kW generator to power construction trailers. Based on Generac SD100 industrial generator set specs.

Off-road Equipment - Equipment list per client. Generators and pumps added to generator and pumping phases.

Off-road Equipment - Equipment list per client. Generators added to separate phase.

Off-road Equipment - Equipment list per client. Generators added to separate phase.

Off-road Equipment - Equipment usage and HP and LF from client. Generators added to separate phase.

Off-road Equipment - Equipment usage, HP and LF from client. Generators added to separate phase.

Off-road Equipment - Equipment hours and LF per client. Generators added to dewatering/generator phases

Off-road Equipment - Demobilization remains at default.

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Off-road Equipment - Paving remains at default.

Off-road Equipment - Adjusted per equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Off-road Equipment - Equipment updated per client equipment list.

Grading - Quantities obtained from PVP Update powerpoint dated 4/6/2020. Assumes all excavated quantities exported offsite and required backfill imported.

Trips and VMT - Assumes up to 10 workers per day, per 2005 EIR. Workers added to Generators - Trailers phase, as it spans entire construction period. Haul trips based on soil volumes and assumed 16 cy truck cap. Assumes disposal at Badlands Landfill (15.1 mi).

Energy Use -

Construction Off-road Equipment Mitigation - Water exposed area applied pursuant to SCAQMD Rule 403.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	4.00
tblConstructionPhase	NumDays	220.00	6.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	220.00	4.00
tblConstructionPhase	NumDays	220.00	14.00
tblConstructionPhase	NumDays	220.00	12.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	220.00	4.00
tblConstructionPhase	NumDays	220.00	10.00
tblConstructionPhase	NumDays	220.00	8.00
tblConstructionPhase	NumDays	220.00	5.00
tblConstructionPhase	NumDays	6.00	16.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	34.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblConstructionPhase	NumDays	6.00	23.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	24.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	6.00	23.00
tblConstructionPhase	NumDays	3.00	15.00
tblConstructionPhase	NumDays	3.00	135.00
tblConstructionPhase	NumDays	3.00	493.00
tblConstructionPhase	NumDays	3.00	110.00
tblConstructionPhase	NumDays	3.00	2.00
tblConstructionPhase	NumDays	3.00	22.00
tblConstructionPhase	NumDays	3.00	8.00
tblConstructionPhase	NumDays	3.00	2.00
tblConstructionPhase	NumDays	3.00	141.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblGrading	AcresOfGrading	246.50	0.00
tblGrading	AcresOfGrading	3.00	1.00
tblGrading	AcresOfGrading	12.00	4.00
tblGrading	AcresOfGrading	3.00	1.00
tblGrading	MaterialExported	0.00	13,319.00
tblGrading	MaterialExported	0.00	673.00
tblGrading	MaterialExported	0.00	6,336.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblGrading	MaterialExported	0.00	431.00
tblGrading	MaterialImported	0.00	3,047.00
tblGrading	MaterialImported	0.00	362.00
tblGrading	MaterialImported	0.00	1,385.00
tblGrading	MaterialImported	0.00	604.00
tblLandUse	LandUseSquareFeet	10.00	14.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	97.00	150.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	78.00	300.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	78.00	300.00
tblOffRoadEquipment	HorsePower	9.00	750.00
tblOffRoadEquipment	HorsePower	9.00	750.00
tblOffRoadEquipment	HorsePower	9.00	750.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	231.00	300.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	16.00	350.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	84.00	1,770.00
tblOffRoadEquipment	HorsePower	84.00	93.00
tblOffRoadEquipment	HorsePower	84.00	152.00
tblOffRoadEquipment	HorsePower	84.00	1,770.00
tblOffRoadEquipment	HorsePower	84.00	93.00
tblOffRoadEquipment	HorsePower	84.00	1,770.00
tblOffRoadEquipment	HorsePower	84.00	93.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	700.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	700.00
tblOffRoadEquipment	HorsePower	172.00	300.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	700.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	600.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	172.00	300.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	100.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	100.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblOffRoadEquipment	HorsePower	88.00	100.00
tblOffRoadEquipment	HorsePower	88.00	200.00
tblOffRoadEquipment	HorsePower	88.00	30.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	400.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	400.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	200.00
tblOffRoadEquipment	HorsePower	168.00	400.00
tblOffRoadEquipment	HorsePower	84.00	5.00
tblOffRoadEquipment	HorsePower	84.00	5.00
tblOffRoadEquipment	HorsePower	84.00	5.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	80.00	75.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	HorsePower	46.00	40.00
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.45
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.37	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.48	0.75
tblOffRoadEquipment	LoadFactor	0.56	0.75
tblOffRoadEquipment	LoadFactor	0.56	0.75
tblOffRoadEquipment	LoadFactor	0.56	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.29	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75

tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.34	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.40	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.74	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	LoadFactor	0.45	0.75
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	8.00	2.80

tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	2.80
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	4.30
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.20
tblOffRoadEquipment	UsageHours	8.00	4.20
tblOffRoadEquipment	UsageHours	8.00	4.20
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripLength	20.00	15.10
tblTripsAndVMT	HaulingTripNumber	381.00	190.00
tblTripsAndVMT	HaulingTripNumber	1,665.00	832.00
tblTripsAndVMT	HaulingTripNumber	45.00	23.00
tblTripsAndVMT	HaulingTripNumber	84.00	42.00
tblTripsAndVMT	HaulingTripNumber	173.00	87.00
tblTripsAndVMT	HaulingTripNumber	76.00	38.00
tblTripsAndVMT	HaulingTripNumber	792.00	396.00
tblTripsAndVMT	HaulingTripNumber	54.00	27.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	30.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

tblTripsAndVMT	WorkerTripNumber	25.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	28.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00

2.0 Emissions Summary

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	2.5846	34.9002	15.5673	0.0547	0.7044	0.9156	1.6199	0.2660	0.8986	1.1645	0.0000	5,385.8692	5,385.8692	0.3744	0.0000	5,395.2282
2022	1.8769	25.1587	12.2377	0.0428	0.4925	0.6355	1.1280	0.1627	0.6240	0.7867	0.0000	4,197.0517	4,197.0517	0.2921	0.0000	4,204.3539
Maximum	**2.5846**	**34.9002**	**15.5673**	**0.0547**	**0.7044**	**0.9156**	**1.6199**	**0.2660**	**0.8986**	**1.1645**	**0.0000**	**5,385.8692**	**5,385.8692**	**0.3744**	**0.0000**	**5,395.2282**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	2.5846	34.9001	15.5673	0.0547	0.3310	0.9156	1.2466	0.1235	0.8986	1.0220	0.0000	5,385.8629	5,385.8629	0.3744	0.0000	5,395.2219
2022	1.8769	25.1587	12.2377	0.0428	0.2310	0.6355	0.8665	0.0757	0.6240	0.6998	0.0000	4,197.0467	4,197.0467	0.2921	0.0000	4,204.3489
Maximum	**2.5846**	**34.9001**	**15.5673**	**0.0547**	**0.3310**	**0.9156**	**1.2466**	**0.1235**	**0.8986**	**1.0220**	**0.0000**	**5,385.8629**	**5,385.8629**	**0.3744**	**0.0000**	**5,395.2219**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**53.04**	**0.00**	**23.10**	**53.52**	**0.00**	**11.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	4-21-2021	7-20-2021	9.5663	9.5663
2	7-21-2021	10-20-2021	15.4360	15.4360
3	10-21-2021	1-20-2022	15.5958	15.5958
4	1-21-2022	4-20-2022	14.1491	14.1491
5	4-21-2022	7-20-2022	9.1726	9.1726
6	7-21-2022	9-30-2022	0.5440	0.5440
		Highest	15.5958	15.5958

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.2400e-003	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.2400e-003**	**1.0000e-005**	**1.4800e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8800e-003**	**2.8800e-003**	**1.0000e-005**	**0.0000**	**3.0600e-003**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.2400e-003	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.2400e-003**	**1.0000e-005**	**1.4800e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8800e-003**	**2.8800e-003**	**1.0000e-005**	**0.0000**	**3.0600e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	SP Tunnel Pit 1	Site Preparation	4/21/2021	5/11/2021	5	15	
2	Generator - Trailers	Site Preparation	4/21/2021	8/26/2022	7	493	
3	SP Tunnel Pit 2	Site Preparation	5/12/2021	5/13/2021	5	2	

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

4	SP Tunnel Pit 3	Site Preparation	5/14/2021	5/25/2021	5	8
5	SP Tunnel Pit 4	Site Preparation	5/26/2021	5/27/2021	5	2
6	Dewatering - Tunnel Pits 1 and 2	Site Preparation	5/28/2021	10/15/2021	7	141
7	Excavating Tunnel Pit 1	Grading	5/28/2021	7/8/2021	5	30
8	Excavating Tunnel Pit 2	Grading	7/9/2021	8/10/2021	5	23
9	Erect MTBM 215 Tunnel	Building Construction	7/22/2021	7/28/2021	5	5
10	Excavation and Jacking 215 Tunnel	Grading	7/29/2021	8/19/2021	5	16
11	Remove MTBM215 Tunnel	Building Construction	8/20/2021	8/25/2021	5	4
12	Install Pipeline 215 Tunnel	Building Construction	8/23/2021	8/30/2021	5	6
13	Annular Grout 215 Tunnel	Building Construction	8/30/2021	9/3/2021	5	5
14	Backfill Tunnel Pit 1	Grading	9/6/2021	10/15/2021	5	30
15	Dewatering - Tunnel Pits 2 and 3	Site Preparation	10/15/2021	2/26/2022	7	135
16	Excavating Tunnel Pit 3	Grading	10/15/2021	11/11/2021	5	20
17	Erect MTBM MARB Tunnel	Building Construction	10/28/2021	11/3/2021	5	5
18	Excavation and Jacking MARB Tunnel	Grading	11/4/2021	12/21/2021	5	34
19	Remove MTBM MARB Tunnel	Building Construction	12/22/2021	12/27/2021	5	4
20	Install Pipeline MARB Tunnel	Building Construction	12/23/2021	1/11/2022	5	14
21	Annular Grout MARB Tunnel	Building Construction	1/11/2022	1/26/2022	5	12
22	Backfill Tunnel Pit 2	Grading	1/27/2022	2/28/2022	5	23
23	Dewatering - Tunnel Pit 3	Site Preparation	2/26/2022	6/15/2022	7	110
24	Excavating Tunnel Pit 4	Grading	3/1/2022	3/28/2022	5	20
25	Erect MTBM Van Buren Tunnel	Building Construction	3/12/2022	3/18/2022	5	5
26	Excavation and Jacking Van Buren Tunnel	Grading	3/21/2022	4/21/2022	5	24
27	Remove MTBM Van Buren Tunnel	Building Construction	4/23/2022	4/28/2022	5	4
28	Install Pipeline Van Buren Tunnel	Building Construction	4/26/2022	5/9/2022	5	10
29	Annular Grout Van Buren Tunnel	Building Construction	5/7/2022	5/18/2022	5	8

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

30	Backfill Tunnel Pit 3	Grading	5/19/2022	6/15/2022	5	20	
31	Backfill Tunnel Pit 4	Grading	6/16/2022	7/13/2022	5	20	
32	Site Restoration - Paving	Paving	7/14/2022	7/27/2022	5	10	
33	Site Restoration - Other/Demobilization	Site Preparation	7/28/2022	8/26/2022	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.66

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
SP Tunnel Pit 1	Graders	1	8.00	187	0.41
SP Tunnel Pit 1	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 1	Rubber Tired Dozers	1	7.00	247	0.40
SP Tunnel Pit 1	Scrapers	0	8.00	367	0.48
SP Tunnel Pit 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
SP Tunnel Pit 2	Graders	1	8.00	187	0.41
SP Tunnel Pit 2	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 2	Rubber Tired Dozers	1	7.00	247	0.40
SP Tunnel Pit 2	Tractors/Loaders/Backhoes	1	8.00	97	0.37
SP Tunnel Pit 3	Graders	1	8.00	187	0.41
SP Tunnel Pit 3	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 3	Rubber Tired Dozers	1	8.00	247	0.40
SP Tunnel Pit 3	Tractors/Loaders/Backhoes	1	8.00	97	0.37
SP Tunnel Pit 4	Graders	1	8.00	187	0.41

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

SP Tunnel Pit 4	Other Construction Equipment	1	2.10	600	0.75
SP Tunnel Pit 4	Rubber Tired Dozers	1	8.00	247	0.40
SP Tunnel Pit 4	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Excavating Tunnel Pit 1	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 1	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 1	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 1	Graders	1	6.00	187	0.41
Excavating Tunnel Pit 1	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 1	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 1	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 1	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 1	Welders	1	6.40	40	0.75
Excavating Tunnel Pit 2	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 2	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 2	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 2	Graders	1	6.00	187	0.41
Excavating Tunnel Pit 2	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 2	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 2	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 2	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 2	Welders	1	6.40	40	0.75
Erect MTBM 215 Tunnel	Cranes	1	2.80	300	0.75
Erect MTBM 215 Tunnel	Forklifts	1	6.00	89	0.20
Erect MTBM 215 Tunnel	Generator Sets	0	8.00	84	0.74
Erect MTBM 215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Erect MTBM 215 Tunnel	Welders	3	8.00	46	0.45
Excavation and Jacking 215 Tunnel	Air Compressors	1	2.80	300	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Excavation and Jacking 215 Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Excavation and Jacking 215 Tunnel	Graders	1	6.00	187	0.41
Excavation and Jacking 215 Tunnel	Other Construction Equipment	1	5.60	700	0.75
Excavation and Jacking 215 Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Excavation and Jacking 215 Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Excavation and Jacking 215 Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Excavation and Jacking 215 Tunnel	Rubber Tired Dozers	1	6.00	247	0.40
Excavation and Jacking 215 Tunnel	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Remove MTBM215 Tunnel	Cranes	1	2.80	300	0.75
Remove MTBM215 Tunnel	Forklifts	1	6.00	89	0.20
Remove MTBM215 Tunnel	Generator Sets	0	8.00	84	0.74
Remove MTBM215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Remove MTBM215 Tunnel	Welders	3	8.00	46	0.45
Install Pipeline 215 Tunnel	Air Compressors	1	2.80	300	0.75
Install Pipeline 215 Tunnel	Cranes	1	2.80	300	0.75
Install Pipeline 215 Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Install Pipeline 215 Tunnel	Forklifts	1	6.00	89	0.20
Install Pipeline 215 Tunnel	Generator Sets	0	8.00	84	0.74
Install Pipeline 215 Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Install Pipeline 215 Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Install Pipeline 215 Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Install Pipeline 215 Tunnel	Other Material Handling Equipment	2	1.40	400	0.75
Install Pipeline 215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Install Pipeline 215 Tunnel	Welders	2	4.20	40	0.75
Annular Grout 215 Tunnel	Air Compressors	1	2.80	300	0.75
Annular Grout 215 Tunnel	Cement and Mortar Mixers	3	0.50	750	0.75
Annular Grout 215 Tunnel	Cranes	1	6.00	231	0.29

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Annular Grout 215 Tunnel	Forklifts	1	6.00	89	0.20
Annular Grout 215 Tunnel	Generator Sets	0	8.00	84	0.74
Annular Grout 215 Tunnel	Other General Industrial Equipment	1	2.80	100	0.75
Annular Grout 215 Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Annular Grout 215 Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Annular Grout 215 Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Annular Grout 215 Tunnel	Welders	3	8.00	46	0.45
Backfill Tunnel Pit 1	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 1	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 1	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 1	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 1	Other Construction Equipment	1	4.30	300	0.75
Backfill Tunnel Pit 1	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 1	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 1	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 1	Welders	1	6.40	40	0.75
Excavating Tunnel Pit 3	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 3	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 3	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 3	Graders	1	6.00	187	0.41
Excavating Tunnel Pit 3	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 3	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 3	Rubber Tired Dozers	1	6.00	247	0.40
Excavating Tunnel Pit 3	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 3	Welders	1	6.40	40	0.75
Erect MTBM MARB Tunnel	Cranes	1	2.80	300	0.75
Erect MTBM MARB Tunnel	Forklifts	1	6.00	89	0.20

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Erect MTBM MARB Tunnel	Generator Sets	0	8.00	84	0.74
Erect MTBM MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Erect MTBM MARB Tunnel	Welders	3	8.00	46	0.45
Excavation and Jacking MARB Tunnel	Air Compressors	1	2.80	300	0.75
Excavation and Jacking MARB Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Excavation and Jacking MARB Tunnel	Graders	1	6.00	187	0.41
Excavation and Jacking MARB Tunnel	Other Construction Equipment	1	5.60	700	0.75
Excavation and Jacking MARB Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Excavation and Jacking MARB Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Excavation and Jacking MARB Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Excavation and Jacking MARB Tunnel	Rubber Tired Dozers	1	6.00	247	0.40
Excavation and Jacking MARB Tunnel	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Remove MTBM MARB Tunnel	Cranes	1	2.80	300	0.75
Remove MTBM MARB Tunnel	Forklifts	1	6.00	89	0.20
Remove MTBM MARB Tunnel	Generator Sets	0	8.00	84	0.74
Remove MTBM MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Remove MTBM MARB Tunnel	Welders	3	8.00	46	0.45
Install Pipeline MARB Tunnel	Air Compressors	1	2.80	300	0.75
Install Pipeline MARB Tunnel	Cranes	1	2.80	300	0.75
Install Pipeline MARB Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Install Pipeline MARB Tunnel	Forklifts	1	6.00	89	0.20
Install Pipeline MARB Tunnel	Generator Sets	0	8.00	84	0.74
Install Pipeline MARB Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Install Pipeline MARB Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Install Pipeline MARB Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Install Pipeline MARB Tunnel	Other Material Handling Equipment	2	1.40	400	0.75
Install Pipeline MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Install Pipeline MARB Tunnel	Welders	2	4.20	40	0.75
Annular Grout MARB Tunnel	Air Compressors	1	2.80	300	0.75
Annular Grout MARB Tunnel	Cement and Mortar Mixers	3	0.50	750	0.75
Annular Grout MARB Tunnel	Cranes	1	6.00	231	0.29
Annular Grout MARB Tunnel	Forklifts	1	6.00	89	0.20
Annular Grout MARB Tunnel	Generator Sets	0	8.00	84	0.74
Annular Grout MARB Tunnel	Other General Industrial Equipment	1	2.80	100	0.75
Annular Grout MARB Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Annular Grout MARB Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Annular Grout MARB Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Annular Grout MARB Tunnel	Welders	3	8.00	46	0.45
Backfill Tunnel Pit 2	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 2	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 2	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 2	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 2	Other Construction Equipment	1	4.30	300	0.75
Backfill Tunnel Pit 2	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 2	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 2	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 2	Welders	1	6.40	40	0.75
Excavating Tunnel Pit 4	Cranes	1	2.10	300	0.75
Excavating Tunnel Pit 4	Dumpers/Tenders	1	2.10	350	0.75
Excavating Tunnel Pit 4	Excavators	1	4.30	150	0.75
Excavating Tunnel Pit 4	Graders	1	6.00	187	0.41
Excavating Tunnel Pit 4	Other Construction Equipment	1	4.30	300	0.75
Excavating Tunnel Pit 4	Rollers	1	2.10	75	0.75
Excavating Tunnel Pit 4	Rubber Tired Dozers	1	6.00	247	0.40

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Excavating Tunnel Pit 4	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Excavating Tunnel Pit 4	Welders	1	6.40	40	0.75
Erect MTBM Van Buren Tunnel	Cranes	1	2.80	300	0.75
Erect MTBM Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Erect MTBM Van Buren Tunnel	Generator Sets	0	8.00	84	0.74
Erect MTBM Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Erect MTBM Van Buren Tunnel	Welders	3	8.00	46	0.45
Excavation and Jacking Van Buren Tunnel	Air Compressors	1	2.80	300	0.75
Excavation and Jacking Van Buren Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Excavation and Jacking Van Buren Tunnel	Graders	1	6.00	187	0.41
Excavation and Jacking Van Buren Tunnel	Other Construction Equipment	1	5.60	700	0.75
Excavation and Jacking Van Buren Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Excavation and Jacking Van Buren Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Excavation and Jacking Van Buren Tunnel	Other Material Handling Equipment	1	2.30	200	0.75
Excavation and Jacking Van Buren Tunnel	Rubber Tired Dozers	1	6.00	247	0.40
Excavation and Jacking Van Buren Tunnel	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Remove MTBM Van Buren Tunnel	Cranes	1	2.80	300	0.75
Remove MTBM Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Remove MTBM Van Buren Tunnel	Generator Sets	0	8.00	84	0.74
Remove MTBM Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Remove MTBM Van Buren Tunnel	Welders	3	8.00	46	0.45
Install Pipeline Van Buren Tunnel	Air Compressors	1	2.80	300	0.75
Install Pipeline Van Buren Tunnel	Cranes	1	2.80	300	0.75
Install Pipeline Van Buren Tunnel	Dumpers/Tenders	1	2.80	350	0.75
Install Pipeline Van Buren Tunnel	Forklifts	1	6.00	89	0.20

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Install Pipeline Van Buren Tunnel	Generator Sets	0	8.00	84	0.74
Install Pipeline Van Buren Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Install Pipeline Van Buren Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Install Pipeline Van Buren Tunnel	Other Material Handling Equipment	1	2.80	200	0.75
Install Pipeline Van Buren Tunnel	Other Material Handling Equipment	2	1.40	400	0.75
Install Pipeline Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Install Pipeline Van Buren Tunnel	Welders	2	4.20	40	0.75
Annular Grout Van Buren Tunnel	Air Compressors	1	2.80	300	0.75
Annular Grout Van Buren Tunnel	Cement and Mortar Mixers	3	0.50	750	0.75
Annular Grout Van Buren Tunnel	Cranes	1	6.00	231	0.29
Annular Grout Van Buren Tunnel	Forklifts	1	6.00	89	0.20
Annular Grout Van Buren Tunnel	Generator Sets	0	8.00	84	0.45
Annular Grout Van Buren Tunnel	Other General Industrial Equipment	1	2.80	100	0.75
Annular Grout Van Buren Tunnel	Other General Industrial Equipment	1	10.10	200	0.75
Annular Grout Van Buren Tunnel	Other General Industrial Equipment	1	10.10	30	0.75
Annular Grout Van Buren Tunnel	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Annular Grout Van Buren Tunnel	Welders	3	8.00	46	0.45
Backfill Tunnel Pit 3	Cranes	1	2.10	300	0.75
Backfill Tunnel Pit 3	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 3	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 3	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 3	Other Construction Equipment	1	4.30	300	0.75
Backfill Tunnel Pit 3	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 3	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 3	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 3	Welders	1	6.40	40	0.75
Backfill Tunnel Pit 4	Cranes	1	2.10	300	0.75

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Backfill Tunnel Pit 4	Dumpers/Tenders	1	2.10	350	0.75
Backfill Tunnel Pit 4	Excavators	1	4.30	150	0.75
Backfill Tunnel Pit 4	Graders	1	6.00	187	0.41
Backfill Tunnel Pit 4	Other Construction Equipment	1	4.30	300	0.75
Backfill Tunnel Pit 4	Rollers	1	2.10	75	0.75
Backfill Tunnel Pit 4	Rubber Tired Dozers	1	6.00	247	0.40
Backfill Tunnel Pit 4	Tractors/Loaders/Backhoes	1	4.30	150	0.75
Backfill Tunnel Pit 4	Welders	1	6.40	40	0.75
Site Restoration - Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Site Restoration - Paving	Pavers	1	8.00	130	0.42
Site Restoration - Paving	Paving Equipment	1	8.00	132	0.36
Site Restoration - Paving	Rollers	2	8.00	80	0.38
Site Restoration - Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Restoration - Other/Demobilization	Graders	1	8.00	187	0.41
Site Restoration - Other/Demobilization	Scrapers	1	8.00	367	0.48
Site Restoration - Other/Demobilization	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Dewatering - Tunnel Pits 1 and 2	Generator Sets	1	24.00	1770	0.75
Dewatering - Tunnel Pits 1 and 2	Generator Sets	1	24.00	93	0.75
Dewatering - Tunnel Pits 1 and 2	Pumps	6	24.00	5	0.75
Dewatering - Tunnel Pits 2 and 3	Generator Sets	1	24.00	1770	0.75
Dewatering - Tunnel Pits 2 and 3	Generator Sets	2	24.00	93	0.75
Dewatering - Tunnel Pits 2 and 3	Pumps	6	24.00	5	0.75
Dewatering - Tunnel Pit 3	Generator Sets	1	24.00	1770	0.75
Dewatering - Tunnel Pit 3	Generator Sets	1	24.00	93	0.75
Dewatering - Tunnel Pit 3	Pumps	5	24.00	5	0.75
Generator - Trailers	Generator Sets	1	24.00	152	0.75
Generator - Trailers	Scrapers	0	8.00	367	0.48

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Generator - Trailers	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Dewatering - Tunnel Pits 2 and 3	Graders	1	8.00	187	0.41
Generator - Trailers	Graders	1	8.00	187	0.41
Dewatering - Tunnel Pit 3	Graders	1	8.00	187	0.41
Dewatering - Tunnel Pits 1 and 2	Graders	1	8.00	187	0.41
Dewatering - Tunnel Pits 2 and 3	Scrapers	1	8.00	367	0.48
Dewatering - Tunnel Pit 3	Scrapers	1	8.00	367	0.48
SP Tunnel Pit 2	Scrapers	1	8.00	367	0.48
SP Tunnel Pit 3	Scrapers	1	8.00	367	0.48
SP Tunnel Pit 4	Scrapers	1	8.00	367	0.48
Dewatering - Tunnel Pits 1 and 2	Scrapers	1	8.00	367	0.48
Dewatering - Tunnel Pits 2 and 3	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Dewatering - Tunnel Pit 3	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Dewatering - Tunnel Pits 1 and 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
SP Tunnel Pit 1	4	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SP Tunnel Pit 2	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SP Tunnel Pit 3	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SP Tunnel Pit 4	5	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 1	9	0.00	0.00	396.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 2	9	0.00	0.00	27.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Erect MTBM 215 Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Jacking 215 Tunnel	9	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove MTBM215 Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

Install Pipeline 215 Tunnel	12	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Annular Grout 215 Tunnel	13	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Backfill Tunnel Pit 1	9	0.00	0.00	190.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 3	9	0.00	0.00	832.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Erect MTBM MARB Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Jacking MARB Tunnel	9	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove MTBM MARB Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Install Pipeline MARB Tunnel	12	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Annular Grout MARB Tunnel	13	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Backfill Tunnel Pit 2	9	0.00	0.00	23.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Excavating Tunnel Pit 4	9	0.00	0.00	42.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Erect MTBM Van Buren Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation and Jacking Van Buren Tu	9	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Remove MTBM Van Buren Tunnel	6	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Install Pipeline Van Buren Tunnel	12	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Annular Grout Van Buren Tunnel	13	0.00	19.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Backfill Tunnel Pit 3	9	0.00	0.00	87.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Backfill Tunnel Pit 4	9	0.00	0.00	38.00	14.70	6.90	15.10	LD_Mix	HDT_Mix	HHDT
Site Restoration - Paving	6	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration - Other/Demobilization	3	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering - Tunnel Pits 1 and 2	11	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering - Tunnel Pits 2 and 3	12	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering - Tunnel Pit 3	10	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Generator - Trailers	2	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.2 SP Tunnel Pit 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0435	0.0000	0.0435	0.0222	0.0000	0.0222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0115	0.1289	0.0546	1.3000e-004		5.6400e-003	5.6400e-003		5.1800e-003	5.1800e-003	0.0000	11.0829	11.0829	3.5800e-003	0.0000	11.1725
Total	**0.0115**	**0.1289**	**0.0546**	**1.3000e-004**	**0.0435**	**5.6400e-003**	**0.0491**	**0.0222**	**5.1800e-003**	**0.0273**	**0.0000**	**11.0829**	**11.0829**	**3.5800e-003**	**0.0000**	**11.1725**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.2 SP Tunnel Pit 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0196	0.0000	0.0196	9.9700e-003	0.0000	9.9700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0115	0.1289	0.0546	1.3000e-004		5.6400e-003	5.6400e-003		5.1800e-003	5.1800e-003	0.0000	11.0829	11.0829	3.5800e-003	0.0000	11.1725
Total	**0.0115**	**0.1289**	**0.0546**	**1.3000e-004**	**0.0196**	**5.6400e-003**	**0.0252**	**9.9700e-003**	**5.1800e-003**	**0.0152**	**0.0000**	**11.0829**	**11.0829**	**3.5800e-003**	**0.0000**	**11.1725**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.3 Generator - Trailers - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2446	2.3458	2.4748	5.4600e-003		0.0939	0.0939		0.0920	0.0920	0.0000	470.7119	470.7119	0.0387	0.0000	471.6783
Total	**0.2446**	**2.3458**	**2.4748**	**5.4600e-003**	**0.0000**	**0.0939**	**0.0939**	**0.0000**	**0.0920**	**0.0920**	**0.0000**	**470.7119**	**470.7119**	**0.0387**	**0.0000**	**471.6783**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3100e-003	3.9300e-003	0.0444	1.3000e-004	0.0140	1.0000e-004	0.0141	3.7100e-003	1.0000e-004	3.8100e-003	0.0000	12.1847	12.1847	3.3000e-004	0.0000	12.1928
Total	**5.3100e-003**	**3.9300e-003**	**0.0444**	**1.3000e-004**	**0.0140**	**1.0000e-004**	**0.0141**	**3.7100e-003**	**1.0000e-004**	**3.8100e-003**	**0.0000**	**12.1847**	**12.1847**	**3.3000e-004**	**0.0000**	**12.1928**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.3 Generator - Trailers - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2446	2.3458	2.4748	5.4600e-003		0.0939	0.0939		0.0920	0.0920	0.0000	470.7114	470.7114	0.0387	0.0000	471.6778
Total	**0.2446**	**2.3458**	**2.4748**	**5.4600e-003**	**0.0000**	**0.0939**	**0.0939**	**0.0000**	**0.0920**	**0.0920**	**0.0000**	**470.7114**	**470.7114**	**0.0387**	**0.0000**	**471.6778**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3100e-003	3.9300e-003	0.0444	1.3000e-004	0.0140	1.0000e-004	0.0141	3.7100e-003	1.0000e-004	3.8100e-003	0.0000	12.1847	12.1847	3.3000e-004	0.0000	12.1928
Total	**5.3100e-003**	**3.9300e-003**	**0.0444**	**1.3000e-004**	**0.0140**	**1.0000e-004**	**0.0141**	**3.7100e-003**	**1.0000e-004**	**3.8100e-003**	**0.0000**	**12.1847**	**12.1847**	**3.3000e-004**	**0.0000**	**12.1928**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.3 Generator - Trailers - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2116	1.9392	2.3051	5.0900e-003		0.0780	0.0780		0.0765	0.0765	0.0000	439.2874	439.2874	0.0354	0.0000	440.1727
Total	**0.2116**	**1.9392**	**2.3051**	**5.0900e-003**	**0.0000**	**0.0780**	**0.0780**	**0.0000**	**0.0765**	**0.0765**	**0.0000**	**439.2874**	**439.2874**	**0.0354**	**0.0000**	**440.1727**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6600e-003	3.3100e-003	0.0383	1.2000e-004	0.0131	1.0000e-004	0.0132	3.4700e-003	9.0000e-005	3.5500e-003	0.0000	10.9646	10.9646	2.8000e-004	0.0000	10.9715
Total	**4.6600e-003**	**3.3100e-003**	**0.0383**	**1.2000e-004**	**0.0131**	**1.0000e-004**	**0.0132**	**3.4700e-003**	**9.0000e-005**	**3.5500e-003**	**0.0000**	**10.9646**	**10.9646**	**2.8000e-004**	**0.0000**	**10.9715**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.3 Generator - Trailers - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2116	1.9392	2.3051	5.0900e-003		0.0780	0.0780		0.0765	0.0765	0.0000	439.2869	439.2869	0.0354	0.0000	440.1722
Total	**0.2116**	**1.9392**	**2.3051**	**5.0900e-003**	**0.0000**	**0.0780**	**0.0780**	**0.0000**	**0.0765**	**0.0765**	**0.0000**	**439.2869**	**439.2869**	**0.0354**	**0.0000**	**440.1722**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6600e-003	3.3100e-003	0.0383	1.2000e-004	0.0131	1.0000e-004	0.0132	3.4700e-003	9.0000e-005	3.5500e-003	0.0000	10.9646	10.9646	2.8000e-004	0.0000	10.9715
Total	**4.6600e-003**	**3.3100e-003**	**0.0383**	**1.2000e-004**	**0.0131**	**1.0000e-004**	**0.0132**	**3.4700e-003**	**9.0000e-005**	**3.5500e-003**	**0.0000**	**10.9646**	**10.9646**	**2.8000e-004**	**0.0000**	**10.9715**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.4 SP Tunnel Pit 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4900e-003	0.0281	0.0146	3.0000e-005		1.1800e-003	1.1800e-003		1.0900e-003	1.0900e-003	0.0000	2.8435	2.8435	9.2000e-004	0.0000	2.8665
Total	**2.4900e-003**	**0.0281**	**0.0146**	**3.0000e-005**	**5.8000e-003**	**1.1800e-003**	**6.9800e-003**	**2.9500e-003**	**1.0900e-003**	**4.0400e-003**	**0.0000**	**2.8435**	**2.8435**	**9.2000e-004**	**0.0000**	**2.8665**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.4 SP Tunnel Pit 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6100e-003	0.0000	2.6100e-003	1.3300e-003	0.0000	1.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4900e-003	0.0281	0.0146	3.0000e-005		1.1800e-003	1.1800e-003		1.0900e-003	1.0900e-003	0.0000	2.8435	2.8435	9.2000e-004	0.0000	2.8665
Total	**2.4900e-003**	**0.0281**	**0.0146**	**3.0000e-005**	**2.6100e-003**	**1.1800e-003**	**3.7900e-003**	**1.3300e-003**	**1.0900e-003**	**2.4200e-003**	**0.0000**	**2.8435**	**2.8435**	**9.2000e-004**	**0.0000**	**2.8665**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.5 SP Tunnel Pit 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0105	0.1180	0.0603	1.3000e-004		4.9900e-003	4.9900e-003		4.5900e-003	4.5900e-003	0.0000	11.7493	11.7493	3.8000e-003	0.0000	11.8443
Total	**0.0105**	**0.1180**	**0.0603**	**1.3000e-004**	**0.0262**	**4.9900e-003**	**0.0312**	**0.0135**	**4.5900e-003**	**0.0181**	**0.0000**	**11.7493**	**11.7493**	**3.8000e-003**	**0.0000**	**11.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.5 SP Tunnel Pit 3 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0118	0.0000	0.0118	6.0600e-003	0.0000	6.0600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0105	0.1180	0.0603	1.3000e-004		4.9900e-003	4.9900e-003		4.5900e-003	4.5900e-003	0.0000	11.7493	11.7493	3.8000e-003	0.0000	11.8443
Total	**0.0105**	**0.1180**	**0.0603**	**1.3000e-004**	**0.0118**	**4.9900e-003**	**0.0168**	**6.0600e-003**	**4.5900e-003**	**0.0107**	**0.0000**	**11.7493**	**11.7493**	**3.8000e-003**	**0.0000**	**11.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.6 SP Tunnel Pit 4 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.5500e-003	0.0000	6.5500e-003	3.3700e-003	0.0000	3.3700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6200e-003	0.0295	0.0151	3.0000e-005		1.2500e-003	1.2500e-003		1.1500e-003	1.1500e-003	0.0000	2.9373	2.9373	9.5000e-004	0.0000	2.9611
Total	**2.6200e-003**	**0.0295**	**0.0151**	**3.0000e-005**	**6.5500e-003**	**1.2500e-003**	**7.8000e-003**	**3.3700e-003**	**1.1500e-003**	**4.5200e-003**	**0.0000**	**2.9373**	**2.9373**	**9.5000e-004**	**0.0000**	**2.9611**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.6 SP Tunnel Pit 4 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.9500e-003	0.0000	2.9500e-003	1.5200e-003	0.0000	1.5200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6200e-003	0.0295	0.0151	3.0000e-005		1.2500e-003	1.2500e-003		1.1500e-003	1.1500e-003	0.0000	2.9373	2.9373	9.5000e-004	0.0000	2.9611
Total	**2.6200e-003**	**0.0295**	**0.0151**	**3.0000e-005**	**2.9500e-003**	**1.2500e-003**	**4.2000e-003**	**1.5200e-003**	**1.1500e-003**	**2.6700e-003**	**0.0000**	**2.9373**	**2.9373**	**9.5000e-004**	**0.0000**	**2.9611**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.7 Dewatering - Tunnel Pits 1 and 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1122	0.0000	0.1122	0.0121	0.0000	0.0121	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2832	18.7383	6.8813	0.0281		0.4359	0.4359		0.4320	0.4320	0.0000	2,838.8506	2,838.8506	0.1413	0.0000	2,842.3826
Total	**1.2832**	**18.7383**	**6.8813**	**0.0281**	**0.1122**	**0.4359**	**0.5481**	**0.0121**	**0.4320**	**0.4441**	**0.0000**	**2,838.8506**	**2,838.8506**	**0.1413**	**0.0000**	**2,842.3826**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.7 Dewatering - Tunnel Pits 1 and 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0505	0.0000	0.0505	5.4500e-003	0.0000	5.4500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2832	18.7383	6.8813	0.0281		0.4359	0.4359		0.4320	0.4320	0.0000	2,838.8472	2,838.8472	0.1413	0.0000	2,842.3792
Total	**1.2832**	**18.7383**	**6.8813**	**0.0281**	**0.0505**	**0.4359**	**0.4864**	**5.4500e-003**	**0.4320**	**0.4374**	**0.0000**	**2,838.8472**	**2,838.8472**	**0.1413**	**0.0000**	**2,842.3792**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.8 Excavating Tunnel Pit 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0741	0.0000	0.0741	0.0379	0.0000	0.0379	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0420	0.4273	0.2972	6.2000e-004		0.0185	0.0185		0.0172	0.0172	0.0000	54.0757	54.0757	0.0169	0.0000	54.4972
Total	**0.0420**	**0.4273**	**0.2972**	**6.2000e-004**	**0.0741**	**0.0185**	**0.0926**	**0.0379**	**0.0172**	**0.0551**	**0.0000**	**54.0757**	**54.0757**	**0.0169**	**0.0000**	**54.4972**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1800e-003	0.0435	8.8700e-003	1.2000e-004	2.5700e-003	1.2000e-004	2.6900e-003	7.1000e-004	1.1000e-004	8.2000e-004	0.0000	11.6592	11.6592	8.5000e-004	0.0000	11.6804
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1800e-003**	**0.0435**	**8.8700e-003**	**1.2000e-004**	**2.5700e-003**	**1.2000e-004**	**2.6900e-003**	**7.1000e-004**	**1.1000e-004**	**8.2000e-004**	**0.0000**	**11.6592**	**11.6592**	**8.5000e-004**	**0.0000**	**11.6804**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.8 Excavating Tunnel Pit 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0333	0.0000	0.0333	0.0171	0.0000	0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0420	0.4273	0.2972	6.2000e-004		0.0185	0.0185		0.0172	0.0172	0.0000	54.0757	54.0757	0.0169	0.0000	54.4971
Total	**0.0420**	**0.4273**	**0.2972**	**6.2000e-004**	**0.0333**	**0.0185**	**0.0519**	**0.0171**	**0.0172**	**0.0342**	**0.0000**	**54.0757**	**54.0757**	**0.0169**	**0.0000**	**54.4971**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1800e-003	0.0435	8.8700e-003	1.2000e-004	2.5700e-003	1.2000e-004	2.6900e-003	7.1000e-004	1.1000e-004	8.2000e-004	0.0000	11.6592	11.6592	8.5000e-004	0.0000	11.6804
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1800e-003**	**0.0435**	**8.8700e-003**	**1.2000e-004**	**2.5700e-003**	**1.2000e-004**	**2.6900e-003**	**7.1000e-004**	**1.1000e-004**	**8.2000e-004**	**0.0000**	**11.6592**	**11.6592**	**8.5000e-004**	**0.0000**	**11.6804**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.9 Excavating Tunnel Pit 2 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0565	0.0000	0.0565	0.0291	0.0000	0.0291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0322	0.3276	0.2278	4.8000e-004		0.0142	0.0142		0.0131	0.0131	0.0000	41.4581	41.4581	0.0129	0.0000	41.7811
Total	**0.0322**	**0.3276**	**0.2278**	**4.8000e-004**	**0.0565**	**0.0142**	**0.0707**	**0.0291**	**0.0131**	**0.0422**	**0.0000**	**41.4581**	**41.4581**	**0.0129**	**0.0000**	**41.7811**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	2.9600e-003	6.0000e-004	1.0000e-005	1.8000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.7950	0.7950	6.0000e-005	0.0000	0.7964
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.0000e-005**	**2.9600e-003**	**6.0000e-004**	**1.0000e-005**	**1.8000e-004**	**1.0000e-005**	**1.8000e-004**	**5.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**0.7950**	**0.7950**	**6.0000e-005**	**0.0000**	**0.7964**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.9 Excavating Tunnel Pit 2 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0254	0.0000	0.0254	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0322	0.3276	0.2278	4.8000e-004		0.0142	0.0142		0.0131	0.0131	0.0000	41.4580	41.4580	0.0129	0.0000	41.7811
Total	**0.0322**	**0.3276**	**0.2278**	**4.8000e-004**	**0.0254**	**0.0142**	**0.0396**	**0.0131**	**0.0131**	**0.0262**	**0.0000**	**41.4580**	**41.4580**	**0.0129**	**0.0000**	**41.7811**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	2.9600e-003	6.0000e-004	1.0000e-005	1.8000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.7950	0.7950	6.0000e-005	0.0000	0.7964
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.0000e-005**	**2.9600e-003**	**6.0000e-004**	**1.0000e-005**	**1.8000e-004**	**1.0000e-005**	**1.8000e-004**	**5.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**0.7950**	**0.7950**	**6.0000e-005**	**0.0000**	**0.7964**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.10 Erect MTBM 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8900e-003	0.0290	0.0278	4.0000e-005		1.4000e-003	1.4000e-003		1.3400e-003	1.3400e-003	0.0000	3.6635	3.6635	9.1000e-004	0.0000	3.6863
Total	**3.8900e-003**	**0.0290**	**0.0278**	**4.0000e-005**		**1.4000e-003**	**1.4000e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**3.6635**	**3.6635**	**9.1000e-004**	**0.0000**	**3.6863**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	4.6000e-003	1.1400e-003	1.0000e-005	3.0000e-004	1.0000e-005	3.1000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.1597	1.1597	7.0000e-005	0.0000	1.1615
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-004**	**4.6000e-003**	**1.1400e-003**	**1.0000e-005**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**1.1597**	**1.1597**	**7.0000e-005**	**0.0000**	**1.1615**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.10 Erect MTBM 215 Tunnel - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8900e-003	0.0290	0.0278	4.0000e-005		1.4000e-003	1.4000e-003		1.3400e-003	1.3400e-003	0.0000	3.6635	3.6635	9.1000e-004	0.0000	3.6863
Total	**3.8900e-003**	**0.0290**	**0.0278**	**4.0000e-005**		**1.4000e-003**	**1.4000e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**3.6635**	**3.6635**	**9.1000e-004**	**0.0000**	**3.6863**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	4.6000e-003	1.1400e-003	1.0000e-005	3.0000e-004	1.0000e-005	3.1000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.1597	1.1597	7.0000e-005	0.0000	1.1615
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-004**	**4.6000e-003**	**1.1400e-003**	**1.0000e-005**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**1.1597**	**1.1597**	**7.0000e-005**	**0.0000**	**1.1615**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.11 Excavation and Jacking 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0393	0.0000	0.0393	0.0202	0.0000	0.0202	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0240	0.2296	0.1248	3.6000e-004		9.5300e-003	9.5300e-003		8.8100e-003	8.8100e-003	0.0000	32.1879	32.1879	8.7900e-003	0.0000	32.4076
Total	**0.0240**	**0.2296**	**0.1248**	**3.6000e-004**	**0.0393**	**9.5300e-003**	**0.0488**	**0.0202**	**8.8100e-003**	**0.0290**	**0.0000**	**32.1879**	**32.1879**	**8.7900e-003**	**0.0000**	**32.4076**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.11 Excavation and Jacking 215 Tunnel - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0177	0.0000	0.0177	9.0900e-003	0.0000	9.0900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0240	0.2296	0.1248	3.6000e-004		9.5300e-003	9.5300e-003		8.8100e-003	8.8100e-003	0.0000	32.1878	32.1878	8.7900e-003	0.0000	32.4075
Total	**0.0240**	**0.2296**	**0.1248**	**3.6000e-004**	**0.0177**	**9.5300e-003**	**0.0272**	**9.0900e-003**	**8.8100e-003**	**0.0179**	**0.0000**	**32.1878**	**32.1878**	**8.7900e-003**	**0.0000**	**32.4075**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.12 Remove MTBM215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.1100e-003	0.0232	0.0223	4.0000e-005		1.1200e-003	1.1200e-003		1.0700e-003	1.0700e-003	0.0000	2.9308	2.9308	7.3000e-004	0.0000	2.9491
Total	**3.1100e-003**	**0.0232**	**0.0223**	**4.0000e-005**		**1.1200e-003**	**1.1200e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**2.9308**	**2.9308**	**7.3000e-004**	**0.0000**	**2.9491**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	3.6800e-003	9.1000e-004	1.0000e-005	2.4000e-004	1.0000e-005	2.5000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.9278	0.9278	6.0000e-005	0.0000	0.9292
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1000e-004**	**3.6800e-003**	**9.1000e-004**	**1.0000e-005**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**0.9278**	**0.9278**	**6.0000e-005**	**0.0000**	**0.9292**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.12 Remove MTBM215 Tunnel - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.1100e-003	0.0232	0.0223	4.0000e-005		1.1200e-003	1.1200e-003		1.0700e-003	1.0700e-003	0.0000	2.9308	2.9308	7.3000e-004	0.0000	2.9490
Total	**3.1100e-003**	**0.0232**	**0.0223**	**4.0000e-005**		**1.1200e-003**	**1.1200e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**2.9308**	**2.9308**	**7.3000e-004**	**0.0000**	**2.9490**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	3.6800e-003	9.1000e-004	1.0000e-005	2.4000e-004	1.0000e-005	2.5000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.9278	0.9278	6.0000e-005	0.0000	0.9292
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1000e-004**	**3.6800e-003**	**9.1000e-004**	**1.0000e-005**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**0.9278**	**0.9278**	**6.0000e-005**	**0.0000**	**0.9292**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.13 Install Pipeline 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8600e-003	0.0857	0.0616	1.6000e-004		3.5800e-003	3.5800e-003		3.3400e-003	3.3400e-003	0.0000	14.2871	14.2871	3.8500e-003	0.0000	14.3833
Total	**9.8600e-003**	**0.0857**	**0.0616**	**1.6000e-004**		**3.5800e-003**	**3.5800e-003**		**3.3400e-003**	**3.3400e-003**	**0.0000**	**14.2871**	**14.2871**	**3.8500e-003**	**0.0000**	**14.3833**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	5.5200e-003	1.3700e-003	1.0000e-005	3.6000e-004	1.0000e-005	3.7000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.3916	1.3916	9.0000e-005	0.0000	1.3938
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6000e-004**	**5.5200e-003**	**1.3700e-003**	**1.0000e-005**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**1.0000e-004**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**1.3916**	**1.3916**	**9.0000e-005**	**0.0000**	**1.3938**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.13 Install Pipeline 215 Tunnel - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8600e-003	0.0857	0.0616	1.6000e-004		3.5800e-003	3.5800e-003		3.3400e-003	3.3400e-003	0.0000	14.2871	14.2871	3.8500e-003	0.0000	14.3833
Total	**9.8600e-003**	**0.0857**	**0.0616**	**1.6000e-004**		**3.5800e-003**	**3.5800e-003**		**3.3400e-003**	**3.3400e-003**	**0.0000**	**14.2871**	**14.2871**	**3.8500e-003**	**0.0000**	**14.3833**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	5.5200e-003	1.3700e-003	1.0000e-005	3.6000e-004	1.0000e-005	3.7000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.3916	1.3916	9.0000e-005	0.0000	1.3938
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6000e-004**	**5.5200e-003**	**1.3700e-003**	**1.0000e-005**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**1.0000e-004**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**1.3916**	**1.3916**	**9.0000e-005**	**0.0000**	**1.3938**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.14 Annular Grout 215 Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7500e-003	0.0593	0.0475	1.1000e-004		2.7300e-003	2.7300e-003		2.5700e-003	2.5700e-003	0.0000	9.5919	9.5919	2.3200e-003	0.0000	9.6499
Total	**7.7500e-003**	**0.0593**	**0.0475**	**1.1000e-004**		**2.7300e-003**	**2.7300e-003**		**2.5700e-003**	**2.5700e-003**	**0.0000**	**9.5919**	**9.5919**	**2.3200e-003**	**0.0000**	**9.6499**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	4.6000e-003	1.1400e-003	1.0000e-005	3.0000e-004	1.0000e-005	3.1000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.1597	1.1597	7.0000e-005	0.0000	1.1615
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-004**	**4.6000e-003**	**1.1400e-003**	**1.0000e-005**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**1.1597**	**1.1597**	**7.0000e-005**	**0.0000**	**1.1615**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.14 Annular Grout 215 Tunnel - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7500e-003	0.0593	0.0475	1.1000e-004		2.7300e-003	2.7300e-003		2.5700e-003	2.5700e-003	0.0000	9.5918	9.5918	2.3200e-003	0.0000	9.6499
Total	**7.7500e-003**	**0.0593**	**0.0475**	**1.1000e-004**		**2.7300e-003**	**2.7300e-003**		**2.5700e-003**	**2.5700e-003**	**0.0000**	**9.5918**	**9.5918**	**2.3200e-003**	**0.0000**	**9.6499**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	4.6000e-003	1.1400e-003	1.0000e-005	3.0000e-004	1.0000e-005	3.1000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.1597	1.1597	7.0000e-005	0.0000	1.1615
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-004**	**4.6000e-003**	**1.1400e-003**	**1.0000e-005**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**1.1597**	**1.1597**	**7.0000e-005**	**0.0000**	**1.1615**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.15 Backfill Tunnel Pit 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0739	0.0000	0.0739	0.0379	0.0000	0.0379	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0420	0.4273	0.2972	6.2000e-004		0.0185	0.0185		0.0172	0.0172	0.0000	54.0757	54.0757	0.0169	0.0000	54.4972
Total	**0.0420**	**0.4273**	**0.2972**	**6.2000e-004**	**0.0739**	**0.0185**	**0.0924**	**0.0379**	**0.0172**	**0.0551**	**0.0000**	**54.0757**	**54.0757**	**0.0169**	**0.0000**	**54.4972**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.7000e-004	0.0209	4.2600e-003	6.0000e-005	1.2300e-003	6.0000e-005	1.2900e-003	3.4000e-004	6.0000e-005	3.9000e-004	0.0000	5.5941	5.5941	4.1000e-004	0.0000	5.6042
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.7000e-004**	**0.0209**	**4.2600e-003**	**6.0000e-005**	**1.2300e-003**	**6.0000e-005**	**1.2900e-003**	**3.4000e-004**	**6.0000e-005**	**3.9000e-004**	**0.0000**	**5.5941**	**5.5941**	**4.1000e-004**	**0.0000**	**5.6042**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.15 Backfill Tunnel Pit 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0333	0.0000	0.0333	0.0171	0.0000	0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0420	0.4273	0.2972	6.2000e-004		0.0185	0.0185		0.0172	0.0172	0.0000	54.0757	54.0757	0.0169	0.0000	54.4971
Total	**0.0420**	**0.4273**	**0.2972**	**6.2000e-004**	**0.0333**	**0.0185**	**0.0518**	**0.0171**	**0.0172**	**0.0342**	**0.0000**	**54.0757**	**54.0757**	**0.0169**	**0.0000**	**54.4971**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.7000e-004	0.0209	4.2600e-003	6.0000e-005	1.2300e-003	6.0000e-005	1.2900e-003	3.4000e-004	6.0000e-005	3.9000e-004	0.0000	5.5941	5.5941	4.1000e-004	0.0000	5.6042
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.7000e-004**	**0.0209**	**4.2600e-003**	**6.0000e-005**	**1.2300e-003**	**6.0000e-005**	**1.2900e-003**	**3.4000e-004**	**6.0000e-005**	**3.9000e-004**	**0.0000**	**5.5941**	**5.5941**	**4.1000e-004**	**0.0000**	**5.6042**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.16 Dewatering - Tunnel Pits 2 and 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1074	0.0000	0.1074	0.0116	0.0000	0.0116	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.7568	10.7815	4.2904	0.0164		0.2632	0.2632		0.2610	0.2610	0.0000	1,644.6319	1,644.6319	0.0819	0.0000	1,646.6805
Total	**0.7568**	**10.7815**	**4.2904**	**0.0164**	**0.1074**	**0.2632**	**0.3706**	**0.0116**	**0.2610**	**0.2726**	**0.0000**	**1,644.6319**	**1,644.6319**	**0.0819**	**0.0000**	**1,646.6805**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.16 Dewatering - Tunnel Pits 2 and 3 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0483	0.0000	0.0483	5.2200e-003	0.0000	5.2200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.7568	10.7815	4.2904	0.0164		0.2632	0.2632		0.2610	0.2610	0.0000	1,644.6300	1,644.6300	0.0819	0.0000	1,646.6785
Total	**0.7568**	**10.7815**	**4.2904**	**0.0164**	**0.0483**	**0.2632**	**0.3115**	**5.2200e-003**	**0.2610**	**0.2662**	**0.0000**	**1,644.6300**	**1,644.6300**	**0.0819**	**0.0000**	**1,646.6785**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.16 Dewatering - Tunnel Pits 2 and 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1074	0.0000	0.1074	0.0116	0.0000	0.0116	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5150	7.4182	3.0838	0.0120		0.1713	0.1713		0.1699	0.1699	0.0000	1,201.9034	1,201.9034	0.0577	0.0000	1,203.3459
Total	**0.5150**	**7.4182**	**3.0838**	**0.0120**	**0.1074**	**0.1713**	**0.2787**	**0.0116**	**0.1699**	**0.1815**	**0.0000**	**1,201.9034**	**1,201.9034**	**0.0577**	**0.0000**	**1,203.3459**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.16 Dewatering - Tunnel Pits 2 and 3 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0483	0.0000	0.0483	5.2200e-003	0.0000	5.2200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5150	7.4182	3.0838	0.0120		0.1713	0.1713		0.1699	0.1699	0.0000	1,201.9020	1,201.9020	0.0577	0.0000	1,203.3445
Total	**0.5150**	**7.4182**	**3.0838**	**0.0120**	**0.0483**	**0.1713**	**0.2196**	**5.2200e-003**	**0.1699**	**0.1751**	**0.0000**	**1,201.9020**	**1,201.9020**	**0.0577**	**0.0000**	**1,203.3445**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.17 Excavating Tunnel Pit 3 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0499	0.0000	0.0499	0.0254	0.0000	0.0254	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0280	0.2849	0.1981	4.2000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	36.0505	36.0505	0.0112	0.0000	36.3314
Total	**0.0280**	**0.2849**	**0.1981**	**4.2000e-004**	**0.0499**	**0.0124**	**0.0623**	**0.0254**	**0.0114**	**0.0368**	**0.0000**	**36.0505**	**36.0505**	**0.0112**	**0.0000**	**36.3314**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.4800e-003	0.0914	0.0186	2.5000e-004	5.4000e-003	2.5000e-004	5.6500e-003	1.4800e-003	2.4000e-004	1.7200e-003	0.0000	24.4961	24.4961	1.7800e-003	0.0000	24.5406
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.4800e-003**	**0.0914**	**0.0186**	**2.5000e-004**	**5.4000e-003**	**2.5000e-004**	**5.6500e-003**	**1.4800e-003**	**2.4000e-004**	**1.7200e-003**	**0.0000**	**24.4961**	**24.4961**	**1.7800e-003**	**0.0000**	**24.5406**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.17 Excavating Tunnel Pit 3 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0225	0.0000	0.0225	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0280	0.2849	0.1981	4.2000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	36.0504	36.0504	0.0112	0.0000	36.3314
Total	**0.0280**	**0.2849**	**0.1981**	**4.2000e-004**	**0.0225**	**0.0124**	**0.0348**	**0.0114**	**0.0114**	**0.0229**	**0.0000**	**36.0504**	**36.0504**	**0.0112**	**0.0000**	**36.3314**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.4800e-003	0.0914	0.0186	2.5000e-004	5.4000e-003	2.5000e-004	5.6500e-003	1.4800e-003	2.4000e-004	1.7200e-003	0.0000	24.4961	24.4961	1.7800e-003	0.0000	24.5406
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.4800e-003**	**0.0914**	**0.0186**	**2.5000e-004**	**5.4000e-003**	**2.5000e-004**	**5.6500e-003**	**1.4800e-003**	**2.4000e-004**	**1.7200e-003**	**0.0000**	**24.4961**	**24.4961**	**1.7800e-003**	**0.0000**	**24.5406**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.18 Erect MTBM MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8900e-003	0.0290	0.0278	4.0000e-005		1.4000e-003	1.4000e-003		1.3400e-003	1.3400e-003	0.0000	3.6635	3.6635	9.1000e-004	0.0000	3.6863
Total	**3.8900e-003**	**0.0290**	**0.0278**	**4.0000e-005**		**1.4000e-003**	**1.4000e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**3.6635**	**3.6635**	**9.1000e-004**	**0.0000**	**3.6863**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	4.6000e-003	1.1400e-003	1.0000e-005	3.0000e-004	1.0000e-005	3.1000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.1597	1.1597	7.0000e-005	0.0000	1.1615
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-004**	**4.6000e-003**	**1.1400e-003**	**1.0000e-005**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**1.1597**	**1.1597**	**7.0000e-005**	**0.0000**	**1.1615**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.18 Erect MTBM MARB Tunnel - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8900e-003	0.0290	0.0278	4.0000e-005		1.4000e-003	1.4000e-003		1.3400e-003	1.3400e-003	0.0000	3.6635	3.6635	9.1000e-004	0.0000	3.6863
Total	**3.8900e-003**	**0.0290**	**0.0278**	**4.0000e-005**		**1.4000e-003**	**1.4000e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**3.6635**	**3.6635**	**9.1000e-004**	**0.0000**	**3.6863**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	4.6000e-003	1.1400e-003	1.0000e-005	3.0000e-004	1.0000e-005	3.1000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.1597	1.1597	7.0000e-005	0.0000	1.1615
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-004**	**4.6000e-003**	**1.1400e-003**	**1.0000e-005**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**1.1597**	**1.1597**	**7.0000e-005**	**0.0000**	**1.1615**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.19 Excavation and Jacking MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0835	0.0000	0.0835	0.0429	0.0000	0.0429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0510	0.4880	0.2651	7.6000e-004		0.0202	0.0202		0.0187	0.0187	0.0000	68.3992	68.3992	0.0187	0.0000	68.8661
Total	**0.0510**	**0.4880**	**0.2651**	**7.6000e-004**	**0.0835**	**0.0202**	**0.1038**	**0.0429**	**0.0187**	**0.0617**	**0.0000**	**68.3992**	**68.3992**	**0.0187**	**0.0000**	**68.8661**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.19 Excavation and Jacking MARB Tunnel - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0376	0.0000	0.0376	0.0193	0.0000	0.0193	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0510	0.4880	0.2651	7.6000e-004		0.0202	0.0202		0.0187	0.0187	0.0000	68.3991	68.3991	0.0187	0.0000	68.8660
Total	**0.0510**	**0.4880**	**0.2651**	**7.6000e-004**	**0.0376**	**0.0202**	**0.0578**	**0.0193**	**0.0187**	**0.0381**	**0.0000**	**68.3991**	**68.3991**	**0.0187**	**0.0000**	**68.8660**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.20 Remove MTBM MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.1100e-003	0.0232	0.0223	4.0000e-005		1.1200e-003	1.1200e-003		1.0700e-003	1.0700e-003	0.0000	2.9308	2.9308	7.3000e-004	0.0000	2.9491
Total	**3.1100e-003**	**0.0232**	**0.0223**	**4.0000e-005**		**1.1200e-003**	**1.1200e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**2.9308**	**2.9308**	**7.3000e-004**	**0.0000**	**2.9491**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	3.6800e-003	9.1000e-004	1.0000e-005	2.4000e-004	1.0000e-005	2.5000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.9278	0.9278	6.0000e-005	0.0000	0.9292
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1000e-004**	**3.6800e-003**	**9.1000e-004**	**1.0000e-005**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**0.9278**	**0.9278**	**6.0000e-005**	**0.0000**	**0.9292**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.20 Remove MTBM MARB Tunnel - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.1100e-003	0.0232	0.0223	4.0000e-005		1.1200e-003	1.1200e-003		1.0700e-003	1.0700e-003	0.0000	2.9308	2.9308	7.3000e-004	0.0000	2.9490
Total	**3.1100e-003**	**0.0232**	**0.0223**	**4.0000e-005**		**1.1200e-003**	**1.1200e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**2.9308**	**2.9308**	**7.3000e-004**	**0.0000**	**2.9490**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	3.6800e-003	9.1000e-004	1.0000e-005	2.4000e-004	1.0000e-005	2.5000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.9278	0.9278	6.0000e-005	0.0000	0.9292
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1000e-004**	**3.6800e-003**	**9.1000e-004**	**1.0000e-005**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**0.9278**	**0.9278**	**6.0000e-005**	**0.0000**	**0.9292**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.21 Install Pipeline MARB Tunnel - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0115	0.1000	0.0718	1.9000e-004		4.1700e-003	4.1700e-003		3.8900e-003	3.8900e-003	0.0000	16.6683	16.6683	4.4900e-003	0.0000	16.7805
Total	**0.0115**	**0.1000**	**0.0718**	**1.9000e-004**		**4.1700e-003**	**4.1700e-003**		**3.8900e-003**	**3.8900e-003**	**0.0000**	**16.6683**	**16.6683**	**4.4900e-003**	**0.0000**	**16.7805**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9000e-004	6.4300e-003	1.6000e-003	2.0000e-005	4.2000e-004	1.0000e-005	4.3000e-004	1.2000e-004	1.0000e-005	1.3000e-004	0.0000	1.6236	1.6236	1.0000e-004	0.0000	1.6261
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.9000e-004**	**6.4300e-003**	**1.6000e-003**	**2.0000e-005**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.2000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**1.6236**	**1.6236**	**1.0000e-004**	**0.0000**	**1.6261**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.21 Install Pipeline MARB Tunnel - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0115	0.1000	0.0718	1.9000e-004		4.1700e-003	4.1700e-003		3.8900e-003	3.8900e-003	0.0000	16.6683	16.6683	4.4900e-003	0.0000	16.7805
Total	**0.0115**	**0.1000**	**0.0718**	**1.9000e-004**		**4.1700e-003**	**4.1700e-003**		**3.8900e-003**	**3.8900e-003**	**0.0000**	**16.6683**	**16.6683**	**4.4900e-003**	**0.0000**	**16.7805**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9000e-004	6.4300e-003	1.6000e-003	2.0000e-005	4.2000e-004	1.0000e-005	4.3000e-004	1.2000e-004	1.0000e-005	1.3000e-004	0.0000	1.6236	1.6236	1.0000e-004	0.0000	1.6261
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.9000e-004**	**6.4300e-003**	**1.6000e-003**	**2.0000e-005**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.2000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**1.6236**	**1.6236**	**1.0000e-004**	**0.0000**	**1.6261**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.21 Install Pipeline MARB Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.0853	0.0688	1.9000e-004		3.4700e-003	3.4700e-003		3.2400e-003	3.2400e-003	0.0000	16.6679	16.6679	4.4700e-003	0.0000	16.7797
Total	**0.0103**	**0.0853**	**0.0688**	**1.9000e-004**		**3.4700e-003**	**3.4700e-003**		**3.2400e-003**	**3.2400e-003**	**0.0000**	**16.6679**	**16.6679**	**4.4700e-003**	**0.0000**	**16.7797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	6.1000e-003	1.5100e-003	2.0000e-005	4.2000e-004	1.0000e-005	4.3000e-004	1.2000e-004	1.0000e-005	1.3000e-004	0.0000	1.6093	1.6093	1.0000e-004	0.0000	1.6118
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8000e-004**	**6.1000e-003**	**1.5100e-003**	**2.0000e-005**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.2000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**1.6093**	**1.6093**	**1.0000e-004**	**0.0000**	**1.6118**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.21 Install Pipeline MARB Tunnel - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.0853	0.0688	1.9000e-004		3.4700e-003	3.4700e-003		3.2400e-003	3.2400e-003	0.0000	16.6679	16.6679	4.4700e-003	0.0000	16.7797
Total	**0.0103**	**0.0853**	**0.0688**	**1.9000e-004**		**3.4700e-003**	**3.4700e-003**		**3.2400e-003**	**3.2400e-003**	**0.0000**	**16.6679**	**16.6679**	**4.4700e-003**	**0.0000**	**16.7797**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	6.1000e-003	1.5100e-003	2.0000e-005	4.2000e-004	1.0000e-005	4.3000e-004	1.2000e-004	1.0000e-005	1.3000e-004	0.0000	1.6093	1.6093	1.0000e-004	0.0000	1.6118
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8000e-004**	**6.1000e-003**	**1.5100e-003**	**2.0000e-005**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**1.2000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**1.6093**	**1.6093**	**1.0000e-004**	**0.0000**	**1.6118**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.22 Annular Grout MARB Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0168	0.1265	0.1114	2.6000e-004		5.4800e-003	5.4800e-003		5.1700e-003	5.1700e-003	0.0000	23.0222	23.0222	5.5300e-003	0.0000	23.1605
Total	**0.0168**	**0.1265**	**0.1114**	**2.6000e-004**		**5.4800e-003**	**5.4800e-003**		**5.1700e-003**	**5.1700e-003**	**0.0000**	**23.0222**	**23.0222**	**5.5300e-003**	**0.0000**	**23.1605**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-004	0.0105	2.5800e-003	3.0000e-005	7.2000e-004	2.0000e-005	7.4000e-004	2.1000e-004	2.0000e-005	2.3000e-004	0.0000	2.7588	2.7588	1.7000e-004	0.0000	2.7630
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0000e-004**	**0.0105**	**2.5800e-003**	**3.0000e-005**	**7.2000e-004**	**2.0000e-005**	**7.4000e-004**	**2.1000e-004**	**2.0000e-005**	**2.3000e-004**	**0.0000**	**2.7588**	**2.7588**	**1.7000e-004**	**0.0000**	**2.7630**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.22 Annular Grout MARB Tunnel - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0168	0.1265	0.1114	2.6000e-004		5.4800e-003	5.4800e-003		5.1700e-003	5.1700e-003	0.0000	23.0222	23.0222	5.5300e-003	0.0000	23.1605
Total	**0.0168**	**0.1265**	**0.1114**	**2.6000e-004**		**5.4800e-003**	**5.4800e-003**		**5.1700e-003**	**5.1700e-003**	**0.0000**	**23.0222**	**23.0222**	**5.5300e-003**	**0.0000**	**23.1605**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-004	0.0105	2.5800e-003	3.0000e-005	7.2000e-004	2.0000e-005	7.4000e-004	2.1000e-004	2.0000e-005	2.3000e-004	0.0000	2.7588	2.7588	1.7000e-004	0.0000	2.7630
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0000e-004**	**0.0105**	**2.5800e-003**	**3.0000e-005**	**7.2000e-004**	**2.0000e-005**	**7.4000e-004**	**2.1000e-004**	**2.0000e-005**	**2.3000e-004**	**0.0000**	**2.7588**	**2.7588**	**1.7000e-004**	**0.0000**	**2.7630**

3.23 Backfill Tunnel Pit 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0565	0.0000	0.0565	0.0291	0.0000	0.0291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0280	0.2755	0.2160	4.8000e-004		0.0118	0.0118		0.0109	0.0109	0.0000	41.4682	41.4682	0.0129	0.0000	41.7907
Total	**0.0280**	**0.2755**	**0.2160**	**4.8000e-004**	**0.0565**	**0.0118**	**0.0683**	**0.0291**	**0.0109**	**0.0399**	**0.0000**	**41.4682**	**41.4682**	**0.0129**	**0.0000**	**41.7907**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.3400e-003	5.1000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6692	0.6692	5.0000e-005	0.0000	0.6704
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.0000e-005**	**2.3400e-003**	**5.1000e-004**	**1.0000e-005**	**1.5000e-004**	**1.0000e-005**	**1.6000e-004**	**4.0000e-005**	**1.0000e-005**	**5.0000e-005**	**0.0000**	**0.6692**	**0.6692**	**5.0000e-005**	**0.0000**	**0.6704**

3.23 Backfill Tunnel Pit 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0254	0.0000	0.0254	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0280	0.2755	0.2160	4.8000e-004		0.0118	0.0118		0.0109	0.0109	0.0000	41.4681	41.4681	0.0129	0.0000	41.7906
Total	**0.0280**	**0.2755**	**0.2160**	**4.8000e-004**	**0.0254**	**0.0118**	**0.0372**	**0.0131**	**0.0109**	**0.0240**	**0.0000**	**41.4681**	**41.4681**	**0.0129**	**0.0000**	**41.7906**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.3400e-003	5.1000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6692	0.6692	5.0000e-005	0.0000	0.6704
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.0000e-005**	**2.3400e-003**	**5.1000e-004**	**1.0000e-005**	**1.5000e-004**	**1.0000e-005**	**1.6000e-004**	**4.0000e-005**	**1.0000e-005**	**5.0000e-005**	**0.0000**	**0.6692**	**0.6692**	**5.0000e-005**	**0.0000**	**0.6704**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.24 Dewatering - Tunnel Pit 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0875	0.0000	0.0875	9.4500e-003	0.0000	9.4500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.9327	13.7737	5.2707	0.0219		0.3033	0.3033		0.3007	0.3007	0.0000	2,214.8161	2,214.8161	0.1064	0.0000	2,217.4757
Total	**0.9327**	**13.7737**	**5.2707**	**0.0219**	**0.0875**	**0.3033**	**0.3908**	**9.4500e-003**	**0.3007**	**0.3101**	**0.0000**	**2,214.8161**	**2,214.8161**	**0.1064**	**0.0000**	**2,217.4757**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.24 Dewatering - Tunnel Pit 3 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0394	0.0000	0.0394	4.2500e-003	0.0000	4.2500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.9327	13.7737	5.2707	0.0219		0.3033	0.3033		0.3007	0.3007	0.0000	2,214.8135	2,214.8135	0.1064	0.0000	2,217.4730
Total	**0.9327**	**13.7737**	**5.2707**	**0.0219**	**0.0394**	**0.3033**	**0.3427**	**4.2500e-003**	**0.3007**	**0.3049**	**0.0000**	**2,214.8135**	**2,214.8135**	**0.1064**	**0.0000**	**2,217.4730**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.25 Excavating Tunnel Pit 4 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0492	0.0000	0.0492	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2396	0.1878	4.2000e-004		0.0102	0.0102		9.4700e-003	9.4700e-003	0.0000	36.0593	36.0593	0.0112	0.0000	36.3397
Total	**0.0243**	**0.2396**	**0.1878**	**4.2000e-004**	**0.0492**	**0.0102**	**0.0594**	**0.0253**	**9.4700e-003**	**0.0347**	**0.0000**	**36.0593**	**36.0593**	**0.0112**	**0.0000**	**36.3397**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2000e-004	4.2800e-003	9.3000e-004	1.0000e-005	2.7000e-004	1.0000e-005	2.8000e-004	7.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.2221	1.2221	9.0000e-005	0.0000	1.2243
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.2000e-004**	**4.2800e-003**	**9.3000e-004**	**1.0000e-005**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**	**7.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**1.2221**	**1.2221**	**9.0000e-005**	**0.0000**	**1.2243**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.25 Excavating Tunnel Pit 4 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0221	0.0000	0.0221	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2396	0.1878	4.2000e-004		0.0102	0.0102		9.4700e-003	9.4700e-003	0.0000	36.0592	36.0592	0.0112	0.0000	36.3397
Total	**0.0243**	**0.2396**	**0.1878**	**4.2000e-004**	**0.0221**	**0.0102**	**0.0324**	**0.0114**	**9.4700e-003**	**0.0208**	**0.0000**	**36.0592**	**36.0592**	**0.0112**	**0.0000**	**36.3397**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.2000e-004	4.2800e-003	9.3000e-004	1.0000e-005	2.7000e-004	1.0000e-005	2.8000e-004	7.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.2221	1.2221	9.0000e-005	0.0000	1.2243
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.2000e-004**	**4.2800e-003**	**9.3000e-004**	**1.0000e-005**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**	**7.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**1.2221**	**1.2221**	**9.0000e-005**	**0.0000**	**1.2243**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.26 Erect MTBM Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5000e-003	0.0261	0.0268	4.0000e-005		1.1900e-003	1.1900e-003		1.1300e-003	1.1300e-003	0.0000	3.6632	3.6632	9.0000e-004	0.0000	3.6857
Total	**3.5000e-003**	**0.0261**	**0.0268**	**4.0000e-005**		**1.1900e-003**	**1.1900e-003**		**1.1300e-003**	**1.1300e-003**	**0.0000**	**3.6632**	**3.6632**	**9.0000e-004**	**0.0000**	**3.6857**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	4.3600e-003	1.0800e-003	1.0000e-005	3.0000e-004	1.0000e-005	3.1000e-004	9.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.1495	1.1495	7.0000e-005	0.0000	1.1513
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.3000e-004**	**4.3600e-003**	**1.0800e-003**	**1.0000e-005**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**9.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**1.1495**	**1.1495**	**7.0000e-005**	**0.0000**	**1.1513**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.26 Erect MTBM Van Buren Tunnel - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5000e-003	0.0261	0.0268	4.0000e-005		1.1900e-003	1.1900e-003		1.1300e-003	1.1300e-003	0.0000	3.6632	3.6632	9.0000e-004	0.0000	3.6856
Total	**3.5000e-003**	**0.0261**	**0.0268**	**4.0000e-005**		**1.1900e-003**	**1.1900e-003**		**1.1300e-003**	**1.1300e-003**	**0.0000**	**3.6632**	**3.6632**	**9.0000e-004**	**0.0000**	**3.6856**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	4.3600e-003	1.0800e-003	1.0000e-005	3.0000e-004	1.0000e-005	3.1000e-004	9.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.1495	1.1495	7.0000e-005	0.0000	1.1513
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.3000e-004**	**4.3600e-003**	**1.0800e-003**	**1.0000e-005**	**3.0000e-004**	**1.0000e-005**	**3.1000e-004**	**9.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**1.1495**	**1.1495**	**7.0000e-005**	**0.0000**	**1.1513**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.27 Excavation and Jacking Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0590	0.0000	0.0590	0.0303	0.0000	0.0303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0309	0.2865	0.1763	5.3000e-004		0.0115	0.0115		0.0107	0.0107	0.0000	47.4304	47.4304	0.0129	0.0000	47.7528
Total	**0.0309**	**0.2865**	**0.1763**	**5.3000e-004**	**0.0590**	**0.0115**	**0.0705**	**0.0303**	**0.0107**	**0.0410**	**0.0000**	**47.4304**	**47.4304**	**0.0129**	**0.0000**	**47.7528**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.27 Excavation and Jacking Van Buren Tunnel - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0265	0.0000	0.0265	0.0136	0.0000	0.0136	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0309	0.2865	0.1763	5.3000e-004		0.0115	0.0115		0.0107	0.0107	0.0000	47.4304	47.4304	0.0129	0.0000	47.7527
Total	**0.0309**	**0.2865**	**0.1763**	**5.3000e-004**	**0.0265**	**0.0115**	**0.0381**	**0.0136**	**0.0107**	**0.0243**	**0.0000**	**47.4304**	**47.4304**	**0.0129**	**0.0000**	**47.7527**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.28 Remove MTBM Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0209	0.0214	4.0000e-005		9.5000e-004	9.5000e-004		9.0000e-004	9.0000e-004	0.0000	2.9306	2.9306	7.2000e-004	0.0000	2.9485
Total	**2.8000e-003**	**0.0209**	**0.0214**	**4.0000e-005**		**9.5000e-004**	**9.5000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**2.9306**	**2.9306**	**7.2000e-004**	**0.0000**	**2.9485**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	3.4900e-003	8.6000e-004	1.0000e-005	2.4000e-004	1.0000e-005	2.5000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.9196	0.9196	6.0000e-005	0.0000	0.9210
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0000e-004**	**3.4900e-003**	**8.6000e-004**	**1.0000e-005**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**0.9196**	**0.9196**	**6.0000e-005**	**0.0000**	**0.9210**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.28 Remove MTBM Van Buren Tunnel - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0209	0.0214	4.0000e-005		9.5000e-004	9.5000e-004		9.0000e-004	9.0000e-004	0.0000	2.9306	2.9306	7.2000e-004	0.0000	2.9485
Total	**2.8000e-003**	**0.0209**	**0.0214**	**4.0000e-005**		**9.5000e-004**	**9.5000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**2.9306**	**2.9306**	**7.2000e-004**	**0.0000**	**2.9485**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	3.4900e-003	8.6000e-004	1.0000e-005	2.4000e-004	1.0000e-005	2.5000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.9196	0.9196	6.0000e-005	0.0000	0.9210
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0000e-004**	**3.4900e-003**	**8.6000e-004**	**1.0000e-005**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**0.9196**	**0.9196**	**6.0000e-005**	**0.0000**	**0.9210**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.29 Install Pipeline Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0147	0.1219	0.0983	2.7000e-004		4.9500e-003	4.9500e-003		4.6300e-003	4.6300e-003	0.0000	23.8113	23.8113	6.3900e-003	0.0000	23.9711
Total	**0.0147**	**0.1219**	**0.0983**	**2.7000e-004**		**4.9500e-003**	**4.9500e-003**		**4.6300e-003**	**4.6300e-003**	**0.0000**	**23.8113**	**23.8113**	**6.3900e-003**	**0.0000**	**23.9711**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5000e-004	8.7200e-003	2.1500e-003	2.0000e-005	6.0000e-004	2.0000e-005	6.1000e-004	1.7000e-004	2.0000e-005	1.9000e-004	0.0000	2.2990	2.2990	1.4000e-004	0.0000	2.3025
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.5000e-004**	**8.7200e-003**	**2.1500e-003**	**2.0000e-005**	**6.0000e-004**	**2.0000e-005**	**6.1000e-004**	**1.7000e-004**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**2.2990**	**2.2990**	**1.4000e-004**	**0.0000**	**2.3025**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.29 Install Pipeline Van Buren Tunnel - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0147	0.1219	0.0983	2.7000e-004		4.9500e-003	4.9500e-003		4.6300e-003	4.6300e-003	0.0000	23.8113	23.8113	6.3900e-003	0.0000	23.9710
Total	**0.0147**	**0.1219**	**0.0983**	**2.7000e-004**		**4.9500e-003**	**4.9500e-003**		**4.6300e-003**	**4.6300e-003**	**0.0000**	**23.8113**	**23.8113**	**6.3900e-003**	**0.0000**	**23.9710**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5000e-004	8.7200e-003	2.1500e-003	2.0000e-005	6.0000e-004	2.0000e-005	6.1000e-004	1.7000e-004	2.0000e-005	1.9000e-004	0.0000	2.2990	2.2990	1.4000e-004	0.0000	2.3025
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.5000e-004**	**8.7200e-003**	**2.1500e-003**	**2.0000e-005**	**6.0000e-004**	**2.0000e-005**	**6.1000e-004**	**1.7000e-004**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**2.2990**	**2.2990**	**1.4000e-004**	**0.0000**	**2.3025**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.30 Annular Grout Van Buren Tunnel - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0112	0.0843	0.0743	1.7000e-004		3.6600e-003	3.6600e-003		3.4500e-003	3.4500e-003	0.0000	15.3481	15.3481	3.6900e-003	0.0000	15.4403
Total	**0.0112**	**0.0843**	**0.0743**	**1.7000e-004**		**3.6600e-003**	**3.6600e-003**		**3.4500e-003**	**3.4500e-003**	**0.0000**	**15.3481**	**15.3481**	**3.6900e-003**	**0.0000**	**15.4403**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	6.9700e-003	1.7200e-003	2.0000e-005	4.8000e-004	1.0000e-005	4.9000e-004	1.4000e-004	1.0000e-005	1.5000e-004	0.0000	1.8392	1.8392	1.1000e-004	0.0000	1.8420
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0000e-004**	**6.9700e-003**	**1.7200e-003**	**2.0000e-005**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**1.4000e-004**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**1.8392**	**1.8392**	**1.1000e-004**	**0.0000**	**1.8420**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.30 Annular Grout Van Buren Tunnel - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0112	0.0843	0.0743	1.7000e-004		3.6600e-003	3.6600e-003		3.4500e-003	3.4500e-003	0.0000	15.3481	15.3481	3.6900e-003	0.0000	15.4403
Total	**0.0112**	**0.0843**	**0.0743**	**1.7000e-004**		**3.6600e-003**	**3.6600e-003**		**3.4500e-003**	**3.4500e-003**	**0.0000**	**15.3481**	**15.3481**	**3.6900e-003**	**0.0000**	**15.4403**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	6.9700e-003	1.7200e-003	2.0000e-005	4.8000e-004	1.0000e-005	4.9000e-004	1.4000e-004	1.0000e-005	1.5000e-004	0.0000	1.8392	1.8392	1.1000e-004	0.0000	1.8420
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0000e-004**	**6.9700e-003**	**1.7200e-003**	**2.0000e-005**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**1.4000e-004**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**1.8392**	**1.8392**	**1.1000e-004**	**0.0000**	**1.8420**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.31 Backfill Tunnel Pit 3 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0492	0.0000	0.0492	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2396	0.1878	4.2000e-004		0.0102	0.0102		9.4700e-003	9.4700e-003	0.0000	36.0593	36.0593	0.0112	0.0000	36.3397
Total	**0.0243**	**0.2396**	**0.1878**	**4.2000e-004**	**0.0492**	**0.0102**	**0.0595**	**0.0253**	**9.4700e-003**	**0.0347**	**0.0000**	**36.0593**	**36.0593**	**0.0112**	**0.0000**	**36.3397**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5000e-004	8.8600e-003	1.9200e-003	3.0000e-005	5.6000e-004	2.0000e-005	5.9000e-004	1.6000e-004	2.0000e-005	1.8000e-004	0.0000	2.5314	2.5314	1.8000e-004	0.0000	2.5360
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.5000e-004**	**8.8600e-003**	**1.9200e-003**	**3.0000e-005**	**5.6000e-004**	**2.0000e-005**	**5.9000e-004**	**1.6000e-004**	**2.0000e-005**	**1.8000e-004**	**0.0000**	**2.5314**	**2.5314**	**1.8000e-004**	**0.0000**	**2.5360**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.31 Backfill Tunnel Pit 3 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0222	0.0000	0.0222	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2396	0.1878	4.2000e-004		0.0102	0.0102		9.4700e-003	9.4700e-003	0.0000	36.0592	36.0592	0.0112	0.0000	36.3397
Total	**0.0243**	**0.2396**	**0.1878**	**4.2000e-004**	**0.0222**	**0.0102**	**0.0324**	**0.0114**	**9.4700e-003**	**0.0208**	**0.0000**	**36.0592**	**36.0592**	**0.0112**	**0.0000**	**36.3397**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.5000e-004	8.8600e-003	1.9200e-003	3.0000e-005	5.6000e-004	2.0000e-005	5.9000e-004	1.6000e-004	2.0000e-005	1.8000e-004	0.0000	2.5314	2.5314	1.8000e-004	0.0000	2.5360
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.5000e-004**	**8.8600e-003**	**1.9200e-003**	**3.0000e-005**	**5.6000e-004**	**2.0000e-005**	**5.9000e-004**	**1.6000e-004**	**2.0000e-005**	**1.8000e-004**	**0.0000**	**2.5314**	**2.5314**	**1.8000e-004**	**0.0000**	**2.5360**

3.32 Backfill Tunnel Pit 4 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0492	0.0000	0.0492	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2396	0.1878	4.2000e-004		0.0102	0.0102		9.4700e-003	9.4700e-003	0.0000	36.0593	36.0593	0.0112	0.0000	36.3397
Total	**0.0243**	**0.2396**	**0.1878**	**4.2000e-004**	**0.0492**	**0.0102**	**0.0594**	**0.0253**	**9.4700e-003**	**0.0347**	**0.0000**	**36.0593**	**36.0593**	**0.0112**	**0.0000**	**36.3397**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1000e-004	3.8700e-003	8.4000e-004	1.0000e-005	2.5000e-004	1.0000e-005	2.6000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.1057	1.1057	8.0000e-005	0.0000	1.1077
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1000e-004**	**3.8700e-003**	**8.4000e-004**	**1.0000e-005**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**1.1057**	**1.1057**	**8.0000e-005**	**0.0000**	**1.1077**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.32 Backfill Tunnel Pit 4 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0221	0.0000	0.0221	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2396	0.1878	4.2000e-004		0.0102	0.0102		9.4700e-003	9.4700e-003	0.0000	36.0592	36.0592	0.0112	0.0000	36.3397
Total	**0.0243**	**0.2396**	**0.1878**	**4.2000e-004**	**0.0221**	**0.0102**	**0.0324**	**0.0114**	**9.4700e-003**	**0.0208**	**0.0000**	**36.0592**	**36.0592**	**0.0112**	**0.0000**	**36.3397**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1000e-004	3.8700e-003	8.4000e-004	1.0000e-005	2.5000e-004	1.0000e-005	2.6000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.1057	1.1057	8.0000e-005	0.0000	1.1077
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1000e-004**	**3.8700e-003**	**8.4000e-004**	**1.0000e-005**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**7.0000e-005**	**1.0000e-005**	**8.0000e-005**	**0.0000**	**1.1057**	**1.1057**	**8.0000e-005**	**0.0000**	**1.1077**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.33 Site Restoration - Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7100e-003	0.0467	0.0585	9.0000e-005		2.4400e-003	2.4400e-003		2.2500e-003	2.2500e-003	0.0000	7.7550	7.7550	2.4600e-003	0.0000	7.8165
Paving	2.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.9600e-003**	**0.0467**	**0.0585**	**9.0000e-005**		**2.4400e-003**	**2.4400e-003**		**2.2500e-003**	**2.2500e-003**	**0.0000**	**7.7550**	**7.7550**	**2.4600e-003**	**0.0000**	**7.8165**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.33 Site Restoration - Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7100e-003	0.0467	0.0585	9.0000e-005		2.4400e-003	2.4400e-003		2.2500e-003	2.2500e-003	0.0000	7.7550	7.7550	2.4600e-003	0.0000	7.8165
Paving	2.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.9600e-003**	**0.0467**	**0.0585**	**9.0000e-005**		**2.4400e-003**	**2.4400e-003**		**2.2500e-003**	**2.2500e-003**	**0.0000**	**7.7550**	**7.7550**	**2.4600e-003**	**0.0000**	**7.8165**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

3.34 Site Restoration - Other/Demobilization - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0175	0.0000	0.0175	1.8900e-003	0.0000	1.8900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1723	0.1106	2.7000e-004		6.5500e-003	6.5500e-003		6.0200e-003	6.0200e-003	0.0000	23.7018	23.7018	7.6700e-003	0.0000	23.8934
Total	**0.0152**	**0.1723**	**0.1106**	**2.7000e-004**	**0.0175**	**6.5500e-003**	**0.0241**	**1.8900e-003**	**6.0200e-003**	**7.9100e-003**	**0.0000**	**23.7018**	**23.7018**	**7.6700e-003**	**0.0000**	**23.8934**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.34 Site Restoration - Other/Demobilization - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.8700e-003	0.0000	7.8700e-003	8.5000e-004	0.0000	8.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1723	0.1106	2.7000e-004		6.5500e-003	6.5500e-003		6.0200e-003	6.0200e-003	0.0000	23.7017	23.7017	7.6700e-003	0.0000	23.8934
Total	**0.0152**	**0.1723**	**0.1106**	**2.7000e-004**	**7.8700e-003**	**6.5500e-003**	**0.0144**	**8.5000e-004**	**6.0200e-003**	**6.8700e-003**	**0.0000**	**23.7017**	**23.7017**	**7.6700e-003**	**0.0000**	**23.8934**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Other Non-Asphalt Surfaces	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.2400e-003	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0600e-003
Unmitigated	9.2400e-003	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0600e-003

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.4900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4000e-004	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0600e-003
Total	**9.2400e-003**	**1.0000e-005**	**1.4800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8800e-003**	**2.8800e-003**	**1.0000e-005**	**0.0000**	**3.0600e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.4900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4000e-004	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0600e-003
Total	**9.2400e-003**	**1.0000e-005**	**1.4800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8800e-003**	**2.8800e-003**	**1.0000e-005**	**0.0000**	**3.0600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

PVP All Tunnel 2020 - South Coast AQMD Air District, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Biological Resources Assessment

October 13, 2020
Project No: 18-05919

Ms. Brenda Marines
Environmental Specialist
The Metropolitan Water District of Southern California
Environmental Planning Section
700 North Alameda Street
Los Angeles, California 90012
Via Email: bmarines@mwdh2o.com

Subject: **Biological Resources Assessment for the Perris Valley Pipeline Project I-215/Van Buren Boulevard Segment**

Dear Ms. Marines:

This report documents the findings of a Biological Resources Assessment conducted by Rincon Consultants, Inc. (Rincon), for the proposed modifications to the Perris Valley Pipeline Project ("Project"). The assessment was completed to document existing site conditions via desktop analysis and field survey, to determine potential impacts to special-status biological resources based upon current plans of the proposed modifications to the Project, and to compare impacts to those previously analyzed within Western Municipal Water District's (WMWD) Environmental Impact Report (EIR) (SCH No. 205061028) (WMWD 2005). The Metropolitan Water District of Southern California (Metropolitan) adopted the EIR and its Mitigation Monitoring and Reporting Program (MMRP) and mitigation obligations in 2005. Metropolitan took over construction of the Project in 2007.

Project Location and Description

The Project is generally located off the Van Buren Boulevard and I-215 freeway interchange, on land owned by the California Department of Transportation (Caltrans), March Joint Powers Authority (MJPA), Riverside County Transportation Commission/Burlington Northern Santa Fe (RCTC/BNSF), and other private owners. The Project would impact surrounding areas that parallel I-215, located approximately and up to 300-feet east and west of the freeway, from Van Buren Boulevard to Harley-Knox Boulevard, in unincorporated Riverside County.

Metropolitan proposes to modify the Perris Valley Pipeline alignment, where it crosses I-215, from the alignment reviewed and certified in the 2005 EIR. The modifications would include the relocation of the tunnel undercrossing located near the RCTC/BNSF railroad tracks and I-215 from a point south of Van Buren Boulevard to a point just north of Van Buren Boulevard. The tunnel would veer in a southwesterly direction long the eastern side of I-215 and Van Buren Boulevard, and under the northwestern portion of the March Air Field Museum, and into the Van Buren Boulevard ROW to connect with the already-constructed southern segment of the Project. The modifications would shorten the length of the alignment that would traverse beneath I-215, at approximately 3,000 linear feet, which is effectively the same as the length of the originally approved alignment in this area.

In addition, the proposed modifications would include installation of temporary dewatering facilities, temporary groundwater conveyance lines, a temporary conveyance line delivering treated water from the Mills WTP, and three temporary treatment facilities. The Project would include decommissioning and removal of approximately 40 existing dewatering and monitoring wells. See Figure 1 for the regional location. Figure 2 shows the general Project, and Figures 3, 4, and 5 show the detailed proposed modifications (tunnels, temporary facilities, wells) located within the Caltrans ROW.

This assessment documents the existing site conditions and potential impacts to special-status biological resources associated with construction of the 3,000-foot segment that was not analyzed in the 2005 EIR.

Methodology

Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special status plant and wildlife species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees.

Environmental Statutes. For the purpose of this report, potential impacts to biological resources were analyzed based on the following statutes:

- National Environmental Policy Act (NEPA)
- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (ESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act (CWA)
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- Riverside County Code of Ordinances
- Western Riverside County Multiple Species Habitat Conservation Plan (WRMSHCP)(2003)

Guidelines for Determining CEQA Significance. The following threshold criteria, as defined by the CEQA Guidelines Appendix G Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the proposed Project would have a significant effect on biological resources if it would:

> *a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*
>
> *b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal areas, etc.) through direct removal, filling, hydrological interruption, or other means.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional or state habitat conservation plan.

Literature Review

A literature review was conducted to establish the environmental and regulatory setting of the proposed modifications to the Project. Specific literature reviewed for the subject analysis is provided in the references section of this document. The reviewed literature also included the United States Department of Agriculture (USDA) Soil Survey for the Riverside East 7.5-minute topographic quadrangle (USDA, 2018), and literature detailing the habitat requirements of subject species. Aerial photographs, topographic maps, and soil survey maps were also examined.

Queries of the United States Fish and Wildlife Service (USFWS) Environmental Conservation Online System (ECOS): Information, Planning and Conservation System (IPaC) (USFWS, 2020b), USFWS Critical Habitat Portal (USFWS, 2020a), USFWS National Wetland Inventory (NWI) (USFWS, 2020c), California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW, 2020a), CDFW Biogeographic Information and Observation System (BIOS) (CDFW, 2020b), California Native Plant Society (CNPS) *Online Inventory of Rare, Threatened and Endangered Plants of California* (CNPS, 2020), and the National Marine Fisheries Service (NMFS) California Species List Tool (NMFS, 2020) were conducted. The queries were conducted to obtain comprehensive information regarding state and federally listed species, sensitive communities and federally designated Critical Habitat known to or considered to have potential to occur within the vicinity of the Project site. Refer to Appendix B for the complete literature review.

Field Reconnaissance Surveys

The field reconnaissance surveys were limited to providing an overview of site biological constraints and the potential presence of sensitive biological resources, including sensitive plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, protected trees, wildlife movement, and habitat for nesting birds. Potentially jurisdictional features were identified; however, a formal jurisdictional delineation was not conducted. The survey area consisted of the footprint of the approximately 3,000-foot segment of pipeline as well as work areas and access roads. The survey area for the April 2020 survey also included the storm drain and channel downstream of the dewatering discharge points. Reconnaissance surveys were conducted by Rincon biologists in 2018, 2019 and 2020 as detailed in Table 1 below.

Table 1. Reconnaissance Surveys

Date	Time	Temperature	Cloud Cover	Wind
June 8, 2018	0930 - 1530	89 degrees Fahrenheit	0%	2 - 5 miles per hour
May 24, 2019	1015 - 1315	74 degrees Fahrenheit	5%	0 - 3 miles per hour
March 30, 2020	0815 - 0230	52 degrees Fahrenheit	0%	4 - 8 miles per hour
April 23, 2020	0900 - 1200	81 degrees Fahrenheit	0%	0 - 3 miles per hour

The surveys were performed by walking and driving along the proposed modifications work area to characterize the existing biological resources present (e.g., vegetative communities, potential presence of sensitive species and/or habitats, and presence of potentially jurisdictional waters). Where portions of the survey area were inaccessible on foot (e.g., portions of the railroad and I-215 freeway), the biologist visually inspected these areas with binoculars (10 x 40).

Existing Conditions

Physical Characteristics

The proposed modifications site (site) is located within a developed/disturbed transportation corridor, primarily within the rights-of-way of existing dirt and paved roadways including the I-215 freeway, Van Buren Boulevard, and the BNSF/RCTC railroad. Based on a review of historic aerial photographs, the site and surrounding areas have been heavily developed and disturbed since at least 1994.

Soils along the proposed realignment consist of the following soil types (Figure 6):

- Monserate sandy loam, 0 to 5 percent slopes
- Monserate sandy loam, 5 to 8 percent slopes (USDA 2018)

Land use adjacent to the site consists of developed and urban areas including the I-215 freeway and BNSF/RCTC railroad which bisect the Project area, March Air Reserve Base to east, industrial development to the west/northwest, and Riverside National Cemetery to west/southwest.

Vegetation

Based on a review of available aerial imagery and the field reconnaissance survey, the site is primarily characterized by urban and developed land including dirt and paved roadway rights-of-ways and adjacent disturbed areas. Portions of the site that are not paved and devoid of vegetation consist of patchy, ruderal vegetation and bare ground. These areas are dominated by non-native grasses and Russian thistle (*Salsola tragus*), and included lower abundances of the following non-native, weedy plant species: short podded mustard (*Hirschfeldia incana*) and Mediterranean grass species (*Schismus* ssp.). Sparse occurrences of native plants include Palmer's goldenbush (*Ericameria palmeri*), common sandaster (*Corethrogyne filaginifolia*), and California buckwheat (*Eriogonum fasciculatum*). Vegetation within a potentially jurisdictional drainage located immediately adjacent to the site of proposed temporary dewatering facilities included sparse umbrella plant (*Cyperus involucratus*), mulefat (*Baccharis salicifolia*), and dock species (*Rumex* sp.).

General Wildlife

As would be expected from the location adjacent to existing roadways, wildlife activity was low on the Project site, and only common avian and small mammal species typically found in disturbed areas of Riverside County were observed during the surveys: common raven (*Corvus corax*), horned lark

(*Eremophila alpestris*), house finch (*Haemorhous mexicanus*), European starling (*Sturnus vulgaris*), red-tailed hawk (*Buteo jamaicensis*), black phoebe (*Sayornis nigricans*), hooded oriole (*Icterus cucullatus*), killdeer (*Charadrius vociferus*), Eurasian collared-dove (*Streptopelia decaocto*), and California ground squirrel (*Otospermophilus beecheyi*). Due to the site's location within a heavily travelled urban transportation corridor with high levels of existing disturbance as evidenced from vehicle tracks and low vegetative cover, the site is subject to high levels of noise which would likely deter most wildlife from long-term use of the Project site.

Sensitive Biological Resources

Based on review of aerial photographs and the field reconnaissance survey, Rincon evaluated the potential presence of sensitive biological resources on and adjacent to the site.

Special Status Species

Local, state, and federal agencies regulate special status species and generally require an assessment of their presence or potential presence to be conducted prior to the approval of a proposed project. Assessments for the potential occurrence of special status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites in the vicinity of the survey area, and previous reports for the Project site. The potential for each special status species to occur in the survey area was evaluated according to the following criteria:

- *No Potential*. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

- *Low Potential*. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

- *Moderate Potential*. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

- *High Potential*. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

- *Present*. Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

The literature review identified 14 sensitive plant species and 38 sensitive wildlife species within five miles of the proposed realignment (Table 2 and Figure 7). Two sensitive plant communities, southern cottonwood riparian forest and southern sycamore alder riparian woodland, were identified within five miles of the site. Sensitive plant and wildlife species typically have very specific habitat requirements, which are not found on the site.

Table 2. Special Status Species Potential for Occurrence Table

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Plants				
Allium munzii Munz's onion	Endangered/ Candidate Threatened G1/S1 1B.1	Chaparral, Cismontane woodland, Coastal scrub, Pinyon and juniper woodland, Valley and foothill grassland. mesic, clay. 297 - 1070 m. perennial bulbiferous herb. Blooms Mar-May	Not Expected	No suitable chaparral, scrub, woodland, or grassland habitat present on site. Project area is highly developed/ disturbed.
Arenaria paludícola marsh sandwort	Endangered/ Candidate Endangered G1/S1 1B.1	Marshes and swamps (freshwateror brackish). sandy, openings. 3 - 170 m. perennial stoloniferous herb. Blooms May-Aug	Not Expected	No suitable marsh habitat present on site. Project area is highly developed/ disturbed.
Ambrosia pumila San Diego ambrosia	Endangered/ None G1/S1 1B.1	Chaparral, Coastal scrub, Valley and foothill grassland, Vernal pools. sandy loam or clay, often in disturbed areas, sometimes alkaline. 20 - 415 m. perennial rhizomatous herb. Blooms Apr-Oct	Not Expected	No suitable chaparral, scrub, grassland or vernal pool habitat present on site. Project area is highly developed/ disturbed.
Berberis nevinii Nevin's barberry	Endangered/ Endangered G1 / S1 1B.1	Chaparral, cismontane woodland, coastal scrub, riparian scrub. On steep, N-facing slopes or in low grade sandy washes. 290-1575 m. perennial evergreen shrub. Blooms (Feb)Mar-Jun	Not Expected	No suitable scrub or woodland habitat present on site. Project area is highly developed/disturbed.
Brodiaea fillifolia thread-leaved brodiaea	Threatened/ Candidate Endangered G2/S2 1B.1	Chaparral (openings), Cismontane woodland, Coastal scrub, Playas, Valley and foothill grassland, Vernal pools. often clay. 25 - 1120 m. perennial bulbiferous herb. Blooms Mar-Jun	Not Expected	No suitable chaparral, scrub grassland, woodland or vernal pool habitat present on site. Project area is highly developed/disturbed.
Centromadia pungens ssp. *laevis* smooth tarplant	None/None G3G4T2 / S2 1B.1	Valley and foothill grassland, chenopod scrub, meadows and seeps, playas, riparian woodland. Alkali meadow, alkali scrub; also in disturbed places. 5-1170 m. annual herb. Blooms Apr-Sep	Not Expected	No suitable grassland, scrub, or riparian habitat present on site. Alkali soils and vegetation absent. Project area is highly developed/ disturbed.

Chloropyron maritimum ssp. *maritimum* salt marsh bird's-beak	Endangered/ Candidate Endangered G4?T1/S1 1B.2	Coastal dunes, Marshes and swamps (coastal salt). 0 - 30 m. annual herb (hemiparasitic). Blooms May-Oct(Nov)	Not Expected	No suitable coastal dune or marsh habitat present on site. Alkali soils and vegetation absent. Project area is highly developed/ disturbed.
Chorizanthe parryi var. *parryi* Parry's spineflower	None/None G3T2 / S2 1B.1	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland. Dry slopes and flats; sometimes at interface of 2 vegetation types, such as chaparral and oak woodland. Dry, sandy soils. 90-1220 m. annual herb. Blooms Apr-Jun	Not Expected	No suitable scrub, woodland, or grassland habitat present on site. Project area is highly developed/disturbed.
Chorizanthe polygonoides var. *longispina* long-spined spineflower	None/None G5T3 / S3 1B.2	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools. Gabbroic clay. 30-1540 m. annual herb. Blooms Apr-Jul	Not Expected	No suitable scrub or grassland habitats present on site. No vernal pools present. Project area is highly developed/disturbed.
Dodecahema leptoceras slender-horned spineflower	Endangered/ Candidate Endangered G1/S1 1B.1	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan). sandy. 200 - 760 m. annual herb. Blooms Apr-Jun	Not Expected	No suitable chaparral, woodland or scrub habitats present on site. Project area is highly developed/disturbed.
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woolly-star	Endangered/ Candidate Endangered G4T1/S1 1B.1	Chaparral, Coastal scrub (alluvial fan). sandy or gravelly. 91 - 610 m. perennial herb. Blooms Apr-Sep	Not Expected	No suitable chaparral or scrub habitats present on site. Project area is highly developed/disturbed.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	None/None G5T3/S3 4.3	Chaparral, Coastal scrub. 1 - 885 m. annual herb. Blooms Jan-Jul	Not Expected	No suitable chaparral or scrub habitats present on site. Project area is highly developed/disturbed.
Nasturtium gambelii Gambel's water cress	Endangered/ Candidate Threatened G1/S1 1B.1	Marshes and swamps (freshwater or brackish). 5 - 330 m. perennial rhizomatous herb. Blooms Apr-Oct	Not Expected	No suitable marsh habitats present on site. Project area is highly developed/disturbed.

Navarretia fossalis spreading navarretia	Threatened/ None G2/S2 1B.1	Chenopod scrub, Marshes and swamps (assorted shallow freshwater), Playas, Vernal pools. 30 - 655 m. annual herb. Blooms Apr-Jun	Not Expected	No suitable scrub, marsh, or vernal pool habitats present on site. Project area is highly developed/disturbed.
Insects				
Bombus crotchii Crotch bumble bee	None/None G3G4 / S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	Not Expected	No suitable coastal habitat or plants for foraging within the Project area. Project area is highly developed/disturbed.
Euphydryas editha quino Quino checkerspot butterfly	Endangered/ None G5T1T2/ S1S2	Sunny openings within chaparral & coastal sage shrublands in parts of Riverside & San Diego counties. Hills and mesas near the coast. Need high densities of food plants Plantago erecta, P. insularis, and Orthocarpus purpurescens.	Not Expected	No suitable chaparral or sage scrub habitat within the Project area. Project area is highly developed/disturbed.
Neolarra alba white cuckoo bee	None/None GH/SH	Known only from 6 historical localities in Southern California; has not been collected since 1946. Cleptoparasitic in the nests of perdita bees.	Not Expected	Project area is highly developed/disturbed.
Crustaceans				
Branchinecta lynchi vernal pool fairy shrimp	Threatened/ None G3/S3	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Not Expected	No vernal pool habitat present. Project area is highly developed/disturbed.
Streptocephalus woottoni Riverside fairy shrimp	Endangered/ None G1G2 / S1S2	Endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	Not Expected	No suitable swales, grassland, scrub, or vernal pool habitat present on site. Project area is highly developed/disturbed.
Fish				
Catostomus santaanae Santa Ana sucker	Threatened/ None G1/S1	Endemic to Los Angeles Basin south coastal streams. Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	Not Expected	Outside known range of species. No aquatic habitat present in Project area.

Amphibians				
Spea hammondii western spadefoot	None/None G3 / S3 SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Not Expected	No suitable grassland, woodland or vernal pool habitat present on site. Project area is highly developed/disturbed.
Reptiles				
Anniella stebbinsi southern California legless lizard	None/None G3/S3	Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	Not Expected	No moist loose soil present on site. Project area is highly developed/disturbed.
Arizona elegans occidentalis California glossy snake	None/None G5T2 / S2 SSC	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Not Expected	No suitable scrub or grassland habitat present on site. Project area is highly developed/disturbed.
Aspidoscelis hyperythra orange-throated whiptail	None/None G5 / S2S3 WL	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food: termites.	Not Expected	No suitable scrub or hardwood habitat present on site. Project area is highly developed/disturbed.
Aspidoscelis tigris stejnegeri coastal whiptail	None/None G5T5 / S3 SSC	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland & riparian areas. Ground may be firm soil, sandy, or rocky.	Not Expected	No desert, woodland or riparian habitat present on site. Project area is highly developed/disturbed.
Crotalus ruber red-diamond rattlesnake	None/None G4 / S3 SSC	Chaparral, woodland, grassland, & desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	Not Expected	No rocky areas or dense vegetation present on site. Project area is highly developed/disturbed.

Diadophis punctatus modestus San Bernardino ringneck snake	None/None G5T2T3Q / S2?	Most common in open, relatively rocky areas. Often in somewhat moist microhabitats near intermittent streams. Avoids moving through open or barren areas by restricting movements to areas of surface litter or herbaceous veg.	Not Expected	No rocky or moist areas or present on site. No surface litter present. Project area is highly developed/disturbed.
Emys marmorata western pond turtle	None/None G3G4/S3	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Not Expected	No aquatic habitat present. Project area is highly developed/disturbed.
Phrynosoma blainvillii coast horned lizard	None/None G3G4 / S3S4 SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Not Expected	No sandy washes or bushes present on site. Project area is highly developed/disturbed.
Birds				
Accipiter cooperii Cooper's hawk	None/None G5 / S4 WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Not Expected	No suitable woodland or riparian habitat present on site. Project area is highly developed/ disturbed.
Agelaius tricolor tricolored blackbird	None/ Threatened G2G3 / S1S2 SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Not Expected	No suitable riparian habitat present on site. Project area is highly developed/disturbed.
Aimophila ruficeps canescens southern California rufous-crowned sparrow	None/None G5T3 / S3 WL	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Not Expected	No suitable scrub habitat present on site. Project area is highly developed/disturbed.

Artemisiospiza belli belli Bell's sage sparrow	None/None G5T2T4 / S3 WL	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range. Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yds apart.	Not Expected	No suitable chaparral or scrub habitat present on site. Project area is highly developed/ disturbed.
Athene cunicularia burrowing owl	None/None G4 / S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low	The Project site contains disturbed ruderal habitat bare ground which may provide marginal habitat for this species. California ground squirrel burrows are present nearby. Habitat quality and potential for occurrence are low due to high levels of existing development/ disturbance.
Coccyzus americanus occidentalis western yellow-billed cuckoo	Threatened/ Endangered G5T2T3 / S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Not Expected	No suitable riparian habitat present on site. Project area is highly developed/disturbed.
Empidonax traillii extimus southwestern willow flycatcher	Endangered/ Endangered G5T2/S1	Riparian woodlands in Southern California.	Not Expected	No riparian woodland habitat present on site. Project area is highly developed/disturbed.
Eremophila alpestris actia California horned lark	None/None G5T4Q / S4 WL	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Low	The Project site contains disturbed ruderal habitat and bare ground which may provide marginal habitat for this species. Habitat quality and potential for occurrence is considered low due to high levels of existing development/ disturbance.

Icteria virens yellow-breasted chat	None/None G5 / S3 SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	Not Expected	No suitable riparian habitat present on site. Project area is highly developed/disturbed.
Lanius ludovicianus loggerhead shrike	None/None G4 / S4 SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Not Expected	No suitable woodland, savannah, or scrub habitat present on site. Project area is highly developed/disturbed.
Polioptila californica californica coastal California gnatcatcher	Threatened/ None G4G5T2Q / S2 SSC	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	Not Expected	No suitable scrub habitat present on site. Project area is highly developed/disturbed.
Spinus lawrencei Lawrence's goldfinch	None/None G3G4 / S3S4	Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.	Not Expected	No suitable woodland or chaparral habitat present on site. Project area is highly developed/disturbed.
Vireo bellii pusillus least Bell's vireo	Endangered/E ndangered G5T2 / S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Not Expected	No suitable riparian habitat present on site. Project area is highly developed/disturbed.
Mammals				
Chaetodipus fallax fallax northwestern San Diego pocket mouse	None/None G5T3T4 / S3S4 SSC	Coastal scrub, chaparral, grasslands, sagebrush, etc. in western San Diego County. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Not Expected	No suitable scrub or grassland habitats present on site. Project area is highly developed/disturbed.
Dipodomys merriami parvus San Bernardino kangaroo rat	Endangered/ Candidate Endangered G5T1/S1 SSC	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains. Needs early to intermediate seral stages.	Not Expected	No suitable scrub or flood plain habitats present on site. Project area is highly developed/disturbed.

Dipodomys stephensi Stephens' kangaroo rat	Endangered/ Threatened G2 / S2	Primarily annual & perennial grasslands, but also occurs in coastal scrub & sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass and filaree. Will burrow into firm soil.	Not Expected	No suitable scrub or grassland habitats present on site. Project area is highly developed/disturbed.
Eumops perotis californicus western mastiff bat	None/None G5T4 / S3S4 SSC	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Not Expected	No suitable woodland, scrub, grassland or habitats present on site. Project area is highly developed/disturbed.
Lasiurus xanthinus western yellow bat	None/None G5 / S3 SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	Not Expected	No suitable riparian habitats or trees for roosts present on site. Project area is highly developed/disturbed.
Lepus californicus bennettii San Diego black-tailed jackrabbit	None/None G5T3T4 / S3S4 SSC	Intermediate canopy stages of shrub habitats & open shrub / herbaceous & tree / herbaceous edges. Coastal sage scrub habitats in Southern California.	Not Expected	No suitable scrub habitat present on site. Project area is highly developed/disturbed.
Neotoma lepida intermedia San Diego desert woodrat	None/None G5T3T4 / S3S4 SSC	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops, rocky cliffs, and slopes.	Not Expected	No suitable scrub habitat present on site. Project area is highly developed/disturbed.
Nyctinomops femorosaccus pocketed free-tailed bat	None/None G4 / S3 SSC	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	Not Expected	No suitable woodland, scrub, riparian or cliff habitats present on site. Project area is highly developed/disturbed.
Onychomys torridus ramona southern grasshopper mouse	None/None G5T3 / S3 SSC	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	Not Expected	No suitable scrub habitat present on site. Project area is highly developed/disturbed.
Perognathus longimembris brevinasus Los Angeles pocket mouse	None/None G5T1T2 / S1S2 SSC	Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin. Open ground with fine, sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	Not Expected	No suitable scrub or grassland habitat present on site. Project area is highly developed/disturbed.

Status: Federal/State
FE = Federal Endangered
FT = Federal Threatened
PFT = Proposed Federal Threatened
FDL = Federal Delisted
SE = State Endangered
ST = State Threatened
SR = State Rare
SDL = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

CRPR (CNPS California Rare Plant Rank):
1A = Presumed Extinct in California
1B = Rare, Threatened, or Endangered in California and elsewhere
2 = Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Need more information (a Review List)
4 = Plants of Limited Distribution (a Watch List)

CRPR Threat Code Extension:
.1 = Seriously endangered in California (>80% of occurrences threatened / high degree and immediacy of threat)
.2 = Fairly endangered in California (20-80% of occurrences threatened)
.3 = Not very endangered in California (<20% of occurrences threatened)

Other Statuses:

G1 or S1	Critically Imperiled Globally or Subnationally (state)
G2 or S2	Imperiled Globally or Subnationally (state)
G3 or S3	Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5	Apparently secure, common and abundant
GH or SH	Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery

Additional notations may be provided as follows:
T – Intraspecific Taxon (subspecies, varieties, and other designations below the level of species)
Q – Questionable taxonomy that may reduce conservation priority
? – Inexact numeric rank

Special Status Plant Species. The proposed modifications site is located within a highly developed/disturbed transportation corridor, and primarily within the rights-of-way of existing dirt and paved roadways. Because of the lack of specific habitat types or suitable substrates as well as the high levels of historic and existing disturbance, sensitive plant species are not expected to occur on the site.

Special Status Wildlife Species. The proposed modifications site is located within a highly developed/disturbed transportation corridor, and primarily within rights-of-way of existing dirt and paved roadways. Because of the lack of specific habitats as well as high levels of historical and existing disturbance, the site is not suitable for most special status wildlife species. The literature review identified 38 special-status wildlife species recorded within five miles of the site. Twenty-eight of these species are not expected to occur due to lack of suitable habitat (e.g., riparian, scrub, woodland).

Low quality or marginal foraging and/or nesting habitat for two sensitive wildlife species, burrowing owl (*Athene cunicularia*) and California horned lark (*Eremophila alpestris actia*) occurs within and adjacent to the site. The site is largely dominated by bare ground and pavement with some disturbed areas containing low-growing non-native ruderal species. California horned lark are typically ground nesters and are capable of nesting on bare ground which is present within the site. In addition, burrows and California ground squirrels were present in the area surrounding the site, which indicates that there is suitable habitat for burrowing owls. However, habitat is considered low quality and the potential for these species to occur is low due to the site's location within a heavily travelled urban transportation corridor and high levels of existing disturbance which would likely deter individuals from long-term use of the site.

Nesting Birds. Shrubs and trees located near the proposed modifications site could provide suitable nesting habitat for several common avian species that were observed during the reconnaissance survey. Bird nests and eggs are protected by California Fish and Game Code (CFGC) 3503 and the Migratory Bird Treaty Act (MBTA). Common species such as mourning dove and house finch have the potential to nest in scrub habitat, even in highly disturbed settings. Some species, such as horned larks, are typically ground nesters and are capable of nesting on bare ground which is present on

the site. No nests or birds exhibiting nesting behaviors were observed during the reconnaissance site visit.

In addition, burrows and California ground squirrels were present in the area surrounding the site, which indicates that there is suitable habitat for burrowing owls. However, habitat is considered low quality due to existing disturbances and proximity to heavily travelled roadways. No burrowing owls or signs of burrowing owls such as pellets or white wash were observed during the reconnaissance site visit.

Sensitive Plant Communities

No sensitive plant communities as defined by the CNDDB or local ordinances are present on the site.

Jurisdictional Waters and Wetlands

Potentially jurisdictional features were identified; however, a formal jurisdictional delineation was not conducted. Therefore, the information below provides a general assessment of potentially jurisdictional features and does not provide a formal assessment of specific agency jurisdiction for each feature. Based on a review of existing data, including review of aerial imagery and the USFWS NWI (2020c), and onsite observations, several potentially jurisdictional features are present within or adjacent to the site as detailed below:

1. A constructed earthen storm channel is located east of I-215 off-ramp and north of Van Buren Boulevard but outside of the Project work limits. The channel conveys stormwater flows from north to south and supports low growing herbaceous vegetation as well as avian species. No standing water was observed in the basin during the April 2020 the site visit. Refer to Photograph 1 in Appendix A.
2. An existing detention basin is present west of the I-215 on-ramp and north of Van Buren Boulevard. The detention basin supports various grasses and shrubs and provides foraging and nesting habitat for avian species. A small pond of standing water was present within the detention basin during the April 2020 site visit. Refer to Photograph 2 in Appendix A.
3. A small depression is present within the surrounding disturbed non-native grassland habitat located east of 1-215 between the I-215 off-ramp and Van Buren Boulevard. It is adjacent to but outside the Project work limits. The depressed area contains some areas with bare soil in contrast to the dense non-native grasses in the surrounding areas. Within the depressed area soils are cracked, indicating water may have collected for brief periods following storm events that has since percolated into the ground or evaporated. No wet areas were observed within the depression during the April 2020 site visit following a wet winter with relatively recent rains. The depressed area is surrounded by stakes, indicating that it may have been previously fenced or flagged. Refer to Photograph 5 in Appendix A.

The Project has been designed to avoid the potentially jurisdictional features described above. However, Project-related groundwater would be discharged at two separate discharge points (refer to Figure 5) near the potentially jurisdictional features described below:

4. Discharge Point A consists of a partially earthen/partially concrete-lined v-ditch channel which conveys flows from north to south into two large concrete culverts. Review of aerial imagery indicates that the channel originates from underground approximately 400 feet north and 350 feet west of Discharge Point A. At Discharge Point A the channel is devoid of vegetation and does not provide habitat for sensitive biological resources. No riparian vegetation or wildlife were observed at this location. A small amount of water was present within the channel during the April 2020 site visit. Refer to Photograph 6 in Appendix A.

5. Discharge Point B consists of a concrete-lined trapezoidal channel which conveys flows from north to south along the east side of I-215. Review of aerial imagery indicates that Discharge Point B likely connects with Discharge Point A upstream approximately 1,000 feet northwest of Discharge Point B. At Discharge Point B, the channel is devoid of vegetation and does not provide habitat for sensitive biological resources. No riparian vegetation or wildlife were observed at this location. The channel was dry at the time of the April 2020 site visit. The channel conveys flows underground to the south and into Lateral B. Refer to Photograph 7 in Appendix A.
6. Lateral B is a 30-foot wide partially concrete-lined and partially earthen flood control channel maintained by Riverside County Flood Control and Water Conservation District. At Heacock Street, Lateral B transitions from a fully concrete-lined channel through rip-rap into an earthen channel. At this location the channel exhibits signs of regular disturbance including erosion from flows transitioning from the concrete channel, trash dumping and mowing for weed abatement. A small amount of ponded water was present at the time of the April 2020 site visit which appeared to support several avian species including barn swallows and killdeer. At this location the channel was mostly devoid of vegetation with the exception of a few weedy herbaceous species. No riparian vegetation was observed. Ground squirrel burrows were present within the earthen banks of the channel. Approximately 1,000 feet downstream of Heacock Street, Lateral B was dry and similarly mostly devoid of vegetation. This section of the channel was comprised of very compact soils and showed signs of erosion including incised areas of flow concentration within the larger channel bottom and some areas of ponded water where deeper pockets had been formed. This portion of the channel also exhibited signs of regular mowing for weed abatement. As Lateral B proceeds downstream toward the Perris Valley Storm Drain, the channel is less disturbed and more densely vegetated. At the inlet of Lateral B to the Perris Valley Storm Drain, the channel supports dense riparian vegetation including large willow trees (*Salix* sp.) and tamarisk (*Tamarix* sp.). At this location, Lateral B contained several inches of standing water and supported various avian species including mallard ducks (*Anas platyrhynchos*) during the April 2020 site visit. Due to the presence of standing water and riparian vegetation Lateral B is likely subject to the jurisdiction of CDFW and Regional Water Quality Control Board (RWQCB), and potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). Refer to Photograph 8 in Appendix A.
7. The Perris Valley Storm Drain is an approximately 300-foot wide partially concrete-lined and partially earthen bottom flood control channel maintained by Riverside County Flood Control and Water Conservation District. At the inlet of Lateral B, the Perris Valley Storm Drain was inundated with at least a foot of standing water and densely vegetated with riparian vegetation including willows, tamarisk and cattails (*Typha* sp.) during the April 2020 site visit. In this location, the Perris Valley Storm Drain supports riparian vegetation and provides foraging and nesting habitat for avian species. The Perris Valley Storm Drain is subject to the jurisdiction of all three regulatory agencies. Perris Valley Storm Drain is approximately 2.0 miles from Discharge Point A and Discharge Point B.

Wildlife Movement

According to the RCA WRMSHCP Information App, the Project site is not located within a WRMSHCP Criteria Area, Public-Quasi Public Reserve Lands or within a Core or Linkage (RCA 2018). The CDFW BIOS (2020b) does not include any mapped essential habitat connectivity areas in the immediate vicinity of the site. The closest mapped essential habitat connectivity areas are located approximately three miles

to the southeast in the vicinity of the Perris Reservoir and approximately four miles to the northeast in the vicinity of Box Springs Mountain Reserve Park. The site is separated from these habitat connectivity areas by existing development, major highways, and paved roadways. In addition, the site is surrounded by existing development and heavily traveled transportation corridors, including the BNSF/RCTC railroad, March Air Reserve Base and I-215 freeway, and is therefore, not expected to serve as a significant wildlife migratory corridor.

Resources Protected by Local Policies and Ordinances

The proposed modifications are located within the County of Riverside Stephen's Kangaroo Rat Plan and Fee Area. County of Riverside Ordinance No. 663 (Stephen's Kangaroo Rat Mitigation Fee Ordinance) requires that all proposed development projects located within the fee area are reviewed to determine the most appropriate course of action to ensure the survival of the species through one or more of the following: (1) on-site mitigation of impacts to the Stephens' Kangaroo Rat through the reservation or addition of lands included within or immediately adjacent to a potential habitat reserve site, or (2) payment of the Mitigation Fee or (3) any combination of (1) and (2) consistent with the intent and purpose of the ordinance. No other resources protected by local policies or ordinances are present on the site.

Conservation Plans

The proposed modifications are located within the boundaries of the WRMSHCP. Portions of the site are located within the survey area for burrowing owl, but not within a designated survey area identified for any other WRMSHCP covered species or for narrow endemic plant species. The proposed modifications are not located within a criteria cell or within Public/Quasi Public conserved lands. Public/Quasi-Public conserved lands are located approximately 0.5 mile west of the site on the opposite side of adjacent industrial development and approximately 1.4 miles east of the site on the opposite side of March Air Reserve Base (Western Riverside County Regional Conservation Authority (RCA), 2018).

Impact Analysis and Mitigation Measures

Special Status Species

As mentioned above, 14 sensitive plant species and 38 sensitive wildlife species are known to occur or have potential to occur within a five-mile radius of the site. Due to the lack of specific habitats or suitable substrates as well as the high levels of historical and existing disturbance, sensitive plant species are not expected to occur on the site. Therefore, impacts to sensitive plant species would be less than significant and the Project would not substantially increase the severity of the impacts identified in the 2005 EIR.

Of the 38 sensitive wildlife species identified, 36 of these species are not expected to occur due to lack of suitable habitat (e.g., riparian, scrub, woodland). The remaining two species with potential to occur within the site are burrowing owl (*Athene cunicularia*) and California horned lark (*Eremophila alpestris actia*). Construction activities associated with the proposed modifications are primarily located within existing dirt and paved roadways and will be installed underground with surfaces returned to pre-Project conditions following completion of construction. Therefore the proposed modifications are not expected to result in loss of suitable habitat for burrowing owl or California horned lark. In addition, the all-tunnel construction considered as part of the proposed modifications would result in less direct ground disturbance than the open trench construction analyzed in the 2005 EIR.

No special-status wildlife species were observed during the reconnaissance survey and the potential for these species to occur is low due to the site's location within a heavily travelled urban transportation corridor and high levels of existing disturbance which would likely deter individuals from long-term use of the Project site. However, construction activities associated with the proposed modifications will occur for a period of 52 weeks which would overlap with the nesting bird season. Metropolitan will implement standard best management practices (BMPs), including pre-construction nesting bird/burrowing owl surveys and avoidance/implementation of no-work buffers as appropriate, to ensure that no direct or indirect impacts to sensitive wildlife species or nesting birds would occur as a result of construction activities. Implementation of these standard BMPs would be required as part of Metropolitan's standard contractor specifications. As a result, impacts to sensitive wildlife species and nesting birds would be less than significant and the proposed modifications would not substantially increase the severity of the impacts identified in the 2005 EIR.

Pursuant to the federal ESA Section 7(a)(2), the proposed pipeline modifications would result in No Effect to the following federally-listed species: Munz's onion (*Allium munzii*; federally endangered), marsh sandwort *(Arenaria paludícola*; federally endangered), San Diego ambrosia (*Ambrosia pumila*; federally endangered), Nevin's barberry (*Berberis nevinii*; federally endangered), thread-leaved brodiaea (*Brodiaea fillifolia*; federally threatened), salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*; federally endangered), slender-horned spineflower (*Dodecahema leptoceras*; federally endangered), Santa Ana River wooly-star (*Eriastrum densifolium* ssp. *sanctorum*; federally endangered), Gambel's water cress (*Nasturtium gambelii*; federally endangered), spreading navarretia (*Navarretia fossalis*; federally threatened), Quino checkerspot butterfly (*Euphydryas editha quino*; federally endangered), vernal pool fairy shrimp (*Branchinecta lynchi*; federally threatened), Riverside fairy shrimp (*Streptocephalus woottoni*; federally endangered), Santa Ana sucker (*Catostomus santaanae*; federally threatened), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*; federally threatened), southwestern willow flycatcher (*Empidonax traillii extimus*; federally endangered), coastal California gnatcatcher (*Polioptila californica californica*; federally threatened), least Bell's vireo (*Vireo bellii pusillus*; federally endangered), San Bernardino kangaroo rat (*Dipodomys merriami parvus*; federally endangered), and Stephen's kangaroo rat (*Dipodomys stephensi*; federally endangered). Likewise, pursuant to the CESA, the Project would result in No Take of the following state-listed species, nor will the Project cause species of special concern to trend towards warranting a listed status: Munz's onion (state candidate threatened), marsh sandwort (state candidate endangered), Nevin's barberry (state endangered), thread-leaved brodiaea (state candidate endangered), salt marsh bird's-beak (state candidate endangered), slender-horned spineflower (state candidate endangered), Santa Ana River wooly-star (state candidate endangered), Gambel's water cress (state candidate threatened), tricolored blackbird (*Agelaius tricolor*; state threatened), western yellow-billed cuckoo (state endangered), southwestern willow flycatcher (state endangered), least Bell's vireo (state endangered), San Bernardino kangaroo rat (state candidate endangered) and Stephen's kangaroo rat (state threatened). The Project would not impact any NMFS-protected resources.

Sensitive Plant Communities

The site does not contain riparian habitat or other sensitive natural communities. Therefore, no impacts are expected and the severity of the impact would be equal to that identified in the 2005 EIR.

Jurisdictional Waters and Wetlands

As detailed above, several potentially jurisdictional features are present within or adjacent to the site. The Project would be located outside of features 1-3 identified above. Additionally, Metropolitan would implement standard BMPs, including flagging of work area boundaries and installation of straw waddles

and/or silt fencing, to ensure that no direct or indirect impacts to adjacent potentially jurisdictional resources would occur as a result of construction activities. Implementation of these standard BMPs are required as part of Metropolitan's standard contractor specifications. Therefore, features 1-3 would not be impacted by the Project.

Project-related groundwater would be discharged at two separate points and may connect with downstream areas under the jurisdiction of CDFW, USACE, and RWQCB including Lateral B and the Perris Valley Storm Drain. Water would be discharged in accordance with the Project's National Pollutant Discharge Elimination System (NPDES) General Construction Permit and dewatering activities would comply with the conditions of the permit including preparation of a stormwater pollution prevention plan, implementation of BMPs, and monitoring to ensure impacts to water quality are minimized. Metropolitan conducted a hydraulic open channel flow analysis to estimate discharge flow and to assess potential for erosion/scour within Lateral B and the Perris Valley Storm Drain. Metropolitan's analysis indicated that the depth of discharge flow would be less than three inches with flow velocities around one foot per second. Metropolitan's analysis also concluded that the flow velocity for the projected maximum Project discharge would not result in erosion/scour within Lateral B or the Perris Valley Storm Drain. Additionally, based on a review of historic aerial imagery, Lateral B and the Perris Valley Storm Drain are routinely maintained as part of Riverside County Flood Control and Water Conservation District's maintenance program which includes grading and removal of all riparian vegetation within the channels. According to the Mitigated Negative Declaration for Riverside County Flood Control and Water Conservation District's Regional Permit for Maintenance of Existing Flood Control Facilities (March 2017), "It is important to note that conducting maintenance on existing flood control facilities is the existing conditions/CEQA baseline; on a daily basis the District currently maintains its facilities." The channels are also previously developed and subject to significant disturbance, including trash dumping and non-natural runoff from adjacent development. Based on these facts, the small amount of water that would be discharged into the channels from Project dewatering is not expected to adversely affect jurisdictional waters, riparian habitat, or wildlife beyond ambient conditions. Impacts would be less than significant and the proposed modifications would not substantially increase the severity of the impacts identified in the 2005 EIR. The Project is not expected to require a Lake and Streambed Alteration Agreement from CDFW pursuant to Section 1602 of the CFGC, a 404 permit from the USACE pursuant to the CWA, or a 401 Permit from the RWQCB, pursuant to the CWA.

Wildlife Movement

As discussed above, the site is not located within a WRMSHCP Criteria Area, Public-Quasi Public Reserve Lands or within a Core or Linkage (RCA 2018). In addition, CDFW BIOS (2020b) does not include any mapped essential habitat connectivity areas within the immediate vicinity of the site. The closest mapped essential habitat connectivity areas are located approximately three miles to the southeast in the vicinity of the Perris Reservoir and approximately four miles to the northeast in the vicinity of Box Springs Mountain Reserve Park. The site is separated from these habitat connectivity areas by existing development, major highways, and paved roadways. In addition, the site is surrounded by existing development and heavily traveled transportation corridors, including the BNSF/RCTC railroad, March Air Reserve Base and I-215 freeway, and is therefore, not expected to serve as a significant migratory wildlife corridor. Therefore, no impacts are expected and the severity of the impact would be equal to that identified in the 2005 EIR.

Local Policies and Ordinances

The proposed modifications are located within the County of Riverside Stephen's Kangaroo Rat Plan and Fee Area. County of Riverside Ordinance No. 663 (Stephens' Kangaroo Rat Mitigation Fee Ordinance)

requires that all proposed development projects located within the fee area are reviewed to determine the most appropriate course of action to ensure the survival of the species through one or more of the following: (1) on-site mitigation of impacts to the Stephens' Kangaroo Rat through the reservation or addition of lands included within or immediately adjacent to a potential habitat reserve site, or (2) payment of the Mitigation Fee or (3) any combination of (1) and (2) consistent with the intent and purpose of the ordinance. The proposed modifications site lacks suitable grassland, coastal scrub and sagebrush habitat to support Stephens' Kangaroo Rat and is located within a heavily travelled and disturbed transportation corridor primarily within the rights-of-ways of existing dirt and paved roadways. In addition, the proposed modifications would be installed underground with surfaces returned to pre-Project conditions following completion of construction. Further, the tunneling option would result in less direct ground disturbance than the open trench option analyzed in the 2005 EIR. Therefore the proposed modifications would not result in impacts to or loss of suitable habitat for Stephens' Kangaroo Rat. No other resources protected by local policies or ordinances are present on the site. Therefore, impacts to would be less than significant and the proposed modifications would not substantially increase the severity of the impacts identified in the 2005 EIR.

Conservation Plans

The proposed modifications are located within the boundaries of the WRMSHCP. Portions of the site are located within the survey area for burrowing owl, but not within a designated survey area identified for any other WRMSHCP covered species or for narrow endemic plant species. The proposed modifications are not located within a criteria cell or within Public/Quasi Public conserved lands. Public/Quasi-Public conserved lands are located approximately 0.5 mile west of the Project area on the opposite side of adjacent industrial development and approximately 1.4 miles east of the site on the opposite side of March Air Reserve Base. Based on the proposed modifications' distance and separation from Public/Quasi-Public lands as well as the limited scope and duration of activities (i.e., activities to occur within existing dirt and paved roadways), the proposed modifications are not expected to impact Public/Quasi-Public lands. As discussed above, no burrowing owls or their sign were observed during the reconnaissance-level biological resources field surveys. The potential for burrowing owl to occur is low due to the site's location within a heavily travelled urban transportation corridor and high levels of existing disturbance which would likely deter individuals from long-term use of the site. In addition, the proposed modifications would be installed underground with surfaces returned to pre-Project conditions following completion of construction. The proposed modifications are not expected to result in impacts to or loss of suitable habitat for burrowing owl and would not conflict with the WRMSHCP. Further, the tunneling option would result in less direct ground disturbance than the open trench option analyzed in the 2005 EIR. The Project qualifies as a Covered Activity, maintenance of existing flood control facilities, as per Section 7.3.1 of the WRMSHCP. These findings are included in the 2005 EIR (WMWD, 2005) and also in the 2017 Initial Study/Mitigated Negative Declaration for the Regional General Permit for Maintenance of Existing Flood Control Facilities (SCH No. 2017021032; Riverside County Flood Control and Water Conservation District, 2017). Additionally, the Project would not result in impacts to riparian/riverine habitat. Therefore, the Project would not require preparation of a Determination of Biologically Equivalent of Superior Preservation (DBESP) pursuant to the WRMSHCP. The proposed pipeline modifications are a Covered Activity; therefore the Project is exempt from further analysis under the WRMSHCP. Impacts would be less than significant and the proposed modifications would not substantially increase the severity of the impacts identified in the 2005 EIR.

Thank you for the opportunity to provide this Biological Resources Assessment. Please contact the undersigned with any questions.

Sincerely,

Rincon Consultants, Inc.

Christina Shushnar
Senior Project Manager / Biologist

Steven J. Hongola
Principal / Senior Ecologist

This page left intentionally blank.

Figure 1 Regional Location

Imagery provided by Esri and its licensors © 2018.

Project Location

N

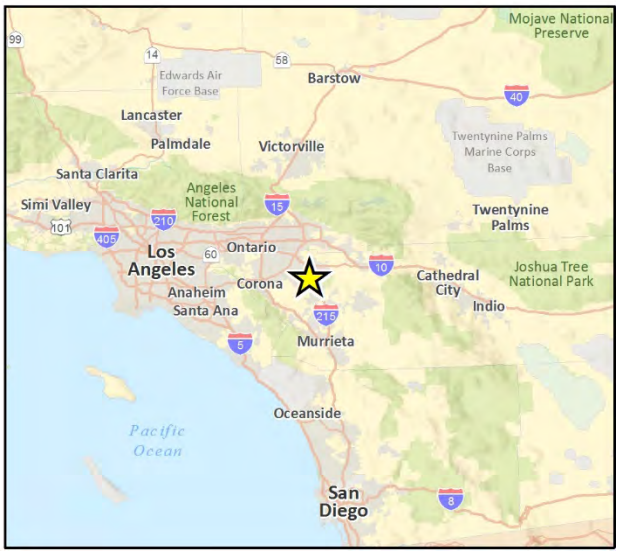
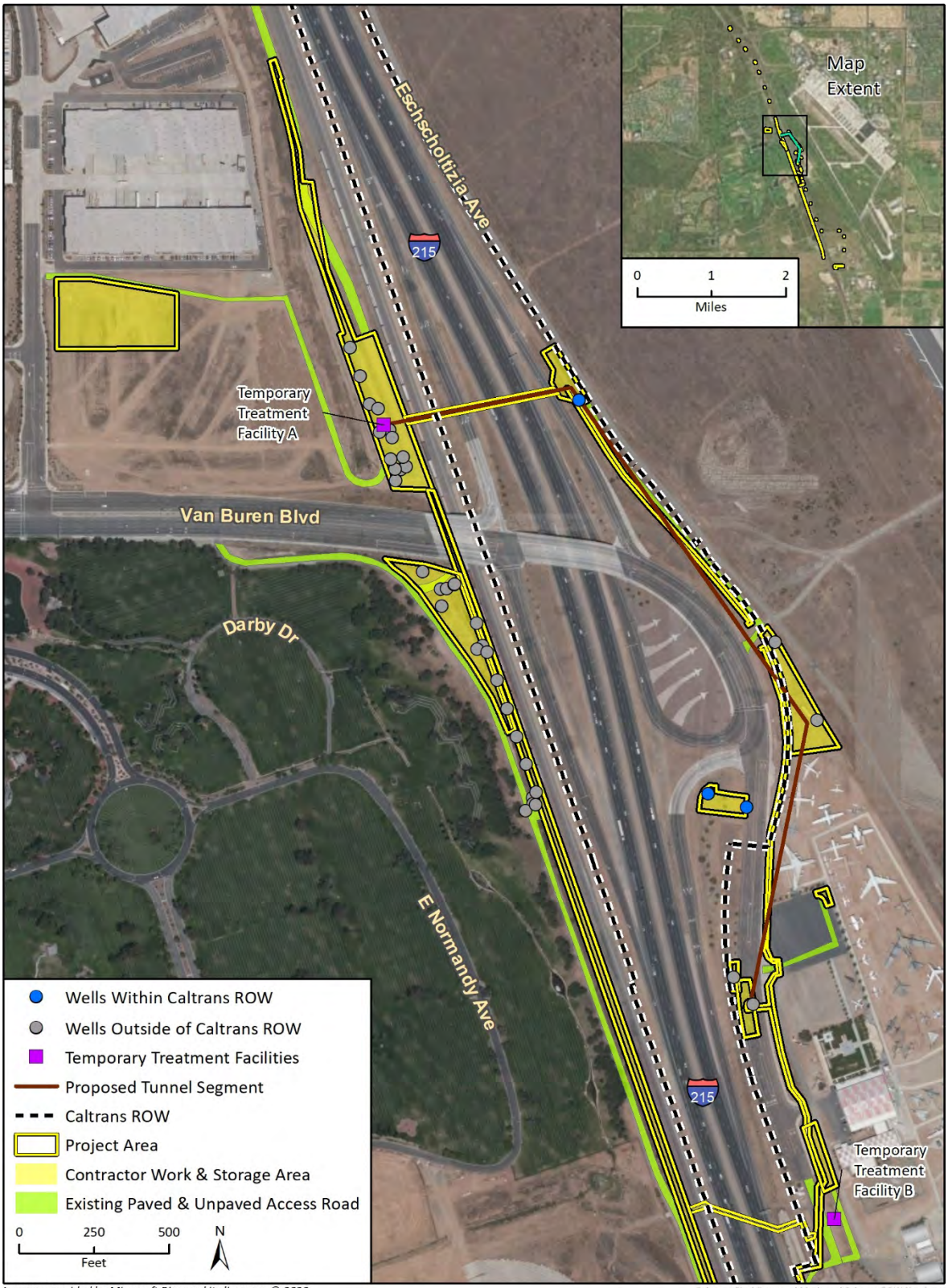


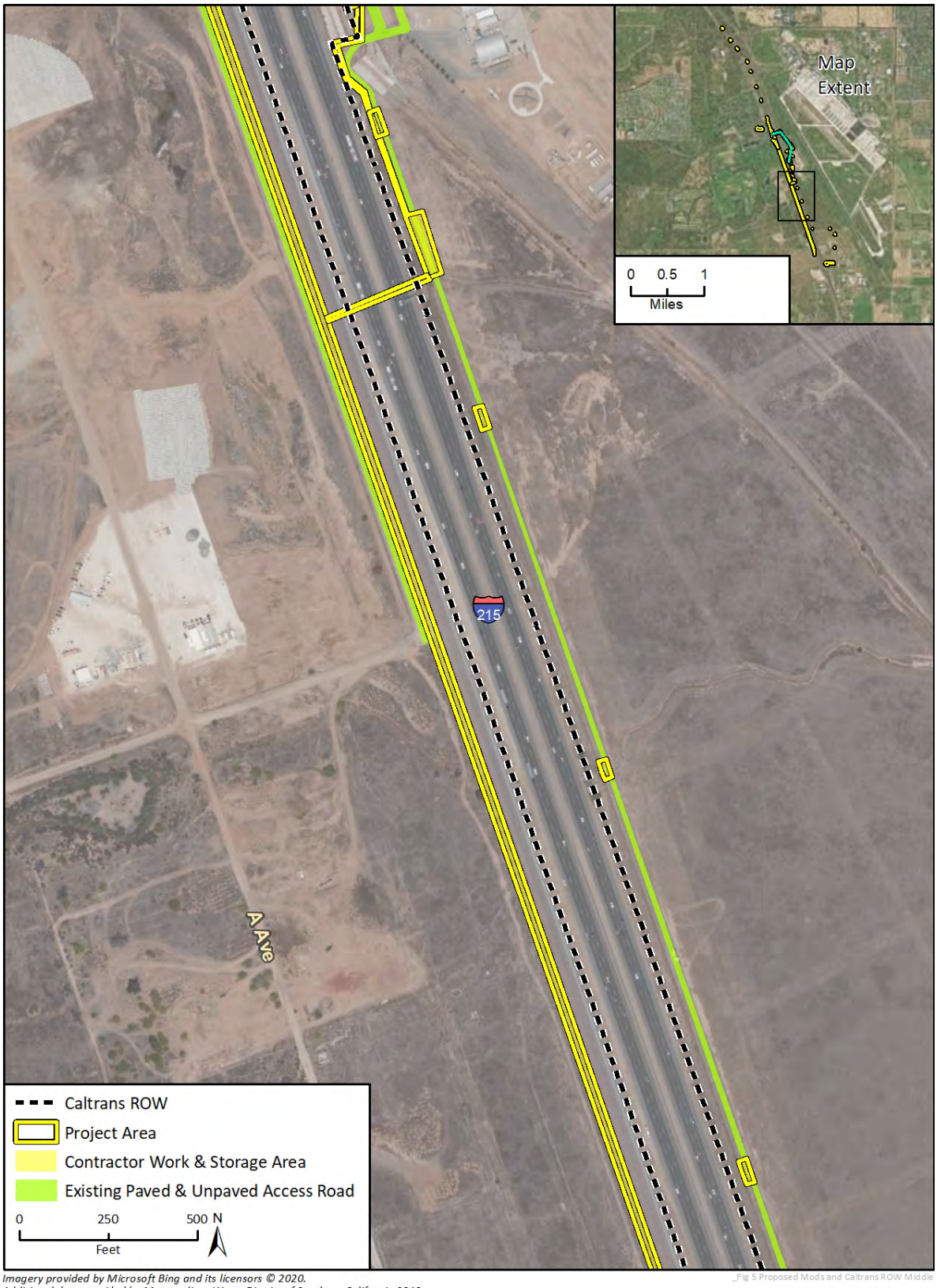
Figure 2 Project Location

Figure 3 Proposed Modifications (1 of 3)



Imagery provided by Microsoft Bing and its licensors © 2020.
Additional data provided by Metropolitan Water District of Southern California 2018.

Figure 4 Proposed Modifications (2 of 3)



Imagery provided by Microsoft Bing and its licensors © 2020.
Additional data provided by Metropolitan Water District of Southern California 2018.

_Fig 5 Proposed Mods and Caltrans ROW Middle

Figure 5 Proposed Modifications (3 of 3)

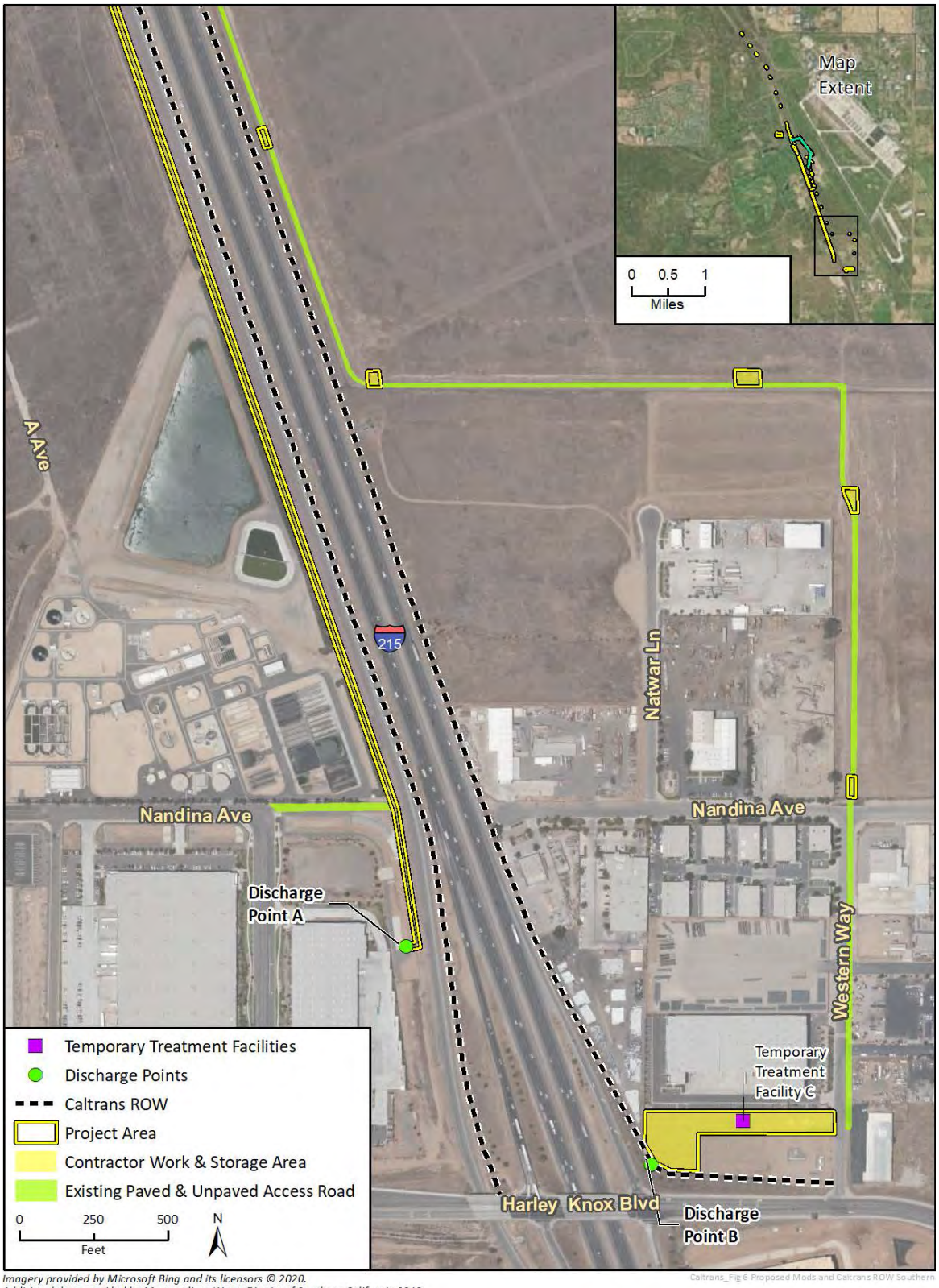
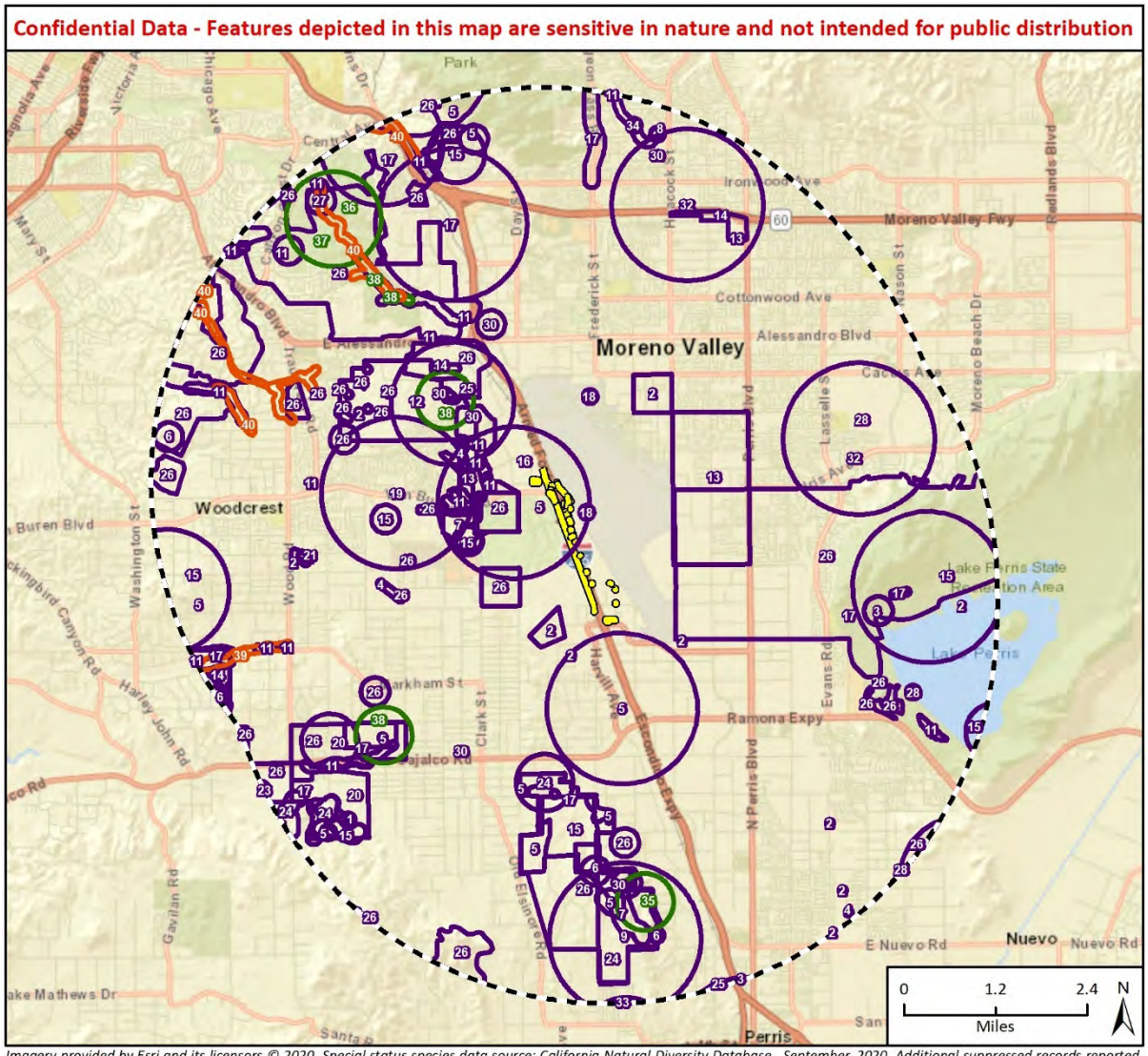


Figure 6 Mapped Soil Units in the Vicinity of Proposed Realignment

Imagery provided by Microsoft Bing and its licensors © 2020.
Additional data provided by USGS NRCS SSURGO, 2020.

Fig X Soils Map

Figure 7 CNDDB Occurrences within 5-miles of the Proposed Realignment



Imagery provided by Esri and its licensors © 2020. Special status species data source: California Natural Diversity Database, September, 2020. Additional suppressed records reported by the CNDDB known to occur or potentially occur within this search radius include: prairie falcon. For more information please contact the Department of Fish and Game.

Survey Area
5-Mile Buffer

CNDDB*

Animals
Plants
Natural Communities

**CNDDB version 09/2020. Please Note: The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.*

1 - Bell's sage sparrow
2 - burrowing owl
3 - California glossy snake
4 - California horned lark
5 - coast horned lizard
6 - coastal California gnatcatcher
7 - coastal whiptail
8 - Cooper's hawk
9 - Crotch bumble bee
10 - Lawrence's goldfinch
11 - least Bell's vireo
12 - loggerhead shrike
13 - Los Angeles pocket mouse
14 - northwestern San Diego pocket mouse
15 - orange-throated whiptail
16 - pocketed free-tailed bat
17 - red-diamond rattlesnake
18 - Riverside fairy shrimp
19 - San Bernardino kangaroo rat
20 - San Bernardino ringneck snake
21 - San Diego black-tailed jackrabbit
22 - San Diego desert woodrat
23 - Southern California legless lizard
24 - southern California rufous-crowned sparrow
25 - southern grasshopper mouse
26 - Stephens' kangaroo rat
27 - tricolored blackbird
28 - western mastiff bat
29 - western pond turtle
30 - western spadefoot
31 - western yellow-billed cuckoo
32 - western yellow bat
33 - white cuckoo bee
34 - yellow-breasted chat
35 - long-spined spineflower
36 - Parry's spineflower
37 - Robinson's pepper-grass
38 - smooth tarplant
39 - Southern Cottonwood Willow Riparian Forest
40 - Southern Sycamore Alder Riparian Woodland

References

California Department of Fish and Wildlife (CDFW). 2020a. California Natural Diversity Database, Rarefind V. 5 (October 13, 2020).

___. 2020b. Biogeographic Information and Observation System (BIOS). Retrieved from: http://bios.dfg.ca.gov (October 13, 2020).

California Native Plant Society (CNPS). 2020. *Inventory of Rare and Endangered Plants*. (online edition, v8-02). California Native Plant Society, Sacramento, CA. Retrieved from: http://www.rareplants.cnps.org (October 13, 2020).

National Marine Fisheries Service. 2020. California Species List Tools. Available at: https://archive.fisheries.noaa.gov/wcr/maps_data/california_species_list_tools.html (October 13, 2020)

Riverside, County of. 2003. Final Western Riverside County Multiple Species Habitat Conservation Plan. June 2003. Available at: www.wrc-rca.org

Riverside County Flood Control District. 2017. Final CEQA Initial Study and Mitigated Negative Declaration for Regional General Permit for Maintenance of Existing Flood Control Facilities (SCH No. 2017021032). March 2017. Available at: http://content.rcflood.org/Documents/CEQA/RGP_Final%20IS-MND_March%202017.pdf

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2018. Web Soil Survey. Retrieved from: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (June 27, 2018).

United States Fish and Wildlife Service (USWFS). 2020a. Critical Habitat Portal. Retrieved from: http://criticalhabitat.fws.gov (October 13, 2020).

___. 2020b. Information for Planning and Conservation (IPaC). Retrieved from: http://ecos.fws.gov/ipac/ (October 13, 2020).

___. 2020c. National Wetlands Inventory. Retrieved from: http://www.fws.gov/wetlands/ (July 2, 2020).

Western Municipal Water District. 2005. Perris Valley Pipeline Project EIR.

Western Riverside County Regional Conservation Authority. 2018. MSHCP Information App. Available at: http://wrcrca.maps.arcgis.com/apps/webappviewer/index.html?id=2ba3285ccc8841ed978d2d825e74c5fa (June 27, 2018)

Appendix A

Project Site Photographs

Photograph 1. Existing earthen dirt storm channel along Van Buren Boulevard just east of I-215 and north of the March Air Reserve Base, facing southwest.

Photograph 2. Dirt access roads and existing detention basin adjacent to railroad tracks, within northwest corner of Project site, facing north. Temporary treatment facility 1 and Pit 1 is located in this general area.

Photograph 3. Dirt access road between March Air Reserve Base and Van Buren Boulevard/I-215 overpass, facing south. Discharge piping would be constructed at-grade in this location.

Photograph 4. Along Van Buren Boulevard just east of I-215, and across from March Air Reserve Base museum, facing south. Construction activities at this location include temporary treatment plant 2 and access. "Depression" is located behind the parked white truck inside the fence.

Photograph 5. Small depression within the surrounding disturbed non-native grassland habitat located east of 1-215 between the I-215 off-ramp and Van Buren Boulevard.

Photograph 6. Discharge Point A (concrete-lined channel) located west of I-215 and north of Harley Knox Boulevard.

Photograph 7. Discharge Point B (concrete-lined channel) located east of I-215 and north of Harley Knox Boulevard.

Photograph 8. Lateral B where it transitions from concrete- to dirt-channel, with evidence of existing erosion, regular vegetation clearing, and debris. Located approximately 6,000 feet downstream of Discharge Point B.

Appendix B

Literature Review

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Riverside County, California

Local office

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

http://www.fws.gov/carlsbad/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Stephens' Kangaroo Rat Dipodomys stephensi (incl. D. cascus) — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/3495

Birds

NAME	STATUS
Coastal California Gnatcatcher Polioptila californica californica There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo Vireo bellii pusillus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher Empidonax traillii extimus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered

Fishes

NAME	STATUS
Santa Ana Sucker Catostomus santaanae There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3785	Threatened

Insects

NAME	STATUS
Quino Checkerspot Butterfly Euphydryas editha quino (=E. e. wrighti) There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5900	Endangered

Crustaceans

NAME	STATUS
Riverside Fairy Shrimp Streptocephalus woottoni There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8148	Endangered

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/498

Flowering Plants

NAME	STATUS
Munz's Onion Allium munzii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2951	Endangered
Nevin's Barberry Berberis nevinii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8025	Endangered
San Diego Ambrosia Ambrosia pumila There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8287	Endangered
Santa Ana River Woolly-star Eriastrum densifolium ssp. sanctorum No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6575	Endangered
Spreading Navarretia Navarretia fossalis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1334	Threatened
Thread-leaved Brodiaea Brodiaea filifolia There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6087	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE.

"BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird Selasphorus sasin — Breeds Feb 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9637

Burrowing Owl Athene cunicularia — Breeds Mar 15 to Aug 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9737

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Costa's Hummingbird Calypte costae — Breeds Jan 15 to Jun 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9470

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Rufous Hummingbird selasphorus rufus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

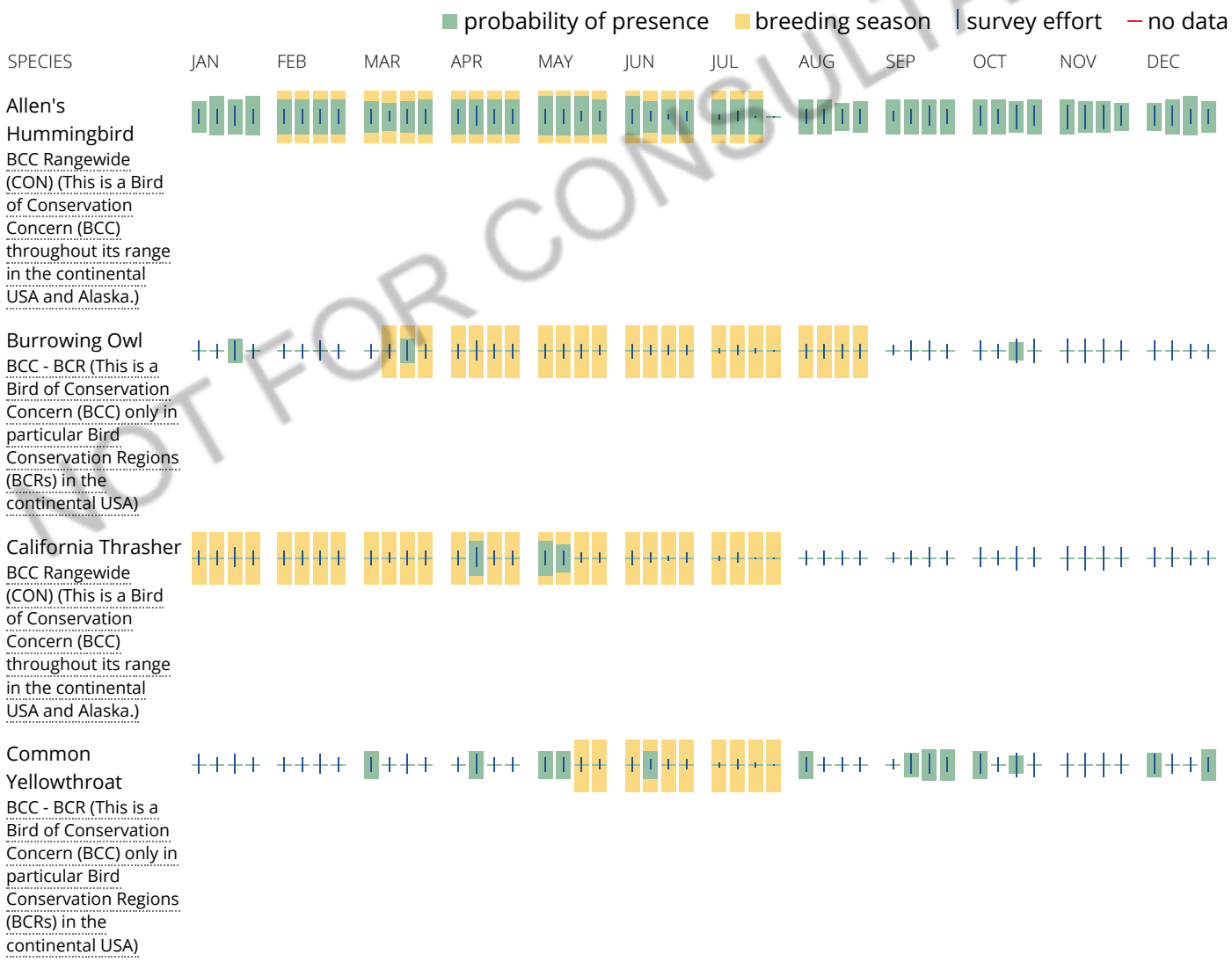
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

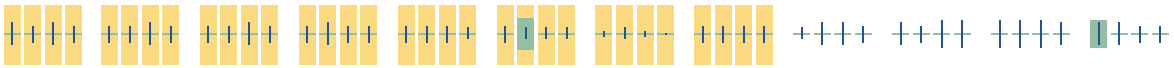
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

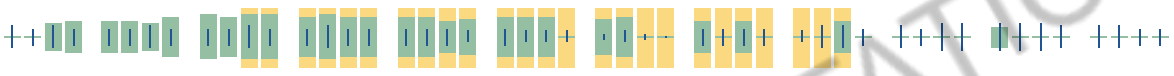


Costa's Hummingbird
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

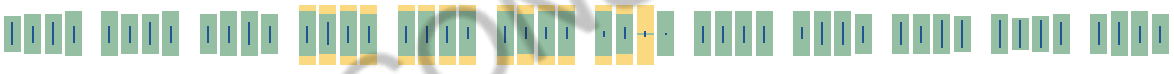
Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



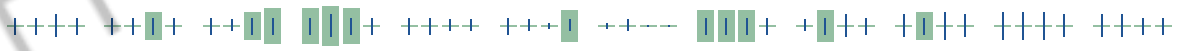
Lawrence's Goldfinch
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

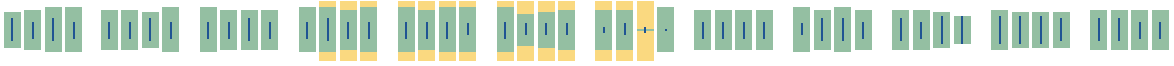


Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

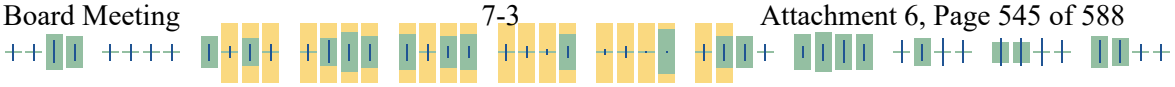


Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

- R4SBC
- R4SBA
- R5UBFx

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NMFS Official ESA Species List **October 13, 2020**

Quad Name **Steele Peak**
Quad Number **33117-G3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH -
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Riverside East**
Quad Number **33117-H3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH -
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

SNAME	CNAME	ELMCODE	OCCN	FEDLIST	CALLIST	GRANK	SRANK	RPLANTRANK	CDFWSTATUS
Artemisiospiza belli belli	Bell's sage sparrow	ABPBX97021	33	None	None	G5T2T3	S3		WL
Athene cunicularia	burrowing owl	ABNSB10010	1284	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	1768	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	1069	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	882	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	65	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	249	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	1769	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	439	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	628	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	1070	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	929	None	None	G4	S3		SSC
Athene cunicularia	burrowing owl	ABNSB10010	1283	None	None	G4	S3		SSC
Arizona elegans occidentalis	California glossy snake	ARADB01017	103	None	None	G5T2	S2		SSC
Arizona elegans occidentalis	California glossy snake	ARADB01017	102	None	None	G5T2	S2		SSC
Arizona elegans occidentalis	California glossy snake	ARADB01017	106	None	None	G5T2	S2		SSC
Eremophila alpestris actia	California horned lark	ABPAT02011	62	None	None	G5T4Q	S4		WL
Eremophila alpestris actia	California horned lark	ABPAT02011	61	None	None	G5T4Q	S4		WL
Eremophila alpestris actia	California horned lark	ABPAT02011	37	None	None	G5T4Q	S4		WL
Phrynosoma blainvillii	coast horned lizard	ARACF12100	735	None	None	G3G4	S3S4		SSC
Phrynosoma blainvillii	coast horned lizard	ARACF12100	8	None	None	G3G4	S3S4		SSC
Phrynosoma blainvillii	coast horned lizard	ARACF12100	328	None	None	G3G4	S3S4		SSC
Phrynosoma blainvillii	coast horned lizard	ARACF12100	248	None	None	G3G4	S3S4		SSC
Phrynosoma blainvillii	coast horned lizard	ARACF12100	769	None	None	G3G4	S3S4		SSC
Phrynosoma blainvillii	coast horned lizard	ARACF12100	491	None	None	G3G4	S3S4		SSC
Phrynosoma blainvillii	coast horned lizard	ARACF12100	432	None	None	G3G4	S3S4		SSC
Phrynosoma blainvillii	coast horned lizard	ARACF12100	45	None	None	G3G4	S3S4		SSC
Phrynosoma blainvillii	coast horned lizard	ARACF12100	223	None	None	G3G4	S3S4		SSC
Phrynosoma blainvillii	coast horned lizard	ARACF12100	389	None	None	G3G4	S3S4		SSC
Phrynosoma blainvillii	coast horned lizard	ARACF12100	541	None	None	G3G4	S3S4		SSC
Polioptila californica californica	coastal California gnatcatcher	ABPBJ08081	758	Threatened	None	G4G5T2Q	S2		SSC
Polioptila californica californica	coastal California gnatcatcher	ABPBJ08081	151	Threatened	None	G4G5T2Q	S2		SSC
Polioptila californica californica	coastal California gnatcatcher	ABPBJ08081	525	Threatened	None	G4G5T2Q	S2		SSC
Polioptila californica californica	coastal California gnatcatcher	ABPBJ08081	339	Threatened	None	G4G5T2Q	S2		SSC
Polioptila californica californica	coastal California gnatcatcher	ABPBJ08081	762	Threatened	None	G4G5T2Q	S2		SSC
Polioptila californica californica	coastal California gnatcatcher	ABPBJ08081	526	Threatened	None	G4G5T2Q	S2		SSC
Polioptila californica californica	coastal California gnatcatcher	ABPBJ08081	340	Threatened	None	G4G5T2Q	S2		SSC
Aspidoscelis tigris stejnegeri	coastal whiptail	ARACJ02143	2	None	None	G5T5	S3		SSC
Aspidoscelis tigris stejnegeri	coastal whiptail	ARACJ02143	34	None	None	G5T5	S3		SSC
Accipiter cooperii	Cooper's hawk	ABNKC12040	72	None	None	G5	S4		WL
Bombus crotchii	Crotch bumble bee	IIHYM24480	215	None	Candidate Endangered	G3G4	S1S2		
Bombus crotchii	Crotch bumble bee	IIHYM24480	214	None	Candidate Endangered	G3G4	S1S2		
Spinus lawrencei	Lawrence's goldfinch	ABPBY06100	3	None	None	G3G4	S3S4		
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	442	Endangered	Endangered	G5T2	S2		
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	427	Endangered	Endangered	G5T2	S2		
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	432	Endangered	Endangered	G5T2	S2		
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	437	Endangered	Endangered	G5T2	S2		
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	429	Endangered	Endangered	G5T2	S2		
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	440	Endangered	Endangered	G5T2	S2		

Vireo bellii pusillus	least Bell's vireo	ABPBW01114	301	Endangered	Endangered	G5T2	S2	
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	433	Endangered	Endangered	G5T2	S2	
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	390	Endangered	Endangered	G5T2	S2	
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	446	Endangered	Endangered	G5T2	S2	
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	445	Endangered	Endangered	G5T2	S2	
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	447	Endangered	Endangered	G5T2	S2	
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	443	Endangered	Endangered	G5T2	S2	
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	444	Endangered	Endangered	G5T2	S2	
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	438	Endangered	Endangered	G5T2	S2	
Vireo bellii pusillus	least Bell's vireo	ABPBW01114	441	Endangered	Endangered	G5T2	S2	
Lanius ludovicianus	loggerhead shrike	ABPBR01030	2	None	None	G4	S4	SSC
Perognathus longimembris brevinasus	Los Angeles pocket mouse	AMAFD01041	19	None	None	G5T1T2	S1S2	SSC
Perognathus longimembris brevinasus	Los Angeles pocket mouse	AMAFD01041	28	None	None	G5T1T2	S1S2	SSC
Perognathus longimembris brevinasus	Los Angeles pocket mouse	AMAFD01041	41	None	None	G5T1T2	S1S2	SSC
Perognathus longimembris brevinasus	Los Angeles pocket mouse	AMAFD01041	29	None	None	G5T1T2	S1S2	SSC
Chaetodipus fallax fallax	northwestern San Diego pocket mou	AMAFD05031	17	None	None	G5T3T4	S3S4	SSC
Chaetodipus fallax fallax	northwestern San Diego pocket mou	AMAFD05031	54	None	None	G5T3T4	S3S4	SSC
Chaetodipus fallax fallax	northwestern San Diego pocket mou	AMAFD05031	22	None	None	G5T3T4	S3S4	SSC
Chaetodipus fallax fallax	northwestern San Diego pocket mou	AMAFD05031	25	None	None	G5T3T4	S3S4	SSC
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	209	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	217	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	358	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	55	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	260	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	259	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	187	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	325	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	75	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	6	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	348	None	None	G5	S2S3	WL
Aspidoscelis hyperythra	orange-throated whiptail	ARACJ02060	240	None	None	G5	S2S3	WL
Nyctinomops femorosaccus	pocketed free-tailed bat	AMACD04010	20	None	None	G4	S3	SSC
Crotalus ruber	red-diamond rattlesnake	ARADE02090	95	None	None	G4	S3	SSC
Crotalus ruber	red-diamond rattlesnake	ARADE02090	33	None	None	G4	S3	SSC
Crotalus ruber	red-diamond rattlesnake	ARADE02090	167	None	None	G4	S3	SSC
Crotalus ruber	red-diamond rattlesnake	ARADE02090	79	None	None	G4	S3	SSC
Crotalus ruber	red-diamond rattlesnake	ARADE02090	78	None	None	G4	S3	SSC
Crotalus ruber	red-diamond rattlesnake	ARADE02090	64	None	None	G4	S3	SSC
Crotalus ruber	red-diamond rattlesnake	ARADE02090	21	None	None	G4	S3	SSC
Crotalus ruber	red-diamond rattlesnake	ARADE02090	49	None	None	G4	S3	SSC
Streptocephalus woottoni	Riverside fairy shrimp	ICBRA07010	27	Endangered	None	G1G2	S1S2	
Streptocephalus woottoni	Riverside fairy shrimp	ICBRA07010	28	Endangered	None	G1G2	S1S2	
Dipodomys merriami parvus	San Bernardino kangaroo rat	AMAFD03143	83	Endangered	Candidate Endangered	G5T1	S1	SSC
Diadophis punctatus modestus	San Bernardino ringneck snake	ARADB10015	5	None	None	G5T2T3	S2?	
Lepus californicus bennettii	San Diego black-tailed jackrabbit	AMAEB03051	92	None	None	G5T3T4	S3S4	SSC
Neotoma lepida intermedia	San Diego desert woodrat	AMAFF08041	43	None	None	G5T3T4	S3S4	SSC
Anniella stebbinsi	Southern California legless lizard	ARACC01060	390	None	None	G3	S3	SSC
Aimophila ruficeps canescens	southern California rufous-crowned	ABPBX91091	188	None	None	G5T3	S3	WL
Aimophila ruficeps canescens	southern California rufous-crowned	ABPBX91091	119	None	None	G5T3	S3	WL
Aimophila ruficeps canescens	southern California rufous-crowned	ABPBX91091	187	None	None	G5T3	S3	WL

Onychomys torridus ramona	southern grasshopper mouse	AMAFF06022	30	None	None	G5T3	S3		SSC
Onychomys torridus ramona	southern grasshopper mouse	AMAFF06022	33	None	None	G5T3	S3		SSC
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	27	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	69	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	200	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	96	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	98	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	54	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	247	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	250	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	82	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	231	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	241	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	3	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	215	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	189	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	30	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	245	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	240	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	222	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	121	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	70	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	239	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	87	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	76	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	4	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	73	Endangered	Threatened	G2	S2		
Dipodomys stephensi	Stephens' kangaroo rat	AMAFD03100	72	Endangered	Threatened	G2	S2		
Agelaius tricolor	tricolored blackbird	ABPBXB0020	217	None	Threatened	G2G3	S1S2		SSC
Eumops perotis californicus	western mastiff bat	AMACD02011	128	None	None	G5T4	S3S4		SSC
Eumops perotis californicus	western mastiff bat	AMACD02011	80	None	None	G5T4	S3S4		SSC
Eumops perotis californicus	western mastiff bat	AMACD02011	78	None	None	G5T4	S3S4		SSC
Emys marmorata	western pond turtle	ARAAD02030	849	None	None	G3G4	S3		SSC
Spea hammondii	western spadefoot	AAABF02020	33	None	None	G3	S3		SSC
Spea hammondii	western spadefoot	AAABF02020	1013	None	None	G3	S3		SSC
Spea hammondii	western spadefoot	AAABF02020	259	None	None	G3	S3		SSC
Spea hammondii	western spadefoot	AAABF02020	1383	None	None	G3	S3		SSC
Spea hammondii	western spadefoot	AAABF02020	230	None	None	G3	S3		SSC
Spea hammondii	western spadefoot	AAABF02020	68	None	None	G3	S3		SSC
Spea hammondii	western spadefoot	AAABF02020	1030	None	None	G3	S3		SSC
Spea hammondii	western spadefoot	AAABF02020	1120	None	None	G3	S3		SSC
Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNRB02022	168	Threatened	Endangered	G5T2T3	S1		
Lasiurus xanthinus	western yellow bat	AMACC05070	53	None	None	G5	S3		SSC
Lasiurus xanthinus	western yellow bat	AMACC05070	31	None	None	G5	S3		SSC
Neolarra alba	white cuckoo bee	IIHYM81010	5	None	None	GH	SH		
Icteria virens	yellow-breasted chat	ABPBX24010	96	None	None	G5	S3		SSC
Chorizanthe polygonoides var. longispina	long-spined spineflower	PDPGN040K1	18	None	None	G5T3	S3	1B.2	
Chorizanthe parryi var. parryi	Parry's spineflower	PDPGN040J2	81	None	None	G3T2	S2	1B.1	
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	PDBRA1M114	9	None	None	G5T3	S3	4.3	
Centromadia pungens ssp. laevis	smooth tarplant	PDAST4R0R4	7	None	None	G3G4T2	S2	1B.1	

Centromadia pungens ssp. laevis	smooth tarplant	PDAST4R0R4	4	None	None	G3G4T2	S2	1B.1
Centromadia pungens ssp. laevis	smooth tarplant	PDAST4R0R4	88	None	None	G3G4T2	S2	1B.1
Southern Cottonwood Willow Riparian Fo	Southern Cottonwood Willow Ripari	CTT61330CA	74	None	None	G3	S3.2	
Southern Sycamore Alder Riparian Woodl	Southern Sycamore Alder Riparian V	CTT62400CA	175	None	None	G4	S4	
Southern Sycamore Alder Riparian Woodl	Southern Sycamore Alder Riparian V	CTT62400CA	173	None	None	G4	S4	
Southern Sycamore Alder Riparian Woodl	Southern Sycamore Alder Riparian V	CTT62400CA	176	None	None	G4	S4	
Southern Sycamore Alder Riparian Woodl	Southern Sycamore Alder Riparian V	CTT62400CA	174	None	None	G4	S4	

Family	Lifeform	CRPR	GRank	SRank	CESA	FESA	Blooming	Habitat
Alliaceae	perennial bulbiferous herb	1B.1	G1	S1	CT	FE	Mar-May	Chaparral, Cismontane woodland, Coastal scrub, Pinyon and juniper woodland, Valley and foothill grassland
Caryophyllaceae	perennial stoloniferous herb	1B.1	G1	S1	CE	FE	May-Aug	Marshes and swamps (freshwateror brackish)
Berberidaceae	perennial evergreen shrub	1B.1	G1	S1	CE	FE	(Feb)Mar-J	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub
Themidaceae	perennial bulbiferous herb	1B.1	G2	S2	CE	FT	Mar-Jun	Chaparral (openings), Cismontane woodland, Coastal scrub, Playas, Valley and foothill grassland, Vernal pools
Orobanchaceae	annual herb (hemiparasitic)	1B.2	G4?T1	S1	CE	FE	May-Oct(N	Coastal dunes, Marshes and swamps (coastal salt)
Polygonaceae	annual herb	1B.1	G1	S1	CE	FE	Apr-Jun	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan)
Polemoniaceae	perennial herb	1B.1	G4T1	S1	CE	FE	Apr-Sep	Chaparral, Coastal scrub (alluvial fan)
Brassicaceae	perennial rhizomatous herb	1B.1	G1	S1	CT	FE	Apr-Oct	Marshes and swamps (freshwater or brackish)

Appendix C

Noise Measurement Data

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 80.6 - 2008/06/18 13:24:41
- Level Range : 40-100
- SEL : 92.7
- Leq : 63.3
-

No.s	Date	Time	(dB)				
1	2018/06/08	13:16:01	45.6	46.3	59.9	48.2	51.7
6	2018/06/08	13:16:06	58.4	59.5	60.7	64.0	63.7
11	2018/06/08	13:16:11	63.3	64.3	66.1	65.5	65.8
16	2018/06/08	13:16:16	65.4	66.8	69.4	66.9	64.5
21	2018/06/08	13:16:21	61.7	71.9	62.4	62.8	60.4
26	2018/06/08	13:16:26	59.2	58.2	60.2	59.9	63.3
31	2018/06/08	13:16:31	69.9	67.7	66.7	66.7	63.8
36	2018/06/08	13:16:36	63.2	63.1	61.7	59.7	63.1
41	2018/06/08	13:16:41	67.0	67.7	65.7	66.2	69.0
46	2018/06/08	13:16:46	66.2	62.6	59.5	57.5	55.8
51	2018/06/08	13:16:51	53.2	51.4	51.5	50.8	51.9
56	2018/06/08	13:16:56	50.8	53.3	52.8	56.1	59.1
61	2018/06/08	13:17:01	54.6	52.5	50.0	48.5	47.3
66	2018/06/08	13:17:06	47.1	47.5	47.6	46.5	51.9
71	2018/06/08	13:17:11	48.1	53.2	56.8	59.1	60.7
76	2018/06/08	13:17:16	64.7	61.1	57.8	56.8	65.6
81	2018/06/08	13:17:21	66.0	66.2	67.2	61.9	61.9
86	2018/06/08	13:17:26	56.4	53.2	51.6	50.6	50.0
91	2018/06/08	13:17:31	48.6	50.5	51.3	49.9	52.0
96	2018/06/08	13:17:36	51.4	50.1	51.4	53.2	53.7
101	2018/06/08	13:17:41	54.0	55.0	56.3	59.7	58.0
106	2018/06/08	13:17:46	54.2	54.8	56.3	57.4	57.2
111	2018/06/08	13:17:51	58.6	58.0	56.4	55.3	61.0
116	2018/06/08	13:17:56	60.6	63.0	61.9	63.3	64.3
121	2018/06/08	13:18:01	63.8	62.6	61.4	62.2	63.7
126	2018/06/08	13:18:06	62.9	62.6	61.6	61.7	62.2
131	2018/06/08	13:18:11	62.4	62.4	62.3	63.0	66.2
136	2018/06/08	13:18:16	65.8	62.7	64.3	58.7	55.4
141	2018/06/08	13:18:21	52.0	49.5	48.4	48.4	48.1
146	2018/06/08	13:18:26	46.8	47.4	46.7	46.6	46.0
151	2018/06/08	13:18:31	47.3	49.9	52.5	55.1	58.3
156	2018/06/08	13:18:36	61.1	65.1	63.3	63.3	61.3
161	2018/06/08	13:18:41	59.8	60.8	58.7	58.3	59.1
166	2018/06/08	13:18:46	61.0	64.2	63.9	65.7	66.0
171	2018/06/08	13:18:51	66.5	63.4	60.6	59.6	61.3
176	2018/06/08	13:18:56	63.6	66.3	65.9	67.7	67.4
181	2018/06/08	13:19:01	66.0	65.9	65.1	63.6	63.8
186	2018/06/08	13:19:06	63.0	61.5	62.6	63.3	62.7
191	2018/06/08	13:19:11	63.0	61.3	62.8	63.4	63.9
196	2018/06/08	13:19:16	64.9	65.7	62.8	63.1	63.7
201	2018/06/08	13:19:21	65.2	65.0	62.9	60.5	58.8
206	2018/06/08	13:19:26	60.1	60.0	59.8	58.7	61.7
211	2018/06/08	13:19:31	62.8	59.9	59.1	56.2	54.7

216	2018/06/08	13:19:36	53.3	52.5	50.3	51.7	54.7
221	2018/06/08	13:19:41	55.5	55.7	56.0	56.5	57.2
226	2018/06/08	13:19:46	59.1	58.8	56.6	58.5	59.7
231	2018/06/08	13:19:51	61.6	62.4	62.3	62.0	60.0
236	2018/06/08	13:19:56	58.9	55.4	53.8	53.3	52.5
241	2018/06/08	13:20:01	54.1	54.6	54.5	58.0	63.4
246	2018/06/08	13:20:06	68.1	69.7	68.0	68.3	67.2
251	2018/06/08	13:20:11	66.3	64.8	61.8	56.4	52.3
256	2018/06/08	13:20:16	51.3	51.9	53.1	55.3	62.2
261	2018/06/08	13:20:21	58.7	57.4	53.3	52.6	52.4
266	2018/06/08	13:20:26	51.8	51.6	51.5	50.8	51.4
271	2018/06/08	13:20:31	51.9	51.1	52.7	51.6	51.7
276	2018/06/08	13:20:36	54.0	58.7	59.4	57.7	57.2
281	2018/06/08	13:20:41	58.8	63.2	60.2	59.0	56.0
286	2018/06/08	13:20:46	52.8	49.4	49.2	48.3	49.7
291	2018/06/08	13:20:51	49.4	49.1	49.3	50.8	52.1
296	2018/06/08	13:20:56	53.6	55.6	57.1	58.4	59.3
301	2018/06/08	13:21:01	59.8	60.9	64.1	64.6	64.4
306	2018/06/08	13:21:06	63.5	63.5	62.0	62.9	65.0
311	2018/06/08	13:21:11	64.0	64.7	68.2	72.4	61.4
316	2018/06/08	13:21:16	58.1	60.2	60.9	60.1	59.4
321	2018/06/08	13:21:21	58.5	60.3	61.5	60.4	61.4
326	2018/06/08	13:21:26	58.8	60.1	58.3	56.8	56.8
331	2018/06/08	13:21:31	56.7	56.1	57.1	57.3	58.8
336	2018/06/08	13:21:36	61.3	62.2	63.0	62.9	64.5
341	2018/06/08	13:21:41	63.8	61.9	62.4	61.3	61.6
346	2018/06/08	13:21:46	61.8	61.6	60.4	61.8	63.5
351	2018/06/08	13:21:51	62.9	59.8	57.0	60.4	60.6
356	2018/06/08	13:21:56	58.1	60.3	61.2	58.1	57.8
361	2018/06/08	13:22:01	57.8	57.7	59.9	65.7	65.0
366	2018/06/08	13:22:06	58.4	57.3	58.2	57.1	59.3
371	2018/06/08	13:22:11	63.7	63.2	63.4	63.1	65.0
376	2018/06/08	13:22:16	64.7	65.4	65.5	64.5	63.7
381	2018/06/08	13:22:21	62.8	60.0	61.6	60.6	58.7
386	2018/06/08	13:22:26	56.7	57.1	58.3	60.1	61.7
391	2018/06/08	13:22:31	62.7	60.3	60.3	63.4	61.2
396	2018/06/08	13:22:36	59.5	61.6	58.6	56.5	56.9
401	2018/06/08	13:22:41	65.2	62.6	60.4	60.6	59.5
406	2018/06/08	13:22:46	60.8	57.5	57.4	54.5	55.3
411	2018/06/08	13:22:51	58.9	61.3	61.7	60.2	61.0
416	2018/06/08	13:22:56	61.6	58.8	53.7	52.8	53.3
421	2018/06/08	13:23:01	51.9	52.1	54.7	59.7	64.0
426	2018/06/08	13:23:06	64.3	62.2	58.0	55.9	53.9
431	2018/06/08	13:23:11	55.3	61.1	65.3	65.4	65.6
436	2018/06/08	13:23:16	62.8	58.4	52.6	52.6	53.4
441	2018/06/08	13:23:21	52.2	51.4	52.5	55.9	66.3
446	2018/06/08	13:23:26	65.7	65.3	61.8	58.8	60.3
451	2018/06/08	13:23:31	63.4	64.8	63.3	59.8	55.5
456	2018/06/08	13:23:36	53.1	53.5	57.1	61.9	65.1
461	2018/06/08	13:23:41	64.8	63.9	62.7	61.8	59.1
466	2018/06/08	13:23:46	58.3	62.0	66.8	62.3	63.5
471	2018/06/08	13:23:51	63.6	63.8	66.1	63.4	61.9
476	2018/06/08	13:23:56	56.3	55.4	52.9	54.0	56.9

481	2018/06/08	13:24:01	63.7	64.7	61.7	58.2	53.5
486	2018/06/08	13:24:06	58.2	60.8	61.5	59.6	56.5
491	2018/06/08	13:24:11	61.4	64.7	64.1	60.6	60.6
496	2018/06/08	13:24:16	62.9	59.3	59.9	56.4	52.9
501	2018/06/08	13:24:21	51.5	54.6	51.7	50.2	52.1
506	2018/06/08	13:24:26	52.8	51.1	50.5	46.9	47.6
511	2018/06/08	13:24:31	48.3	48.4	52.2	52.5	56.2
516	2018/06/08	13:24:36	58.8	63.0	61.9	66.6	72.5
521	2018/06/08	13:24:41	80.5	74.6	69.2	69.5	67.6
526	2018/06/08	13:24:46	65.2	66.6	68.9	66.4	72.9
531	2018/06/08	13:24:51	75.7	74.6	71.1	68.7	65.4
536	2018/06/08	13:24:56	63.1	64.1	62.7	62.2	63.5
541	2018/06/08	13:25:01	63.4	63.9	63.3	62.5	62.0
546	2018/06/08	13:25:06	60.1	60.9	61.5	61.2	61.4
551	2018/06/08	13:25:11	62.3	64.0	64.1	63.6	63.3
556	2018/06/08	13:25:16	64.6	64.9	67.2	65.4	64.9
561	2018/06/08	13:25:21	63.6	62.7	62.4	61.8	60.8
566	2018/06/08	13:25:26	62.0	61.3	62.2	61.5	62.7
571	2018/06/08	13:25:31	63.1	61.9	61.5	61.9	64.1
576	2018/06/08	13:25:36	63.6	64.6	64.5	60.0	61.5
581	2018/06/08	13:25:41	64.5	62.7	62.1	59.9	58.7
586	2018/06/08	13:25:46	62.2	61.6	61.2	61.7	61.2
591	2018/06/08	13:25:51	61.9	60.0	58.6	57.2	55.2
596	2018/06/08	13:25:56	54.9	54.3	54.7	55.0	56.9
601	2018/06/08	13:26:01	59.8	63.3	64.2	60.7	58.7
606	2018/06/08	13:26:06	56.6	56.2	55.4	55.1	59.5
611	2018/06/08	13:26:11	63.9	64.3	63.7	65.8	64.4
616	2018/06/08	13:26:16	62.2	59.8	57.4	59.2	58.7
621	2018/06/08	13:26:21	60.5	60.6	59.7	59.9	59.0
626	2018/06/08	13:26:26	59.0	60.1	59.7	59.3	60.4
631	2018/06/08	13:26:31	61.3	63.0	66.8	65.3	66.6
636	2018/06/08	13:26:36	68.7	64.8	66.4	63.5	59.9
641	2018/06/08	13:26:41	57.5	56.4	55.9	55.0	55.2
646	2018/06/08	13:26:46	54.5	54.2	55.0	55.3	57.5
651	2018/06/08	13:26:51	59.7	61.3	59.1	59.0	56.7
656	2018/06/08	13:26:56	57.1	57.6	57.0	57.3	58.8
661	2018/06/08	13:27:01	62.0	63.8	65.4	65.8	63.2
666	2018/06/08	13:27:06	60.8	58.1	58.9	64.8	67.7
671	2018/06/08	13:27:11	67.0	65.7	66.9	71.1	69.5
676	2018/06/08	13:27:16	66.3	63.5	57.7	56.6	56.3
681	2018/06/08	13:27:21	56.8	57.4	59.4	68.6	71.9
686	2018/06/08	13:27:26	67.4	64.7	60.4	58.5	57.2
691	2018/06/08	13:27:31	57.8	57.3	57.5	60.1	62.7
696	2018/06/08	13:27:36	63.0	64.2	66.8	67.6	71.1
701	2018/06/08	13:27:41	70.2	68.1	65.6	61.5	58.7
706	2018/06/08	13:27:46	57.5	59.7	62.0	58.0	56.8
711	2018/06/08	13:27:51	55.1	55.2	56.7	56.5	57.1
716	2018/06/08	13:27:56	57.9	59.9	61.9	63.4	63.9
721	2018/06/08	13:28:01	62.7	63.1	65.3	66.4	69.0
726	2018/06/08	13:28:06	70.2	68.9	65.3	61.3	57.5
731	2018/06/08	13:28:11	56.0	56.2	56.8	58.0	59.4
736	2018/06/08	13:28:16	59.4	59.0	60.9	62.5	61.7
741	2018/06/08	13:28:21	63.3	65.7	65.6	64.7	62.8

746	2018/06/08	13:28:26	63.6	62.6	65.3	64.5	67.1
751	2018/06/08	13:28:31	64.3	59.7	59.6	62.3	62.2
756	2018/06/08	13:28:36	61.0	67.4	74.8	77.2	69.2
761	2018/06/08	13:28:41	66.9	62.2	60.8	60.5	61.8
766	2018/06/08	13:28:46	62.5	62.9	60.7	59.8	58.8
771	2018/06/08	13:28:51	58.6	58.8	57.0	57.7	58.8
776	2018/06/08	13:28:56	58.5	59.5	61.8	63.5	61.9
781	2018/06/08	13:29:01	62.3	62.0	61.4	60.4	59.5
786	2018/06/08	13:29:06	58.1	56.9	55.3	55.3	55.8
791	2018/06/08	13:29:11	56.7	55.1	54.7	55.9	57.2
796	2018/06/08	13:29:16	56.4	56.0	55.8	57.4	56.0
801	2018/06/08	13:29:21	56.8	59.9	57.6	61.2	62.0
806	2018/06/08	13:29:26	61.4	61.4	64.0	65.1	66.6
811	2018/06/08	13:29:31	67.4	66.2	66.9	65.8	63.8
816	2018/06/08	13:29:36	62.2	63.2	63.9	61.8	62.2
821	2018/06/08	13:29:41	63.3	62.4	63.1	63.5	68.1
826	2018/06/08	13:29:46	68.0	65.1	63.6	61.5	59.3
831	2018/06/08	13:29:51	56.9	55.5	53.9	54.7	55.1
836	2018/06/08	13:29:56	54.0	54.9	53.7	54.3	54.7
841	2018/06/08	13:30:01	55.2	56.5	56.5	57.5	57.1
846	2018/06/08	13:30:06	59.7	61.0	62.2	62.3	60.9
851	2018/06/08	13:30:11	60.4	58.9	57.7	63.0	59.5
856	2018/06/08	13:30:16	61.7	63.8	65.8	68.5	62.8
861	2018/06/08	13:30:21	61.4	58.9	59.3	59.6	58.6
866	2018/06/08	13:30:26	62.0	63.6	62.7	60.6	60.3
871	2018/06/08	13:30:31	63.1	60.6	62.4	66.0	67.9
876	2018/06/08	13:30:36	67.2	67.2	64.9	65.3	68.6
881	2018/06/08	13:30:41	70.9	70.4	68.1	66.4	65.9
886	2018/06/08	13:30:46	65.0	66.0	63.0	60.8	60.7
891	2018/06/08	13:30:51	59.8	59.1	57.7	58.0	58.2
896	2018/06/08	13:30:56	62.5	62.6	61.6	66.0	74.4

- Freq Weight : A
- Time Weight : FAST
- Level Range : 40-100
- Max dB : 90.1 - 2008/06/18 14:28:59
- Level Range : 40-100
- SEL : 97.4
- Leq : 67.8
-

No.s	Date	Time	(dB)				
1	2018/06/08	14:17:25	64.9	64.2	64.9	65.6	64.8
6	2018/06/08	14:17:30	64.4	63.5	64.2	63.4	63.8
11	2018/06/08	14:17:35	64.6	64.0	63.7	63.5	63.2
16	2018/06/08	14:17:40	63.4	63.3	63.1	62.0	62.0
21	2018/06/08	14:17:45	61.5	62.9	62.4	62.1	62.8
26	2018/06/08	14:17:50	62.6	62.7	63.6	63.5	63.6
31	2018/06/08	14:17:55	63.3	63.9	63.8	63.7	63.1
36	2018/06/08	14:18:00	61.8	61.7	62.3	62.1	62.3
41	2018/06/08	14:18:05	60.7	61.2	61.7	61.0	61.9
46	2018/06/08	14:18:10	65.0	66.3	65.0	66.2	63.0
51	2018/06/08	14:18:15	63.4	62.0	60.7	61.6	62.1
56	2018/06/08	14:18:20	62.4	63.9	65.4	64.5	61.7
61	2018/06/08	14:18:25	62.1	61.9	63.3	63.5	63.2
66	2018/06/08	14:18:30	63.7	62.9	63.1	62.5	63.0
71	2018/06/08	14:18:35	62.4	60.8	62.0	61.9	61.8
76	2018/06/08	14:18:40	63.0	63.2	63.2	63.1	63.3
81	2018/06/08	14:18:45	62.1	61.1	64.2	63.0	62.7
86	2018/06/08	14:18:50	61.9	62.5	62.3	62.4	62.7
91	2018/06/08	14:18:55	62.8	62.9	61.6	62.5	62.0
96	2018/06/08	14:19:00	62.7	64.1	64.0	62.8	60.9
101	2018/06/08	14:19:05	60.5	61.3	61.2	62.6	61.5
106	2018/06/08	14:19:10	60.8	61.3	62.1	62.0	62.8
111	2018/06/08	14:19:15	63.2	65.8	64.2	61.9	63.3
116	2018/06/08	14:19:20	63.6	64.0	63.6	63.7	63.1
121	2018/06/08	14:19:25	62.2	61.6	62.7	62.2	62.1
126	2018/06/08	14:19:30	62.2	62.4	62.7	64.0	63.2
131	2018/06/08	14:19:35	64.0	64.0	64.5	64.6	64.6
136	2018/06/08	14:19:40	63.7	62.8	62.9	61.4	62.0
141	2018/06/08	14:19:45	60.6	63.7	63.7	62.5	62.2
146	2018/06/08	14:19:50	61.6	63.1	62.5	62.5	63.7
151	2018/06/08	14:19:55	62.1	63.2	62.9	63.2	62.5
156	2018/06/08	14:20:00	62.5	62.9	62.1	62.8	63.9
161	2018/06/08	14:20:05	63.6	63.1	63.1	62.3	62.1
166	2018/06/08	14:20:10	62.4	63.3	65.8	66.0	67.2
171	2018/06/08	14:20:15	68.0	63.1	62.7	63.2	62.7
176	2018/06/08	14:20:20	61.6	61.4	60.2	59.5	62.4
181	2018/06/08	14:20:25	62.2	61.8	60.3	61.1	60.7
186	2018/06/08	14:20:30	61.3	62.2	63.5	64.1	64.0
191	2018/06/08	14:20:35	63.5	62.7	63.0	63.0	62.5
196	2018/06/08	14:20:40	63.7	63.7	61.7	61.9	61.8

201	2018/06/08	14:20:45	61.6	62.4	63.2	63.0	63.7
206	2018/06/08	14:20:50	63.1	65.2	62.6	61.2	62.7
211	2018/06/08	14:20:55	64.6	63.3	62.4	62.0	62.5
216	2018/06/08	14:21:00	60.8	60.7	61.9	60.1	62.1
221	2018/06/08	14:21:05	60.2	61.0	61.4	63.0	64.2
226	2018/06/08	14:21:10	67.5	66.8	63.9	62.9	63.1
231	2018/06/08	14:21:15	62.4	61.9	62.7	62.9	62.8
236	2018/06/08	14:21:20	70.0	67.6	64.4	61.7	63.3
241	2018/06/08	14:21:25	62.5	60.9	61.4	59.6	60.8
246	2018/06/08	14:21:30	60.4	61.6	60.9	61.9	62.0
251	2018/06/08	14:21:35	61.6	61.4	61.6	60.9	61.9
256	2018/06/08	14:21:40	62.2	60.1	61.1	61.6	61.0
261	2018/06/08	14:21:45	62.5	63.1	63.2	63.8	63.1
266	2018/06/08	14:21:50	63.4	65.5	64.4	63.3	62.4
271	2018/06/08	14:21:55	63.6	62.7	61.8	61.9	61.3
276	2018/06/08	14:22:00	62.4	61.8	62.1	60.7	61.4
281	2018/06/08	14:22:05	61.7	62.6	63.2	63.6	62.9
286	2018/06/08	14:22:10	62.7	62.4	63.1	62.7	61.5
291	2018/06/08	14:22:15	62.5	62.9	63.7	64.6	65.3
296	2018/06/08	14:22:20	64.9	64.1	63.7	63.4	62.7
301	2018/06/08	14:22:25	62.2	62.8	63.2	62.6	65.1
306	2018/06/08	14:22:30	65.1	64.6	64.9	63.9	65.9
311	2018/06/08	14:22:35	64.9	64.6	66.3	65.3	64.2
316	2018/06/08	14:22:40	67.5	69.4	70.4	69.2	67.3
321	2018/06/08	14:22:45	65.2	63.4	62.0	61.7	63.4
326	2018/06/08	14:22:50	64.1	63.1	63.4	65.3	66.7
331	2018/06/08	14:22:55	65.2	64.9	64.6	65.1	65.2
336	2018/06/08	14:23:00	64.1	63.0	62.5	62.3	62.3
341	2018/06/08	14:23:05	62.9	59.9	60.5	58.8	59.5
346	2018/06/08	14:23:10	60.2	61.3	61.5	60.8	60.4
351	2018/06/08	14:23:15	62.2	62.0	64.0	64.1	63.3
356	2018/06/08	14:23:20	62.5	61.8	62.3	61.8	62.4
361	2018/06/08	14:23:25	62.2	62.4	62.8	61.9	61.8
366	2018/06/08	14:23:30	62.1	61.8	61.6	61.1	61.3
371	2018/06/08	14:23:35	60.9	61.3	62.3	62.4	62.0
376	2018/06/08	14:23:40	62.6	62.5	62.6	62.8	63.0
381	2018/06/08	14:23:45	63.4	63.6	63.3	61.4	61.2
386	2018/06/08	14:23:50	60.6	61.2	62.4	63.3	64.2
391	2018/06/08	14:23:55	64.4	64.2	62.9	62.1	62.7
396	2018/06/08	14:24:00	62.8	61.7	61.3	61.3	61.2
401	2018/06/08	14:24:05	63.6	66.1	64.4	64.1	63.7
406	2018/06/08	14:24:10	62.6	62.1	63.5	63.4	63.7
411	2018/06/08	14:24:15	63.3	63.3	63.2	65.1	65.7
416	2018/06/08	14:24:20	65.8	67.4	67.2	66.2	64.5
421	2018/06/08	14:24:25	64.9	65.2	64.7	65.1	64.1
426	2018/06/08	14:24:30	63.9	63.7	64.2	65.3	64.5
431	2018/06/08	14:24:35	63.1	62.8	62.2	62.6	62.4
436	2018/06/08	14:24:40	63.0	63.6	63.0	63.7	63.6
441	2018/06/08	14:24:45	63.4	62.9	63.7	62.8	61.7
446	2018/06/08	14:24:50	62.7	61.9	61.3	61.8	63.1

451	2018/06/08	14:24:55	62.4	63.2	63.9	62.2	61.5
456	2018/06/08	14:25:00	62.5	62.1	62.9	62.7	64.2
461	2018/06/08	14:25:05	64.2	63.0	62.2	61.8	61.5
466	2018/06/08	14:25:10	61.0	59.5	60.3	60.8	61.0
471	2018/06/08	14:25:15	61.0	61.0	61.5	62.0	62.5
476	2018/06/08	14:25:20	61.9	63.2	62.6	61.8	62.3
481	2018/06/08	14:25:25	61.8	61.9	61.4	62.0	61.9
486	2018/06/08	14:25:30	62.4	61.9	60.9	61.4	62.4
491	2018/06/08	14:25:35	62.2	63.6	65.2	63.2	61.5
496	2018/06/08	14:25:40	61.6	60.9	60.8	62.0	62.2
501	2018/06/08	14:25:45	63.1	65.8	64.6	63.1	64.0
506	2018/06/08	14:25:50	63.8	63.5	63.4	63.6	63.1
511	2018/06/08	14:25:55	61.5	60.0	60.0	60.1	60.6
516	2018/06/08	14:26:00	61.6	60.1	60.5	60.1	61.4
521	2018/06/08	14:26:05	61.4	61.8	62.2	62.7	62.5
526	2018/06/08	14:26:10	63.1	62.6	63.3	63.4	62.3
531	2018/06/08	14:26:15	62.4	62.2	61.3	61.9	61.6
536	2018/06/08	14:26:20	62.0	61.6	61.0	60.1	59.5
541	2018/06/08	14:26:25	60.2	61.0	61.5	61.2	61.1
546	2018/06/08	14:26:30	63.6	62.0	61.5	61.9	62.6
551	2018/06/08	14:26:35	64.0	65.1	65.9	65.5	66.6
556	2018/06/08	14:26:40	68.2	69.5	69.0	65.5	64.2
561	2018/06/08	14:26:45	63.9	64.7	63.5	63.7	63.4
566	2018/06/08	14:26:50	62.8	61.1	62.4	61.9	62.8
571	2018/06/08	14:26:55	64.4	63.9	64.6	63.5	62.7
576	2018/06/08	14:27:00	62.1	61.8	62.7	62.9	63.4
581	2018/06/08	14:27:05	62.1	62.0	62.5	64.0	64.0
586	2018/06/08	14:27:10	62.7	63.7	61.5	62.3	63.0
591	2018/06/08	14:27:15	62.1	64.2	63.8	63.7	62.4
596	2018/06/08	14:27:20	61.9	61.5	60.8	59.8	59.8
601	2018/06/08	14:27:25	59.7	61.6	63.1	63.8	64.1
606	2018/06/08	14:27:30	63.2	63.5	62.2	63.6	61.7
611	2018/06/08	14:27:35	61.9	62.4	62.8	62.0	62.2
616	2018/06/08	14:27:40	63.4	62.2	62.5	62.0	63.2
621	2018/06/08	14:27:45	62.8	62.1	62.5	61.8	62.5
626	2018/06/08	14:27:50	63.8	64.7	63.6	63.3	63.7
631	2018/06/08	14:27:55	63.4	63.4	63.8	63.8	64.2
636	2018/06/08	14:28:00	62.5	62.5	61.8	62.1	59.6
641	2018/06/08	14:28:05	60.3	61.1	62.0	62.5	60.5
646	2018/06/08	14:28:10	60.9	61.2	62.6	64.0	64.7
651	2018/06/08	14:28:15	61.4	61.3	60.1	61.4	61.2
656	2018/06/08	14:28:20	61.7	61.0	61.6	62.2	62.9
661	2018/06/08	14:28:25	63.4	65.1	63.3	63.2	62.2
666	2018/06/08	14:28:30	61.4	60.7	62.0	61.4	62.1
671	2018/06/08	14:28:35	62.1	62.4	63.2	63.5	63.2
676	2018/06/08	14:28:40	62.1	60.6	60.1	61.8	62.0
681	2018/06/08	14:28:45	62.5	63.8	63.9	64.1	65.6
686	2018/06/08	14:28:50	65.4	64.5	64.9	67.3	70.5
691	2018/06/08	14:28:55	69.2	72.5	78.4	86.4	87.1
696	2018/06/08	14:29:00	87.1	89.1	85.9	86.1	82.6

701	2018/06/08	14:29:05	82.0	82.5	77.6	74.6	72.6
706	2018/06/08	14:29:10	72.0	72.4	70.6	69.6	69.1
711	2018/06/08	14:29:15	69.7	70.1	66.2	65.6	66.0
716	2018/06/08	14:29:20	67.4	68.3	68.3	67.5	64.7
721	2018/06/08	14:29:25	64.9	65.6	65.0	63.7	63.3
726	2018/06/08	14:29:30	64.2	65.7	64.6	63.7	63.0
731	2018/06/08	14:29:35	62.8	64.7	62.5	62.9	63.1
736	2018/06/08	14:29:40	63.3	62.7	63.3	63.6	64.5
741	2018/06/08	14:29:45	64.2	64.1	64.3	64.7	64.7
746	2018/06/08	14:29:50	64.6	65.3	66.1	66.3	65.3
751	2018/06/08	14:29:55	65.3	65.0	64.3	65.0	63.7
756	2018/06/08	14:30:00	63.4	63.3	63.1	62.1	62.6
761	2018/06/08	14:30:05	62.0	62.5	62.6	62.2	62.9
766	2018/06/08	14:30:10	61.2	61.6	61.9	63.4	64.8
771	2018/06/08	14:30:15	64.3	63.5	63.2	65.2	65.9
776	2018/06/08	14:30:20	66.9	69.3	67.2	69.0	67.8
781	2018/06/08	14:30:25	67.1	66.6	67.2	67.6	64.4
786	2018/06/08	14:30:30	64.3	63.7	63.1	63.0	62.3
791	2018/06/08	14:30:35	62.5	62.3	62.5	63.2	64.0
796	2018/06/08	14:30:40	67.0	65.4	66.6	64.9	64.2
801	2018/06/08	14:30:45	64.7	65.3	64.0	64.5	65.6
806	2018/06/08	14:30:50	68.2	67.5	63.4	72.7	68.6
811	2018/06/08	14:30:55	65.4	63.3	63.3	63.1	63.6
816	2018/06/08	14:31:00	62.3	62.9	63.7	63.0	63.6
821	2018/06/08	14:31:05	64.0	64.1	62.6	62.3	62.3
826	2018/06/08	14:31:10	61.7	62.0	63.0	62.7	63.8
831	2018/06/08	14:31:15	62.2	63.0	62.3	62.5	60.8
836	2018/06/08	14:31:20	62.0	62.3	62.0	59.5	59.9
841	2018/06/08	14:31:25	60.3	62.4	66.3	67.7	66.0
846	2018/06/08	14:31:30	65.3	60.8	65.0	67.5	64.8
851	2018/06/08	14:31:35	62.5	62.3	61.3	63.5	61.8
856	2018/06/08	14:31:40	62.9	64.1	64.6	63.9	64.9
861	2018/06/08	14:31:45	64.6	64.3	64.2	63.5	63.0
866	2018/06/08	14:31:50	62.4	62.3	62.4	62.0	62.1
871	2018/06/08	14:31:55	62.1	62.8	62.7	62.3	63.1
876	2018/06/08	14:32:00	62.9	62.3	62.7	64.0	64.3
881	2018/06/08	14:32:05	63.4	62.8	63.9	65.8	65.1
886	2018/06/08	14:32:10	64.7	62.9	63.1	63.9	64.9
891	2018/06/08	14:32:15	63.4	62.7	62.5	61.2	61.9
896	2018/06/08	14:32:20	64.3	63.3	63.7	63.4	62.9

Appendix D

RCNM Noise Modeling Worksheets

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/23/2019
Case Description: Clearing

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Riverside National Cemetery	Residential	65.0	65.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	250.0	0.0
Concrete Saw	No	20		89.6	250.0	0.0
Jackhammer	Yes	20		88.9	250.0	0.0
Vacuum Street Sweeper	No	10		81.6	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compressor (air)	63.7	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	75.6	68.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jackhammer	74.9	67.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacuum Street Sweeper	67.6	57.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A N/A N/A N/A N/A N/A N/A
Pickup Truck 61.0 57.0 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A
Pickup Truck 61.0 57.0 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A
Pickup Truck 61.0 57.0 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A
Pickup Truck 61.0 57.0 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A
Total 75.6 72.3 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A

**** Receptor #2 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences (SW)	Residential	65.0	65.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	5000.0	0.0
Concrete Saw	No	20		89.6	5000.0	0.0
Jackhammer	Yes	20		88.9	5000.0	0.0
Vacuum Street Sweeper	No	10		81.6	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

	Calculated (dBA)				Day		Evening		Night	
	Day		Evening		Night					
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq

Compressor (air)	37.7	33.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Saw	49.6	42.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jackhammer	48.9	41.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacuum Street Sweeper	41.6	31.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	49.6	46.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/23/2019
Case Description: Trenching

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Riverside National Cemetery	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	250.0	0.0
Dump Truck	No	40		76.5	250.0	0.0
Dump Truck	No	40		76.5	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Vacuum Street Sweeper	No	10		81.6	250.0	0.0
Pumps	No	50		80.9	250.0	0.0
Pumps	No	50		80.9	250.0	0.0
Pumps	No	50		80.9	250.0	0.0
Pumps	No	50		80.9	250.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	63.6	59.6	N/A	N/A	N/A	N/A						

								N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	62.5	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	62.5	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	61.0	57.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	61.0	57.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	61.0	57.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	61.0	57.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	61.0	57.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	61.0	57.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacuum Street Sweeper	67.6	57.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	67.0	64.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	67.0	64.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	67.0	64.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	67.0	64.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	67.6	72.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences (SW)	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	5000.0	0.0
Dump Truck	No	40		76.5	5000.0	0.0
Dump Truck	No	40		76.5	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0

Pickup Truck	No	40	75.0	5000.0	0.0
Pickup Truck	No	40	75.0	5000.0	0.0
Vacuum Street Sweeper	No	10	81.6	5000.0	0.0
Pumps	No	50	80.9	5000.0	0.0
Pumps	No	50	80.9	5000.0	0.0
Pumps	No	50	80.9	5000.0	0.0
Pumps	No	50	80.9	5000.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	37.6	33.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	36.5	32.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	36.5	32.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacuum Street Sweeper	41.6	31.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	40.9	37.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	40.9	37.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps	40.9	37.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Pumps		40.9	37.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	41.6	46.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/23/2019
Case Description: Backfilling

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Riverside National Cemetery	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dump Truck	No	40		76.5	250.0	0.0
Dump Truck	No	40		76.5	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Vacuum Street Sweeper	No	10		81.6	250.0	0.0
Compactor (ground)	No	20		83.2	250.0	0.0
Vacuum Street Sweeper	No	10		81.6	250.0	0.0
Pumps	No	50		80.9	250.0	0.0
Pumps	No	50		80.9	250.0	0.0
Pumps	No	50		80.9	250.0	0.0
Pumps	No	50		80.9	250.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq

```
Dump Truck                62.5    58.5        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Dump Truck                62.5    58.5        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pickup Truck              61.0    57.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pickup Truck              61.0    57.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pickup Truck              61.0    57.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pickup Truck              61.0    57.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pickup Truck              61.0    57.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pickup Truck              61.0    57.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Vacuum Street Sweeper     67.6    57.6        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Compactor (ground)        69.3    62.3        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Vacuum Street Sweeper     67.6    57.6        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pumps                     67.0    64.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pumps                     67.0    64.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pumps                     67.0    64.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pumps                     67.0    64.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
              Total       69.3    72.4        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A

                                 **** Receptor #2 ****

                                           Baselines (dBA)
Description          Land Use         Daytime     Evening     Night
-----------          --------         -------     -------     -----
Residences (SW)      Residential         65.0        45.0      45.0

                                      Equipment
                                      ---------
                                           Spec     Actual      Receptor     Estimated
                          Impact   Usage    Lmax     Lmax        Distance     Shielding
Description               Device   (%)      (dBA)    (dBA)       (feet)        (dBA)
-----------               ------   -----    -----    -----       --------     ---------
Dump Truck                    No      40              76.5        5000.0           0.0
Dump Truck                    No      40              76.5        5000.0           0.0
Pickup Truck                  No      40              75.0        5000.0           0.0
Pickup Truck                  No      40              75.0        5000.0           0.0
```

Pickup Truck	No	40	75.0	5000.0	0.0
Pickup Truck	No	40	75.0	5000.0	0.0
Pickup Truck	No	40	75.0	5000.0	0.0
Pickup Truck	No	40	75.0	5000.0	0.0
Vacuum Street Sweeper	No	10	81.6	5000.0	0.0
Compactor (ground)	No	20	83.2	5000.0	0.0
Vacuum Street Sweeper	No	10	81.6	5000.0	0.0
Pumps	No	50	80.9	5000.0	0.0
Pumps	No	50	80.9	5000.0	0.0
Pumps	No	50	80.9	5000.0	0.0
Pumps	No	50	80.9	5000.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dump Truck	36.5	32.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	36.5	32.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacuum Street Sweeper	41.6	31.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground)	43.2	36.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacuum Street Sweeper	41.6	31.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Pumps			40.9	37.9		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps			40.9	37.9		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps			40.9	37.9		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumps			40.9	37.9		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total		43.2	46.3		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/23/2019
Case Description: Pipelaying

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Riverside National Cemetery	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	250.0	0.0
Dozer	No	40		81.7	250.0	0.0
Welder / Torch	No	40		74.0	250.0	0.0
Generator	No	50		80.6	250.0	0.0
Vacuum Street Sweeper	No	10		81.6	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pumps	No	50		80.9	250.0	0.0
Pumps	No	50		80.9	250.0	0.0
Pumps	No	50		80.9	250.0	0.0
Pumps	No	50		80.9	250.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Crane	66.6	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

```
Dozer                     67.7    63.7        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Welder / Torch            60.0    56.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Generator                 66.7    63.6        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Vacuum Street Sweeper     67.6    57.6        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pickup Truck              61.0    57.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pickup Truck              61.0    57.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pickup Truck              61.0    57.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pickup Truck              61.0    57.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pumps                     67.0    64.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pumps                     67.0    64.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pumps                     67.0    64.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
Pumps                     67.0    64.0        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A
              Total       67.7    72.6        N/A     N/A     N/A     N/A     N/A
N/A       N/A     N/A     N/A     N/A     N/A     N/A

                                   **** Receptor #2 ****

                                          Baselines (dBA)
Description          Land Use         Daytime     Evening     Night
-----------          --------         -------     -------     -----
Residences (SW)      Residential         65.0        45.0      45.0

                                     Equipment
                                     ---------
                                          Spec      Actual      Receptor     Estimated
                          Impact  Usage   Lmax      Lmax        Distance     Shielding
Description               Device  (%)     (dBA)     (dBA)       (feet)         (dBA)
-----------               ------  -----   -----     -----       --------     ---------
Crane                         No     16              80.6        5000.0            0.0
Dozer                         No     40              81.7        5000.0            0.0
Welder / Torch                No     40              74.0        5000.0            0.0
Generator                     No     50              80.6        5000.0            0.0
Vacuum Street Sweeper         No     10              81.6        5000.0            0.0
Pickup Truck                  No     40              75.0        5000.0            0.0
Pickup Truck                  No     40              75.0        5000.0            0.0
Pickup Truck                  No     40              75.0        5000.0            0.0
Pickup Truck                  No     40              75.0        5000.0            0.0
Pumps                         No     50              80.9        5000.0            0.0
```

Pumps	No	50	80.9	5000.0	0.0
Pumps	No	50	80.9	5000.0	0.0
Pumps	No	50	80.9	5000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)	Day		Evening		Night	
	Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	40.6	32.6	N/A	N/A	N/A	N/A
Dozer	41.7	37.7	N/A	N/A	N/A	N/A
Welder / Torch	34.0	30.0	N/A	N/A	N/A	N/A
Generator	40.6	37.6	N/A	N/A	N/A	N/A
Vacuum Street Sweeper	41.6	31.6	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A
Pumps	40.9	37.9	N/A	N/A	N/A	N/A
Pumps	40.9	37.9	N/A	N/A	N/A	N/A
Pumps	40.9	37.9	N/A	N/A	N/A	N/A
Pumps	40.9	37.9	N/A	N/A	N/A	N/A
Total	41.7	46.6	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/23/2019
Case Description: Restoration

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Riverside National Cemetery	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	250.0	0.0
Vacuum Street Sweeper	No	10		81.6	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0
Pickup Truck	No	40		75.0	250.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Paver	63.2	60.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vacuum Street Sweeper	67.6	57.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	61.0	57.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	61.0	57.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	61.0	57.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A N/A N/A N/A N/A N/A N/A
Pickup Truck 61.0 57.0 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A
Total 67.6 65.6 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences (SW)	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	5000.0	0.0
Vacuum Street Sweeper	No	10		81.6	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA) Day Evening Night

Day Evening Night

Equipment Lmax Leq Lmax Leq Lmax Leq Lmax Leq Lmax Leq Lmax Leq
Paver 37.2 34.2 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A
Vacuum Street Sweeper 41.6 31.6 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A
Pickup Truck 35.0 31.0 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A
Pickup Truck 35.0 31.0 N/A N/A N/A N/A N/A
N/A N/A N/A N/A N/A N/A N/A

Pickup Truck			35.0	31.0		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck			35.0	31.0		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total		41.6	39.6		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/14/2020
Case Description: Trenching for Dewatering Facilities - Install

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Cemetery (200 ft)	Commercial	65.0	55.0	45.0

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Equipment Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	200.0	0.0
Backhoe	No	40		77.6	200.0	0.0
Backhoe	No	40		77.6	200.0	0.0
Man Lift	No	20		74.7	200.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Man Lift	62.7	55.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.5	61.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.5	61.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	62.7	55.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.5	65.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences (5000 ft)	Industrial	65.0	55.0	45.0

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Equipment Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	5000.0	0.0
Backhoe	No	40		77.6	5000.0	0.0
Backhoe	No	40		77.6	5000.0	0.0
Man Lift	No	20		74.7	5000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Man Lift	34.7	27.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	37.6	33.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	37.6	33.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	34.7	27.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	37.6	37.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/23/2019
Case Description: Well Decommissioning

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Riverside National Cemetery	Residential	65.0	45.0	45.0

Description	Impact Device	Usage (%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	50.0	0.0
Backhoe	No	40		77.6	50.0	0.0
Dump Truck	No	40		76.5	50.0	0.0
Pickup Truck	No	40		75.0	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Drill Rig Truck	79.1	72.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	76.5	72.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	75.0	71.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	79.1	78.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences (SW)	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	5000.0	0.0
Backhoe	No	40		77.6	5000.0	0.0
Dump Truck	No	40		76.5	5000.0	0.0
Pickup Truck	No	40		75.0	5000.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Drill Rig Truck	39.1	32.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	37.6	33.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	36.5	32.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pickup Truck	35.0	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	39.1	38.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Engineering, Operations, & Technology Committee

Perris Valley Pipeline Interstate 215 Crossing

Item 7-3

January 9, 2023

Perris Valley Pipeline
Interstate 215 Crossing

Current Action

- Award a $59,489,720 contract to James W. Fowler Company for construction of the Interstate 215 freeway tunnel crossing for the Perris Valley Pipeline
- Authorize agreements with:
  - Parsons Environment & Infrastructure Group, Inc. for $1,000,000 to provide technical support during construction
  - Mott McDonald Group for $3,500,000 to provide construction management support
  - Rincon Consultants, Inc. for $250,000 to provide specialized environmental support

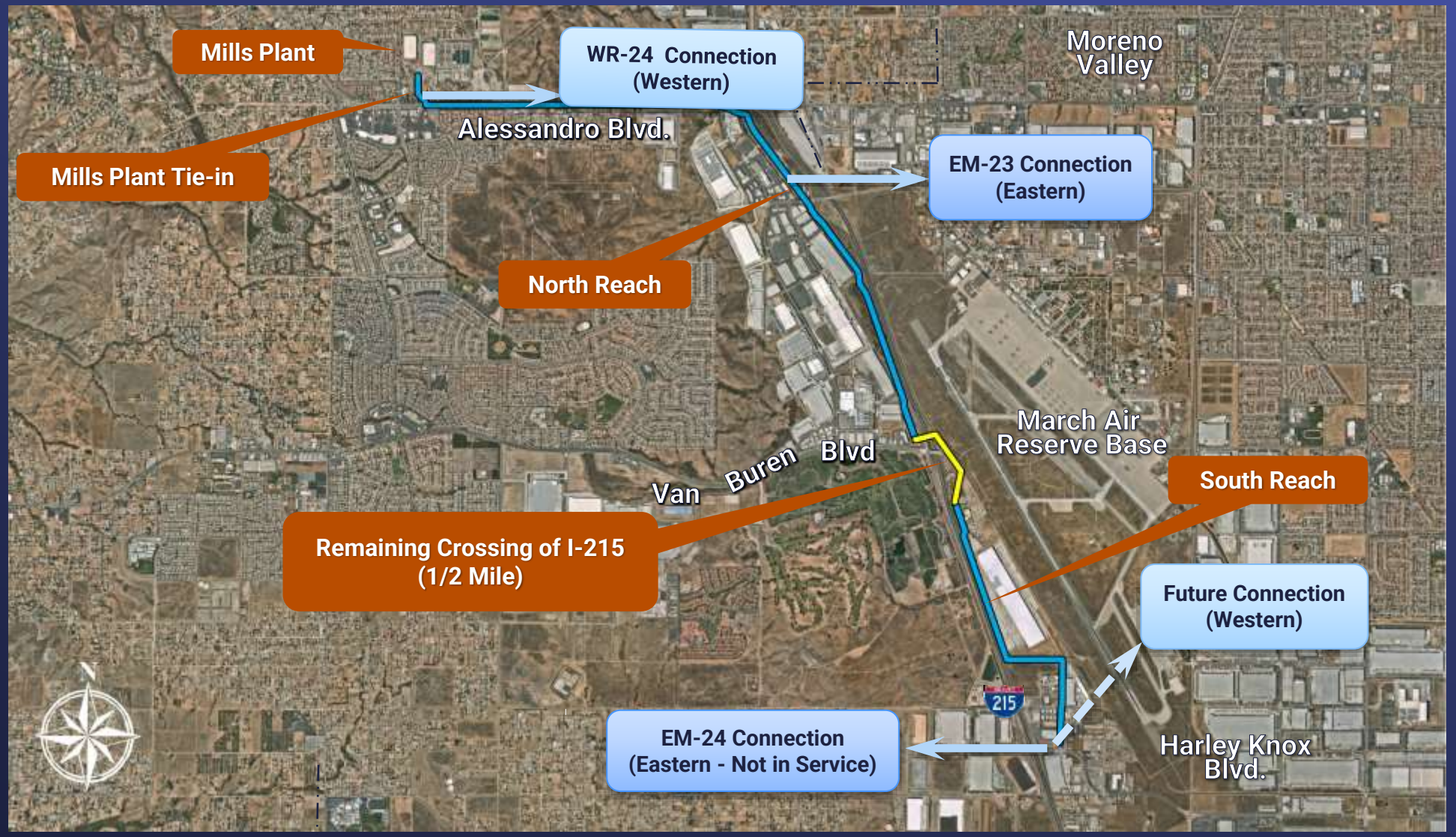
Distribution System

Perris Valley Pipeline
Interstate 215 Crossing

Background

- 2004 - Eastern MWD & Western MWD of Riverside County requested additional water deliveries from the Mills plant
- 2006 to 2008 - 3 construction contracts awarded
  - 8-ft diameter, 6.5-mile pipeline
    - Mills plant tie-in (237 ft)
    - North reach (2.6 miles)
    - South reach (3.5 mile)

Perris Valley Pipeline



Project Scope of Work

Perris Valley Pipeline
Interstate 215 Crossing

Contractor – Scope of Work

- Construct four access shafts
- Construct approx. 3,000 LF of tunnel
  - Install initial ground support (IGS)
  - Groundwater management
    - Treat for PFAS, if detected
- Install 97” ID Welded Steel Pipe (WSP)
- Grout the annular space between WSP & IGS
- Mortar line the WSP
- Restore the project sites

Tunnel Boring Machine

Bid Results
Specifications No. 1928**

Bids Received	December 1, 2022
No. of Bidders	2
Lowest Responsible Bidder	James W. Fowler Company
Low Bid	$59,489,720
Other Bid	$67,880,500
Engineer's Estimate	$74,000,000
SBE Participation*	11%

*SBE (Small Business Enterprise) participation level set at 10%

**This contract will be conducted under the terms of Metropolitan's project labor agreement

Perris Valley Pipeline
Interstate 215 Crossing

Alternatives Considered for Staffing

- Utilize Metropolitan staff
  - Current workloads exceed available staff resources
  - Specialized technical expertise required
- Selected option
  - Develop hybrid Metropolitan/consultant team
  - Metropolitan leads construction management effort
  - Consultants provide specialized expertise & augment current staff levels

Perris Valley Pipeline
Interstate 215 Crossing

Mott McDonald Group Agreement

- Prequalified under RFQ No. 1298
- Provides specialized construction management support
- Scope of work
  - Conduct field inspection for tunnelling activities
  - Review tunnel submittals
  - Provide general construction management support
- NTE amount: $3,500,000
- SBE participation level: 25%

Perris Valley Pipeline
Interstate 215 Crossing

Parsons Environment & Infrastructure Agreement

- Engineer of record
- Scope of work – Technical support during construction
  - Submittal review
  - Responding to requests for information
  - Advising inspectors on technical issues
  - Preparing record drawings
- NTE amount: $1,000,000
- SBE participation level: 25%

Perris Valley Pipeline
Interstate 215 Crossing

Rincon Consulting, Inc. Agreement

- Prequalified under RFQ No. 1265
  - Selected based on firm's expertise with CEQA compliance
- Provides environmental monitoring support
- Scope of work
  - Perform preconstruction surveys
  - Provide environmental awareness training
  - Conduct construction monitoring & reporting
  - Provide general support
- NTE amount: $250,000

Perris Valley Pipeline
Interstate 215 Crossing

Metropolitan Scope

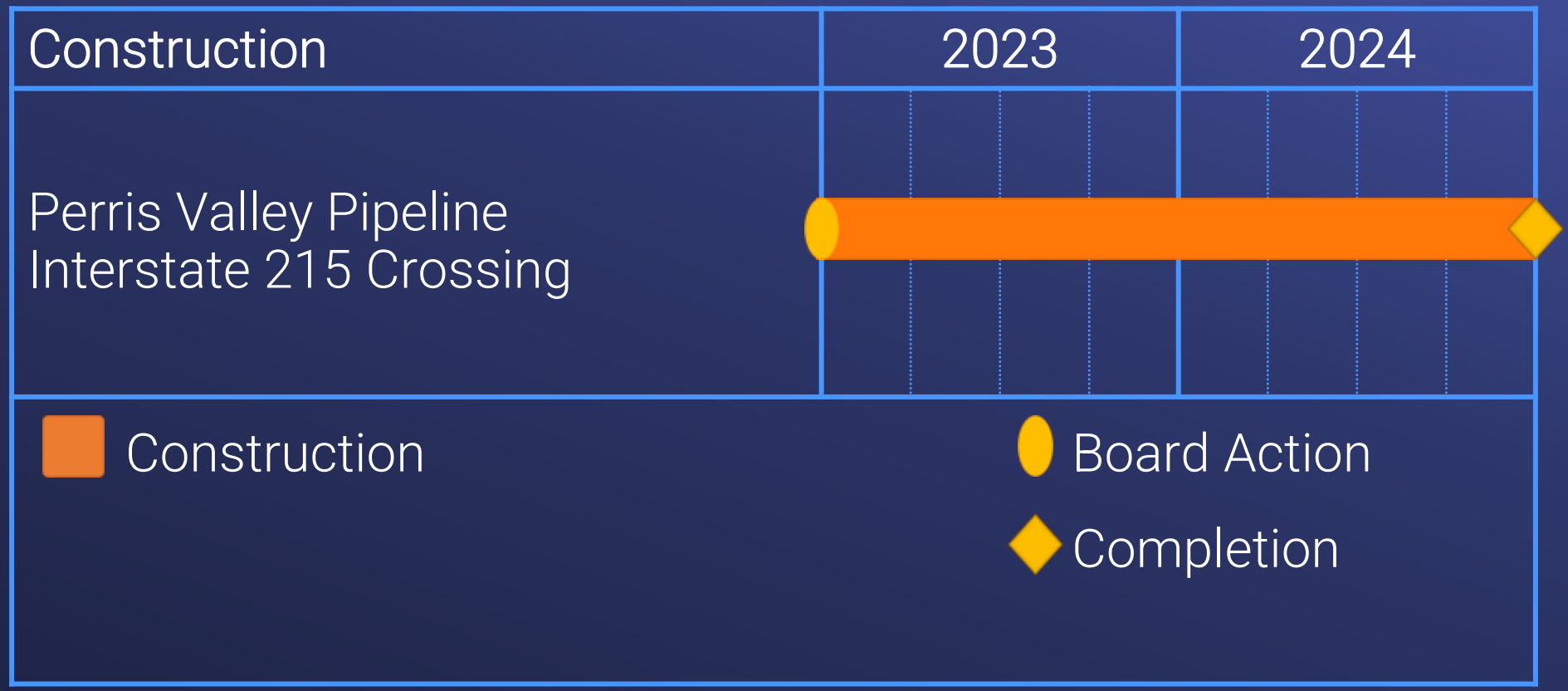
- Shutdown, final disinfection, & return of pipeline to service
- Construction management & inspection
- Contract administration, project controls, PLA administration & project management

Allocation of Funds

Perris Valley Pipeline Interstate 215 Crossing

Metropolitan Labor		
Owners Costs (Proj. Mgmt., Contract Admin., Envir. Support)	$	2,080,000
Construction Inspection & Support		3,100,000
Force Construction		600,000
Submittals Review, Tech. Support, Record Dwgs.		769,000
Professional/Technical Services		
Parsons Environment & Infrastructure Group		1,000,000
Mott McDonald Group		3,500,000
Rincon Consulting, Inc.		250,000
PLA Administration		240,000
Right-of-Way		500,000
Construction Contract		
James W. Fowler Company		59,489,720
Remaining Budget		3,471,280
Total		$ 75,000,000

Project Schedule



Board Options

- Option #1

  Review and consider Addendum No. 3 to the certified 2005 Environmental Impact Report and:

  a. Award a $59,489,720 contract to James W. Fowler Company for construction of the Interstate 215 freeway tunnel crossing for the Perris Valley Pipeline.
  b. Authorize an agreement with Parsons Environment & Infrastructure Group, Inc., for $1 million to provide technical support during construction.
  c. Authorize an agreement with Mott McDonald Group, for $3.5 million to provide construction management support.
  d. Authorize an agreement with Rincon Consultants, Inc., for $250,000 to provide specialized environmental support.

Board Options

- Option #2

  Do not proceed with this project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- **Board of Directors**
  Engineering, Operations and Technology Committee

1/10/2023 Board Meeting

7-4

Subject

Authorize an agreement with Arcadis U.S., Inc. in an amount not to exceed $2 million for preliminary design to rehabilitate the finished water reservoirs at Henry J. Mills and Joseph Jensen Water Treatment Plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Metropolitan's finished water reservoirs provide operational storage capacity within the distribution system to regulate treated water deliveries to member agencies. The California Division of Drinking Water (DDW) requires that all reservoirs holding treated water be covered in order to protect it from contamination. The flexible floating covers of two finished water reservoirs at the Henry J. Mills Water Treatment (Mills) Plant and one finished water reservoir at the Joseph Jensen Water Treatment Plant (Jensen) have exceeded their recommended 20-year service life and need to be replaced. This action authorizes an agreement with Arcadis U.S., Inc. (Arcadis) to provide engineering services to complete preliminary design for the rehabilitation of finished water reservoirs at the Mills and Jensen plants.

Details

Background

Located within the city of Riverside, the Mills plant was placed into service in 1978, has a current treatment capacity of 220 million gallons per day (mgd) and treats water from the East Branch of the State Water Project (SWP) and occasionally from Diamond Valley Lake. The plant operates two finished water reservoirs with floating covers and geomembrane liners. The hypalon cover on Reservoir No. 1 was installed in 1997, while the polypropylene cover on Reservoir No. 2 was installed in 1996. Each reservoir has a capacity of 25 million gallons (MG), and both are classified as jurisdictional dams by the state Division of Safety of Dams (DSOD).

Located in the community of Granada Hills, the Jensen plant was placed into service in 1972, has a current treatment capacity of 750 mgd, and treats water from the West Branch of the SWP. The plant has two 50-MG finished water reservoirs. Reservoir No. 1 is a concrete structure with a concrete roof, while Reservoir No. 2 has a polypropylene floating cover which was installed in 1997.

Treated water is stored in these reservoirs to serve the downstream distribution system. To protect treated water from contamination, DDW requires that all finished water reservoirs be covered. Metropolitan has a rigorous floating cover inspection and maintenance program to ensure compliance with DDW regulations. The floating covers are carefully inspected on a regular basis to identify damage and signs of deterioration. The useful life of a reservoir's floating cover is determined by the longevity of the cover material based on the ability of staff to repair the cover. As the cover material ages, the bonding capability of repair patches to adhere to the original material declines. The repair patches become increasingly less effective, and the actual repair work becomes more difficult to perform. When the cover material can no longer be reliably repaired, it is considered to be at the end of its useful life. The typical useful life for a floating cover is approximately 20 years.

The floating covers at both Mills reservoirs and Jensen's Reservoir No. 2 have exceeded the recommended 20-year service life based on the repair criteria described above. Each cover must be rehabilitated to maintain treated water quality, comply with DSOD operating permits, and minimize the risk of costly urgent repairs. In addition to the new liners and floating covers, other improvements are also needed, including a rainwater

removal system and dewatering system, enhanced security features, refurbishment or replacement of the existing gates, and installation of a new drop gate at the Mills reservoirs. In addition, the Jensen Reservoir No. 2 inlet needs to be modified, as turbulent flow at the inlet has torn holes in the floating cover on several occasions near the corners of the fixed metal air vents.

In April 2017, Metropolitan's Board authorized preliminary design to rehabilitate the three finished water reservoirs with floating covers at the Mills and Jensen plants. To date, staff has performed reservoir gate inspections during recent plant shutdowns, evaluated the Jensen plant's domestic water connections and groundwater extraction system at Reservoir No. 2, reviewed floating cover structural support and anchorage, and conducted value engineering on the proposed modifications. Staff also assessed the impact of low-flow operations at both plants which leads to inadequate mixing, increased water age, and potential water quality concerns within the finished water reservoirs. A computational fluid dynamic model was developed for each reservoir to locate potential stagnant zones where mixing needs to be improved to maintain uniform chlorine residual through the reservoir. While the study concluded that modifying the inlet flow in all three reservoirs would enhance the mixing conditions, specialized simulation expertise is required to further evaluate multiple mixing scenarios for water dispersion and retention, optimize the inlet flow modifications, and develop a series of recommended improvements that will effectively reduce tearing to the floating covers. The results and recommendations of these additional studies and modeling will be taken into account during the preliminary design process and will be added to the project scope as appropriate.

To fully address the reservoir mixing issues, staff recommends that the preliminary design of Mills and Jensen reservoir rehabilitation be completed by a specialized consultant under a new professional services agreement, which is the subject of this action.

In accordance with the April 2022 action on the biennial budget for fiscal years 2022/23 and 2023/24, the General Manager will authorize staff to proceed with the action described herein, pending board authorization of the agreement described below. Based on the current Capital Investment Plan (CIP) expenditure forecast, funds for work to be performed pursuant to this action during the current biennium are available within the CIP appropriation for fiscal years 2022/23 and 2023/24 (Appropriation No. 15525). This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP evaluation team to be included in the Dams and Reservoirs Improvements Program.

Mills and Jensen Finished Water Reservoirs Rehabilitation – Preliminary Design

Planned activities to complete preliminary design for rehabilitation of the Mills and Jensen finished water reservoirs include: (1) detailed field inspections of existing reservoir features and appurtenant equipment; (2) evaluation of mixing scenarios for water dispersion and retention; (3) development of final design criteria; (4) preparation of preliminary design drawings and three-dimensional reservoir models; (5) development of construction cost estimates and schedules for each reservoir; and (6) preparation of preliminary design reports for each reservoir. These activities will be performed by Arcadis as discussed below. Metropolitan staff will prepare the piping and instrumentation diagrams and design of new reservoir instrumentation and control features, including sampling equipment, water quality analyzers, level alarms, elevation monitoring, and control of new slide gates and rainwater removal pumps. Metropolitan staff will also perform overall project management and technical oversight and review of the consultant's work.

A total of $3.65 million is required to complete preliminary design to rehabilitate the Mills and Jensen finished water reservoirs. Additional funds required to complete the preliminary design include $2 million for engineering services provided by Arcadis as described below; $744,000 for Metropolitan's staff portion of the design, technical oversight, and review of consultant's work; $566,000 for permitting with DSOD and DDW, environmental support, project management, and project controls; and $340,000 for remaining budget. **Attachment 1** provides the allocation of the required funds to complete the preliminary design work. The total estimated cost to complete this project, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from $39 million to $43 million.

Engineering Services (Arcadis U.S., Inc.) – New Agreement

Arcadis is recommended to complete preliminary design for the rehabilitation of three finished water reservoirs at the Mills and Jensen plants, as described above. Arcadis was selected through a competitive process under

Request for Proposals No. 1328. Arcadis was selected for this project based on their staff qualifications, experience in the evaluation and design of similar projects, and technical approach and methodology.

This action authorizes an agreement with Arcadis for a not-to-exceed amount of $2 million to provide engineering services to complete preliminary design for the rehabilitation of three finished water reservoirs at the Mills and Jensen plants. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 25 percent. Arcadis has agreed to meet this level of participation. See **Attachment 2** for a listing of the subconsultants.

Alternatives Considered

Alternatives considered to complete the preliminary design for finished water reservoir rehabilitation at the Mills and Jensen plants included assessing the availability and capability of in-house Metropolitan staff to complete this work. Metropolitan's staffing strategy for utilizing consultants and in-house Metropolitan staff has been: (1) to assess current work assignments for in-house staff to determine the potential availability of staff to conduct this work; and (2) for long-term rehabilitation projects, when resource needs exceed available in-house staffing or require specialized technical expertise.

Staff has determined that specialized technical expertise is required to complete the preliminary design of the reservoir liner, floating cover replacement, and the mixing improvements required to minimize stagnant water in the reservoirs. Metropolitan staff do not routinely perform these designs. After assessing the current workload for in-house staff, the relative priority of this project, and the specialized technical expertise required, staff recommends the use of a professional services agreement to complete the subject project. This approach will allow for the completion of not only this project, but also other budgeted capital projects within their current schedules and ensure that the work is conducted in the most efficient manner possible.

Summary

This action authorizes an agreement with Arcadis U.S., Inc. in an amount not to exceed $2 million to complete the preliminary design for the rehabilitation of finished water reservoirs at the Mills and Jensen plants. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the List of Subconsultants, and **Attachment 3** for the Location Map.

Project Milestone

April 2024 – Completion of preliminary design to rehabilitate the reservoirs at the Mills and Jensen plants

Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 50782, dated April 11, 2017, the Board authorized preliminary design to rehabilitate finished water reservoirs at the Joseph Jensen and Henry J. Mills Water Treatment Plants.

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of $600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of basic data collection and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed actions qualify for a Class 6 Categorical Exemptions (Class 6, Section 15306 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an agreement with Arcadis U.S., Inc. in an amount not to exceed $2 million for preliminary design to rehabilitate the finished water reservoirs at Henry J. Mills and Joseph Jensen Water Treatment Plants.

Fiscal Impact: Expenditure of $3.65 million in capital funds. All costs will be incurred in the current biennium and have been previously appropriated.

Business Analysis: This option will improve the reliability of the Mills and Jensen reservoirs, maintain treated water quality, and enhance flexibility within the distribution system to meet member agency demands.

Option #2

Do not proceed with the project at this time.

Fiscal Impact: None

Business Analysis: Under this option, staff would continue to inspect and repair the finished water reservoir covers and equipment, as required. If damage to a floating cover could no longer be reliably repaired, the reservoir would be removed from service until the floating cover is replaced.

Staff Recommendation

Option #1

12/19/2022

John V. Bednarski *Date*
Manager/Chief Engineer
Engineering Services

12/22/2022

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Budgeted Funds

Attachment 2 – Listing of Subconsultants

Attachment 3 – Location Map

Ref# es12685129

Allocation of Funds for Mills and Jensen Finished Water Reservoirs Rehabilitation

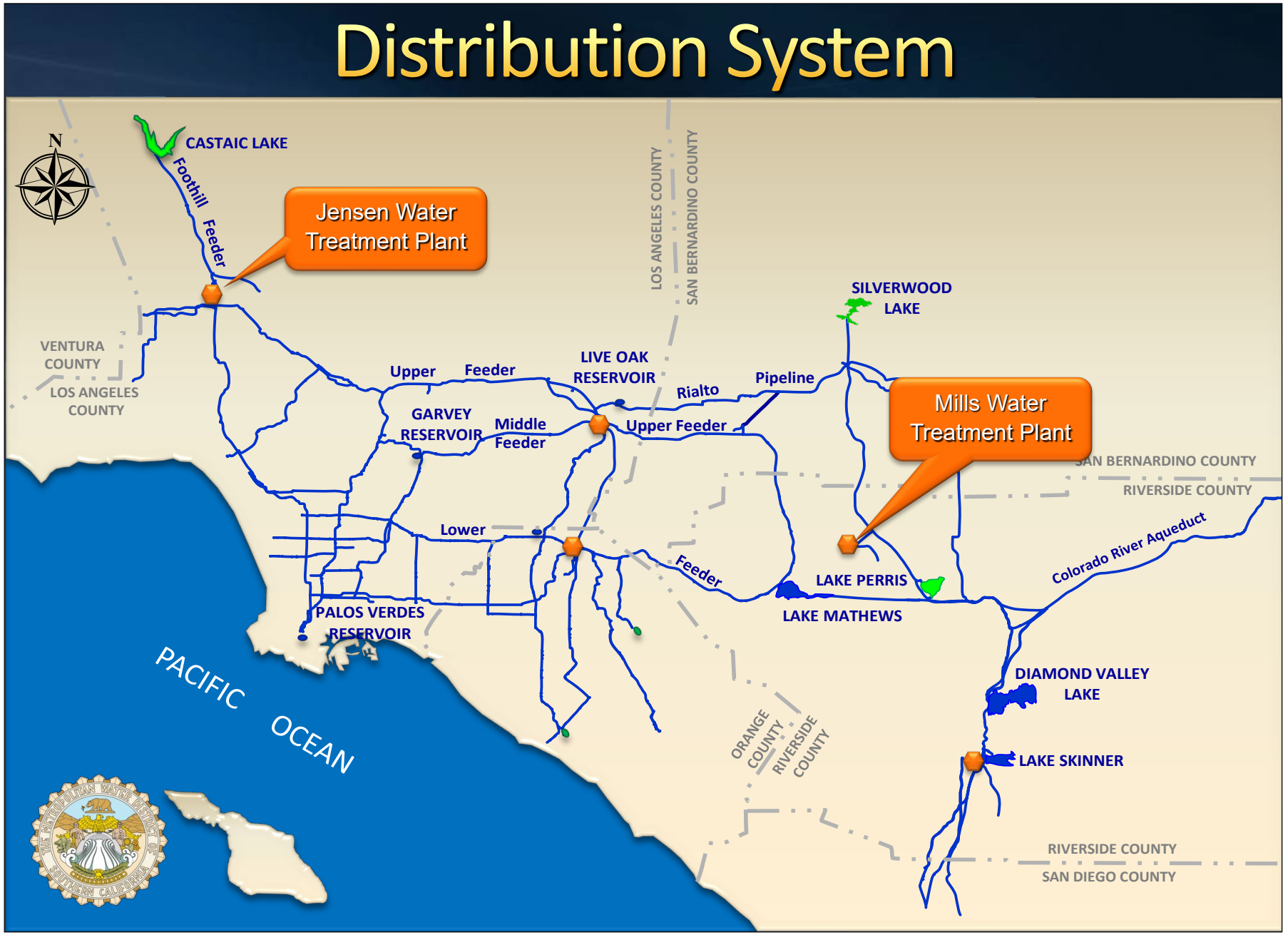
	Current Board Action (Jan. 2023)
Labor	
Studies & Investigations	$ 744,000
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	566,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Arcadis U.S., Inc.	2,000,000
Right-of-Way	-
Equipment Use	-
Contracts	-
Remaining Budget	340,000
Total	**$ 3,650,000**

The total amount expended to date for the Mills and Jensen Finished Water Reservoirs Rehabilitation is approximately $1.25 million. The total estimated cost to complete this project, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from $39 million to $43 million.

The Metropolitan Water District of Southern California

Subconsultants for Agreement with Arcadis U.S., Inc.
Mills and Jensen Finished Water Reservoirs Rehabilitation

Subconsultant and Location
Hilts Consulting Group, Inc. Yorba Linda, CA
Paul Hansen Engineering Rancho Palos Verdes, CA
Beyaz & Patel, Inc. San Diego, CA


Distribution System
N
CASTAIC LAKE
Foothill Feeder
Jensen Water Treatment Plant
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
VENTURA COUNTY
LOS ANGELES COUNTY
Upper Feeder
LIVE OAK RESERVOIR
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
Mills Water Treatment Plant
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Lower Feeder
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
PACIFIC OCEAN
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY

Engineering, Operations, & Technology Committee

Mills and Jensen Finished Water Reservoirs Rehabilitation

Item 7-4

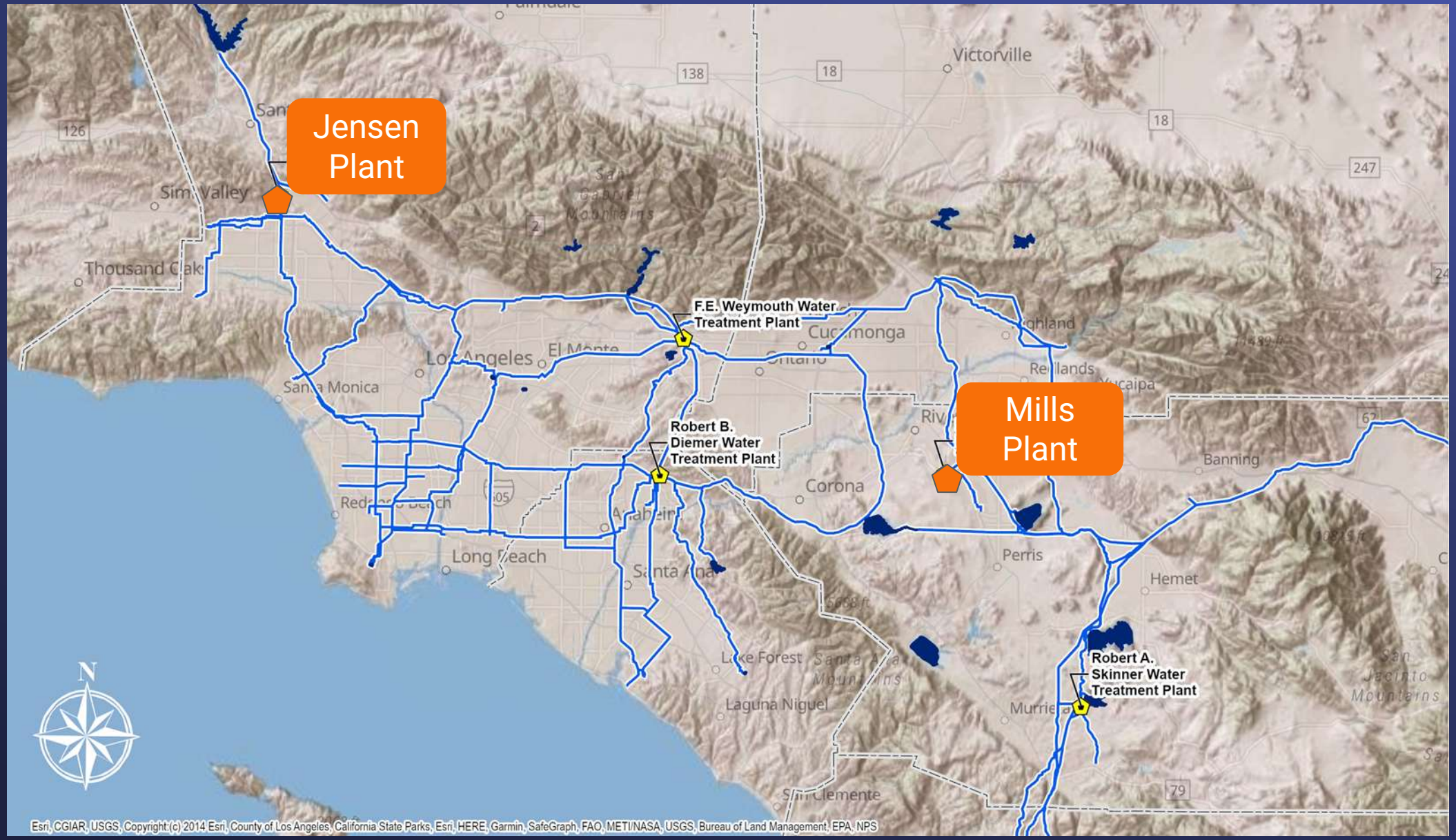
January 9, 2023

Mills and Jensen Finished Water Reservoirs Rehabilitation

Current Action

- Award an agreement with Arcadis U.S., Inc. in an amount not to exceed $2 million to complete preliminary design for the rehabilitation of three finished water reservoirs at the Mills & Jensen plants

Distribution System



Mills and Jensen Finished Water Reservoirs Rehabilitation

Background

- Reservoirs provide storage capacity to regulate treated water deliveries to member agencies
- State Division of Drinking Water requires that all finished water reservoirs be covered
- Mills plant finished water reservoirs with floating covers
  - FWR No. 1 – hypalon cover installed in 1996
  - FWR No. 2 – polypropylene cover installed in 1996
- Jensen plant finished water reservoirs
  - FWR No. 1 – concrete roof
  - FWR No. 2 – polypropylene cover installed in 1997
- Floating covers at both plants have exceeded the recommended 20-year service life

Finished Water Reservoirs

Henry J. Mills Water Treatment Plant

Joseph Jensen Water Treatment Plant

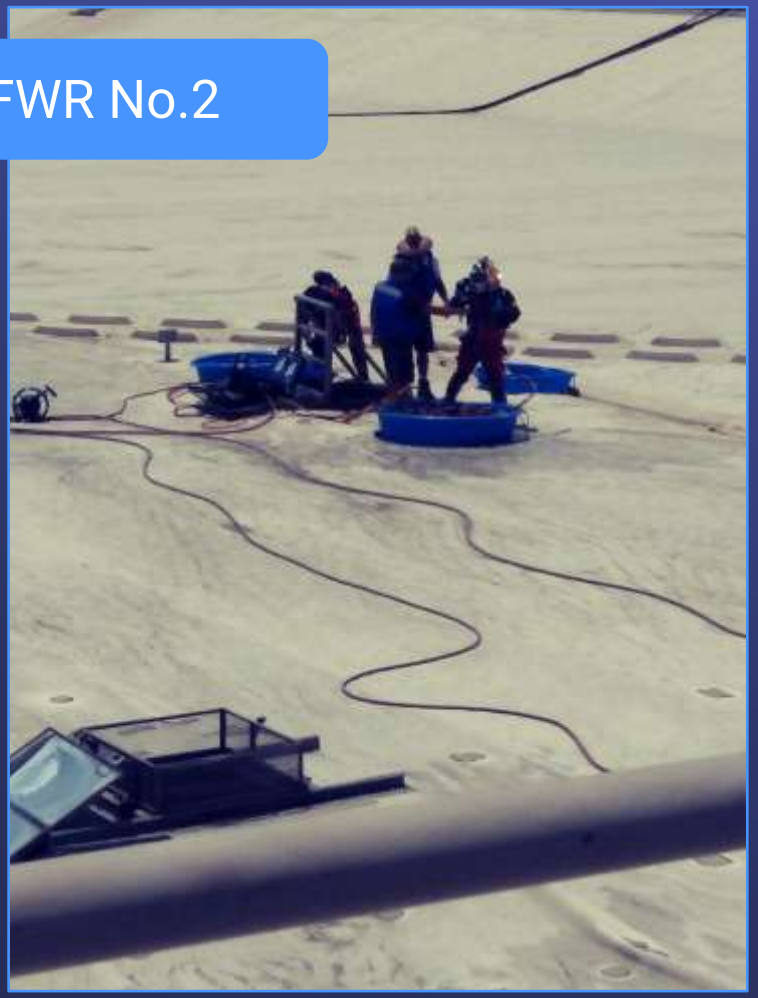
Mills and Jensen Finished Water Reservoirs Rehabilitation

Background - Floating Cover Tears and Repairs

Jensen FWR No.2

Patches to cover

Cover tear releasing water

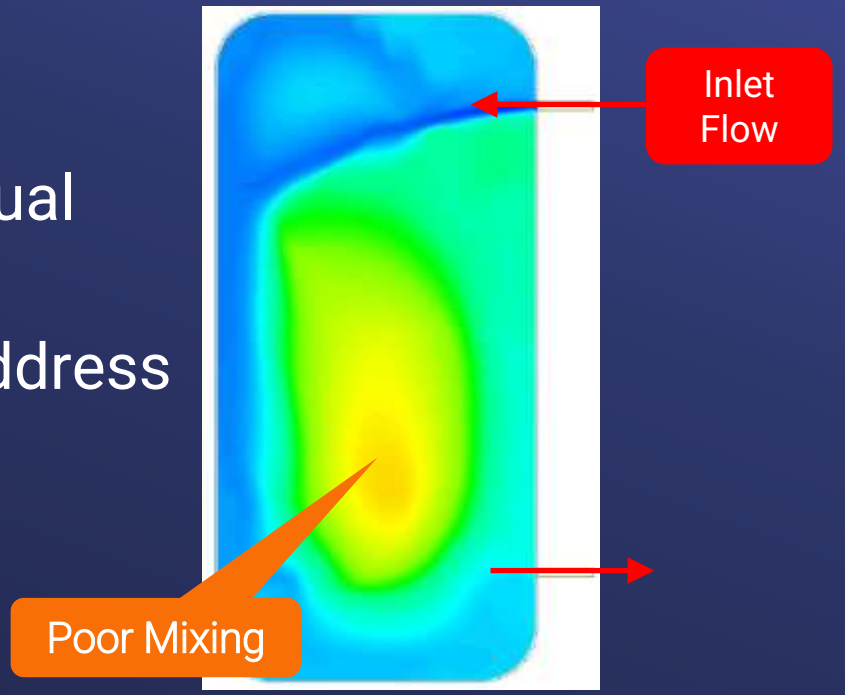


Staff performing cover repairs

Mills and Jensen
Finished Water Reservoirs Rehabilitation

Background - Hydraulic Modeling

- Treatment plants may be impacted by low flow conditions
- During low flow conditions, poor water circulation leads to potential water quality concerns in the reservoir
  - Increased water age
  - Inadequate mixing
  - Non-uniform chlorine residual
- Detailed hydraulic modeling required to understand and address deficiencies



Mills FWR No. 2

Mills and Jensen
Finished Water Reservoirs Rehabilitation

Project Scope

- Reservoir rehabilitation
  - Replace floating covers and liners
  - Refurbish existing operating equipment
  - Install new reservoir equipment
  - Replace reservoir instrumentation
- Evaluate mixing scenarios for water dispersion
- Optimize inlet flow modifications to improve mixing and reduce tearing of floating covers

Mills and Jensen
Finished Water Reservoirs Rehabilitation

Alternatives Considered

- Metropolitan staff to complete all preliminary design activities
  - Resource needs exceed staff availability
  - Specialized simulation expertise required to evaluate multiple mixing scenarios & optimize inlet flow modifications
- Selected Option
  - Staff & consultant work as a team
    - Consultant to complete mechanical, electrical, civil, & structural design
    - Metropolitan staff to perform instrumentation design & provide technical oversight of consultant's work

Mills and Jensen
Finished Water Reservoirs Rehabilitation

New Agreement – Arcadis U.S., Inc.

- Selected through RFP No. 1328
- Scope of Work
  - Complete preliminary design – mechanical, electrical, civil, structural
  - Evaluate mixing scenarios for water dispersion & retention & optimize inlet flow modifications
  - Prepare preliminary design report
- SBE participation level: 25%
- NTE amount: $2,000,000

Mills and Jensen
Finished Water Reservoirs Rehabilitation

Metropolitan Scope

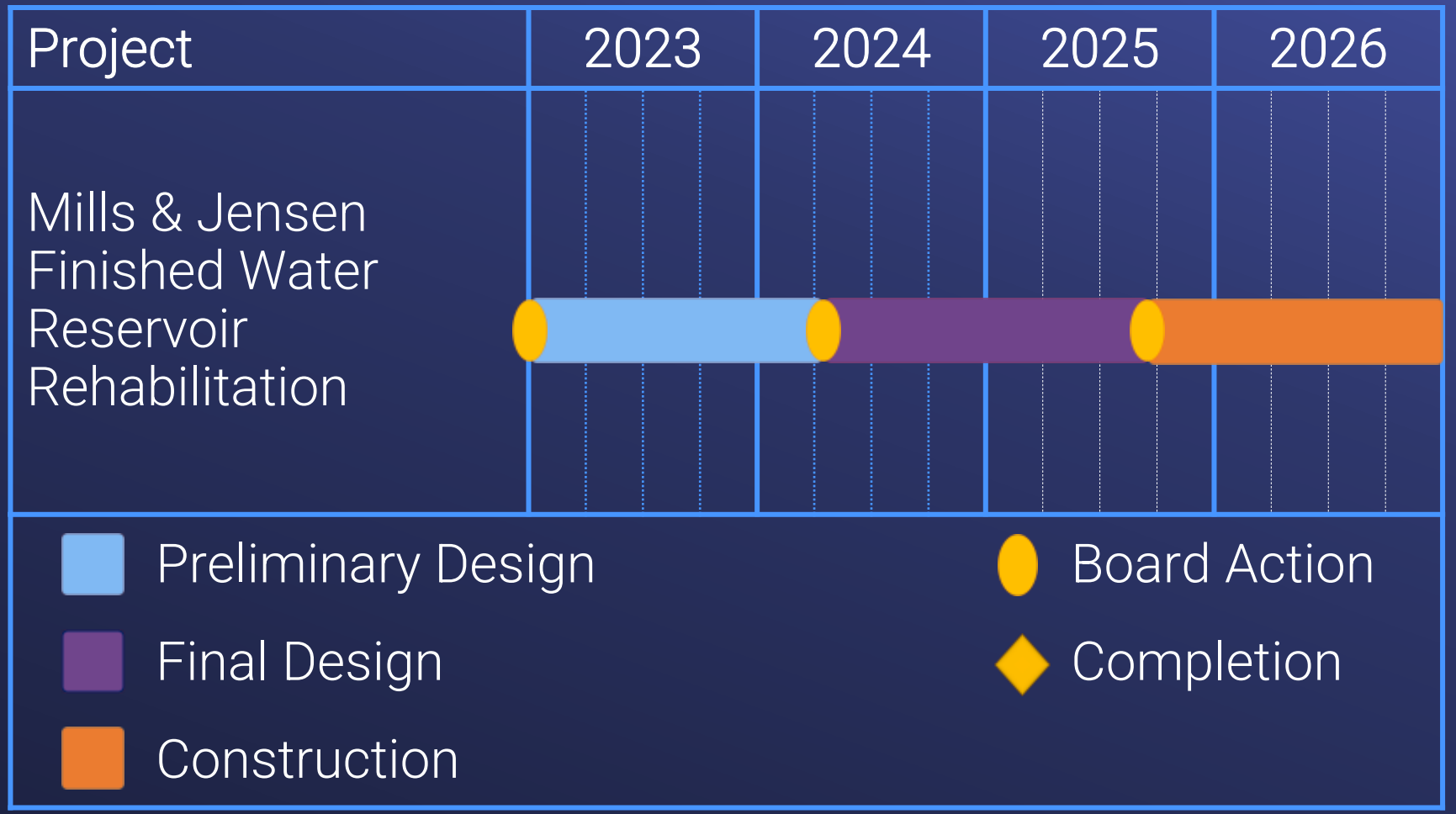
- Design of new reservoir instrumentation & control features
- Piping & instrumentation diagrams (P&IDs)
- Project management, technical oversight & review of consultant's work

Allocation of Funds

Mills and Jensen Finished Water Reservoir Rehabilitation

Metropolitan Labor		
Studies & Investigations		$ 744,000
Program mgmt. & envir. support		566,000
Professional /Technical Services		
Arcadis U.S., Inc.		2,000,000
Remaining Budget		340,000
	Total	$ 3,650,000

Project Schedule



Board Options

- Option #1

  Authorize an agreement with Arcadis U.S., Inc. in an amount not to exceed $2 million for preliminary design to rehabilitate the finished water reservoirs at Henry J. Mills and Joseph Jensen Water Treatment Plants.

- Option #2

  Do not proceed with the project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- **Board of Directors**
  Engineering, Operations, and Technology Committee

1/10/2023 Board Meeting

7-5

Subject

Authorize an agreement with the joint venture of AECOM Technical Services, Inc. and Brown and Caldwell in an amount not to exceed $25 million for program management services to support the Pure Water Southern California program; and authorize an increase of $950,000 to an existing agreement with CDM Smith, Inc. for a not-to-exceed total of $3.7 million to support the program's ongoing process demonstration effort; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

During the past decade, California has experienced significant fluctuations in imported water supplies and groundwater production due to unprecedented drought conditions. The need to develop additional water resources has become increasingly evident with the challenges from recurring droughts, climate change, seismic risks, and uncertainties of imported water supplies. In December 2022, Metropolitan's Board authorized the use of an $80 million grant from the State Water Resources Control Board (SWRCB) to commence activities related to the initiation of the Pure Water Southern California program (Program) and continue its advanced water treatment demonstration studies. To manage the Program, staff recommends the use of both in-house staff and consultants. This action authorizes an agreement with the joint venture of AECOM Technical Services, Inc. (AECOM) and Brown and Caldwell for an initial term of three years to provide supplemental program management functions in support of in-house staff efforts to manage early implementation activities. This action also authorizes an amendment to an existing agreement with CDM Smith, Inc. for additional operations, maintenance, and testing support at Metropolitan's demonstration plant in Carson. Expenditures for both the program management and demonstration plant support work will be funded by the state grant. This action does not authorize the use of additional funds beyond the state grant funding authorized for use in December 2022, nor does it authorize the initiation of construction.

Details

Background

The Program (formerly referred to as the Regional Recycled Water Program) is structured as a regional undertaking with primary leadership stemming from a partnership between Metropolitan and the Los Angeles County Sanitation Districts (Sanitation Districts). Since the formation of this partnership, additional public agencies in the region have also expressed interest in supporting the development of the Program. If approved, the Program would beneficially reuse treated wastewater that is currently being discharged to the Pacific Ocean from the Sanitation Districts' Joint Water Pollution Control Plant (JWPCP) in the city of Carson. The treated wastewater would be further purified at a new advanced water purification facility at the JWPCP to produce approximately 150 million gallons per day (mgd) of purified water at full build-out. The purified water could be used to recharge regional groundwater basins through spreading facilities and injection wells, satisfy industrial demands that currently rely on imported water, and augment existing water supplies at two of Metropolitan's water treatment plants. In addition to the treatment facilities, new conveyance facilities would extend from Carson as far north as the city of Azusa, and potentially east to the city of La Verne to connect with Metropolitan's existing water treatment and distribution facilities.

The Program would create a new sustainable water supply by harvesting one of the region's largest untapped sources of treated wastewater from the JWPCP. This new water supply would help reduce the region's

dependence on imported water and would assist the region in addressing potential disruptions to imported water supplies from droughts or seismic events. This purified water would not only provide a more diversified water supply to Southern California, it also would enhance Metropolitan's operational resilience, reliability, and flexibility in the face of ongoing challenges including long-term drought and climate change. This program would also reduce the size of Metropolitan's State Water Project (SWP) dependent area, directly improving reliability for agencies that are largely reliant on Metropolitan's delivery of SWP supplies.

To date, Metropolitan has conducted various studies, including pilot and demonstration scale testing of a proposed treatment train, to confirm the feasibility of a full-scale program. In August 2021, Metropolitan's Board authorized an agreement with CDM Smith, Inc. for support of engineering and technical studies at the demonstration plant. To continue the studies to advance potable reuse technologies, develop design criteria, and facilitate regulatory permitting efforts for the Program, staff recommends amending the agreement with CDM Smith, Inc. to ensure the continuation of the consultant's support at the demonstration plant for the current testing phase. Preparation of a programmatic environmental impact report (PEIR) and associated technical studies are also underway.

In December 2022, Metropolitan's Board authorized the use of an $80 million grant from the SWRCB to commence activities related to the initiation of the Program. One of the key early activities includes the development of a program management team specializing in managing large-scale, similar-scope capital programs. Current industry practice has demonstrated that early initiation of the program management effort is essential to facilitate the successful initiation and advancement of the Program. Staff recommends that the program management activities for the Program be conducted with a team of in-house staff and consultants. Consultant expertise would be utilized to supplement the skill sets and availability of in-house staff. Staff recommends the authorization of a new consulting agreement to achieve these programmatic objectives.

In accordance with the December 2022 action to use state grant funding to initiate the Program, funds received from the SWRCB for the work to be performed pursuant to this action will be managed separately from board-appropriated Capital Investment Plan Appropriations.

Pure Water Southern California Program Management Support (AECOM and Brown and Caldwell Joint Venture) – New Agreement

The joint venture of AECOM and Brown and Caldwell is recommended to provide program management consulting support for the Program. The AECOM and Brown and Caldwell team was selected through a competitive process via Request for Proposal No. 1330 based on: (1) the firm's qualifications and record of past performance; (2) key personnel and staffing plan; (3) technical approach, methodology and project schedule; and (4) fee proposal.

Planned program management activities for the consultant include supporting staff in: (1) establishing the program management office, conducting long-term program planning, and developing an overall staffing strategy; (2) developing the program implementation strategy and milestones; (3) assessing project delivery approaches; (4) identifying opportunities for collaborative delivery of specific construction contracts; (5) developing design criteria; (6) preparation of bridging documents for the design of the advanced water purification facility, to be used for the collaborative delivery contract; (7) providing scheduling, cost control, and reporting functions; and (8) performing other program management duties as deemed necessary to advance the Program.

This action authorizes an agreement with the joint venture of AECOM and Brown and Caldwell for a not-to-exceed amount of $25 million for a term of three years to provide program management support services for the Program. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 25 percent. The AECOM and Brown and Caldwell team has agreed to meet this level of participation. See **Attachment 1** for the listing of Subconsultants for the AECOM and Brown and Caldwell joint venture, and **Attachment 2** for the Location Map.

Pure Water Southern California Demonstration Plant Support (CDM Smith, Inc.) – Agreement Amendment

In August 2021, Metropolitan's Board approved an Agreement with CDM Smith, Inc. for engineering services for support of engineering and technical studies at the advanced water treatment demonstration facility. CDM Smith, Inc. was selected in 2021 through a competitive process via Request for Proposals No. 1274, based

on the firm's experience in engineering and technical activities of a similar scope to the planned demonstration plant operations and testing.

The engineering and technical services for the demonstration plant include: (1) operating the facility to test advanced water purification technologies; (2) executing the testing and monitoring plan for secondary MBR (sMBR) treating primary effluent from the JWPCP; (3) training Metropolitan operations staff; (4) developing engineering design and operating criteria for a full-scale facility; and (5) preparing documents for regulatory approval and program permitting. Metropolitan staff is overseeing and coordinating the work performed by CDM Smith, Inc. and, along with Sanitation Districts staff, is conducting additional technical analyses to complement these activities.

An amendment to the CDM Smith, Inc. agreement is required to ensure that the consultant can continue to support the overall operations, maintenance, and testing activities at the demonstration plant for the current testing of the sMBR process. Transitioning from the previous tertiary MBR (tMBR) to the sMBR testing phase required substantial equipment and programming changes needed for the sMBR process train, including critical process, water quality, and chemical feed systems. The sMBR pretesting period was extended to ensure a stable biological process and proper functioning of equipment and instrumentation. Testing of the sMBR process and preparation of associated reports is expected to be complete by the end of 2023.

This action authorizes an increase of $950,000 to the existing agreement with CDM Smith, Inc. for a new not-to-exceed amount of $3.7 million for operations and testing activities to support ongoing engineering and technical studies at the demonstration plant. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 25 percent. CDM Smith, Inc. has agreed to meet this level of participation. CDM Smith's subconsultants include Black & Veatch Corporation, DRP Engineering, DR Consultants & Designers, and MARRS Services.

Alternatives Considered

The Program's staffing strategy has always envisioned the use of a melded team of in-house staff and consultants. This strategy relies on the assumption that a base load of in-house staff would be assigned to the Program, while professional services agreements are selectively utilized to work on projects above this baseload or where specialized needs are required. Metropolitan has a successful history of utilizing melded teams of consultants and in-house staff, and some examples include the Diamond Valley Lake program in the late-1990s and Inland Feeder program in the early 2000s.

The alternatives considered for the Program's management effort focused on determining the optimum mix of in-house staff and consultants. In developing the recommended staffing complements for the Program, staff conducted numerous interviews and assessments with other public sector agencies that were conducting similar-sized programs. The results of these assessments indicated that hybrid owner/consultant teams were effective in managing large programs. The key differentiation between programs was the level of in-house staff that were engaged to work with the consultants, ranging from only three owner's staff to approximately 60 owner's staff assigned to manage $1.5 to $2 billion programs. In several cases, the programs were managed with an approximately equivalent split between owner's staff and consultant staff.

For Metropolitan's program, staff will be assigned a variety of leadership roles. The consultant will then be relied upon to provide additional staff to augment Metropolitan skill sets, or to provide specialized skills that in-house staff does not currently possess. It is anticipated that the size of the overall management team, and the assignment of in-house staff, will ramp up over time as the workload on the program increases with the identification of specific design and construction packages. This flexible approach to staffing the program ensures that the work is conducted in the most efficient manner possible.

In developing the recommended approach to perform the demonstration studies, several alternatives were considered. The alternatives included utilizing Metropolitan's staff to perform all the work or conducting the work with a combination of in-house and consultant staff. With staffing constraints and the need for specialized technical expertise in advanced water purification, the continued use of consultants to support sMBR operations and testing is recommended. Metropolitan staff will continue to oversee the consultant's work and perform technical activities consistent with in-house staff's core competencies. This approach also allows for staff

training on advanced water purification facility operations, as it is anticipated that Metropolitan staff would be operating and maintaining a potential future full-scale facility.

Summary

This action authorizes a new professional services agreement with AECOM and Brown and Caldwell as a joint venture for a term of three years in an amount not to exceed $25 million to support program management activities for the Program, and authorizes an amendment to an existing agreement with CDM Smith, Inc. to increase the agreement by $950,000 for a new not-to-exceed total of $3.7 million to support the ongoing demonstration study efforts. See **Attachment 1** for the listing of subconsultants and **Attachment 2** for the location map.

Project Milestone

March 2024 – Board to consider certification of environmental documentation for the Program

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 50299, dated November 10, 2015, the Board authorized an agreement with County Sanitation District No. 2 of Los Angeles County for development of a potential regional recycled water supply program and a demonstration project.

By Minute Item 52174, dated November 10, 2020, the Board authorized preparation of environmental documentation and technical studies, and public outreach activities for the Regional Recycled Water Program.

By Minute Item 52476, dated August 17, 2021, the Board authorized an agreement with CDM Smith, Inc. for support of engineering and technical studies at the advanced water treatment demonstration facility.

By Minute Item 53052, dated December 13, 2022, the Board authorized the General Manager to use $80,000,000 in grant funding from the State Water Resources Control Board and to commence activities related to the initiation of the Pure Water Southern California program.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378(b)(4) and 15378(b)(5)) because it involves government funding mechanisms or government fiscal activities which do not involve any commitment to any specific project, and organizational or administrative activities that would not result in a direct or indirect physical change to the environment.
The proposed action is also categorically exempt under the provisions of CEQA and the State CEQA Guidelines because it involves basic data collection and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed action qualifies under a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

a. Authorize an agreement with the joint venture of AECOM Technical Services, Inc. and Brown and Caldwell in an amount not to exceed $25 million for program management services to support the Pure Water Southern California program.

b. Authorize an increase of $950,000 to an existing agreement with CDM Smith, Inc. for a not-to-exceed total of $3.7 million to support the Program's ongoing process demonstration effort.

Fiscal Impact: Expenditure of $25.95 million in state grant funds previously approved for use by Metropolitan's Board in December 2022. Funds received from the state for the work pursuant to this action will be managed separately from CIP Appropriations.

Business Analysis: This option would advance the development of new water sources in Southern California to augment regional supplies within Metropolitan's entire service area.

Option #2

Do not proceed with the agreements at this time.

Fiscal Impact: None

Business Analysis: This option would require staff to return to the Board with a new staffing plan to support the Program, would delay the completion of the Program's demonstration study to facilitate full-scale implementation, and would delay development of a new water resource which is resilient to drought, climate change, and seismic risks.

Staff Recommendation

Option #1

12/20/2022

John V. Bednarski *Date*
Manager/Chief Engineer
Engineering Services

12/22/2022

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Listing of Subconsultants (Revised)

Attachment 2 – Location Map

Ref# es12688275

The Metropolitan Water District of Southern California

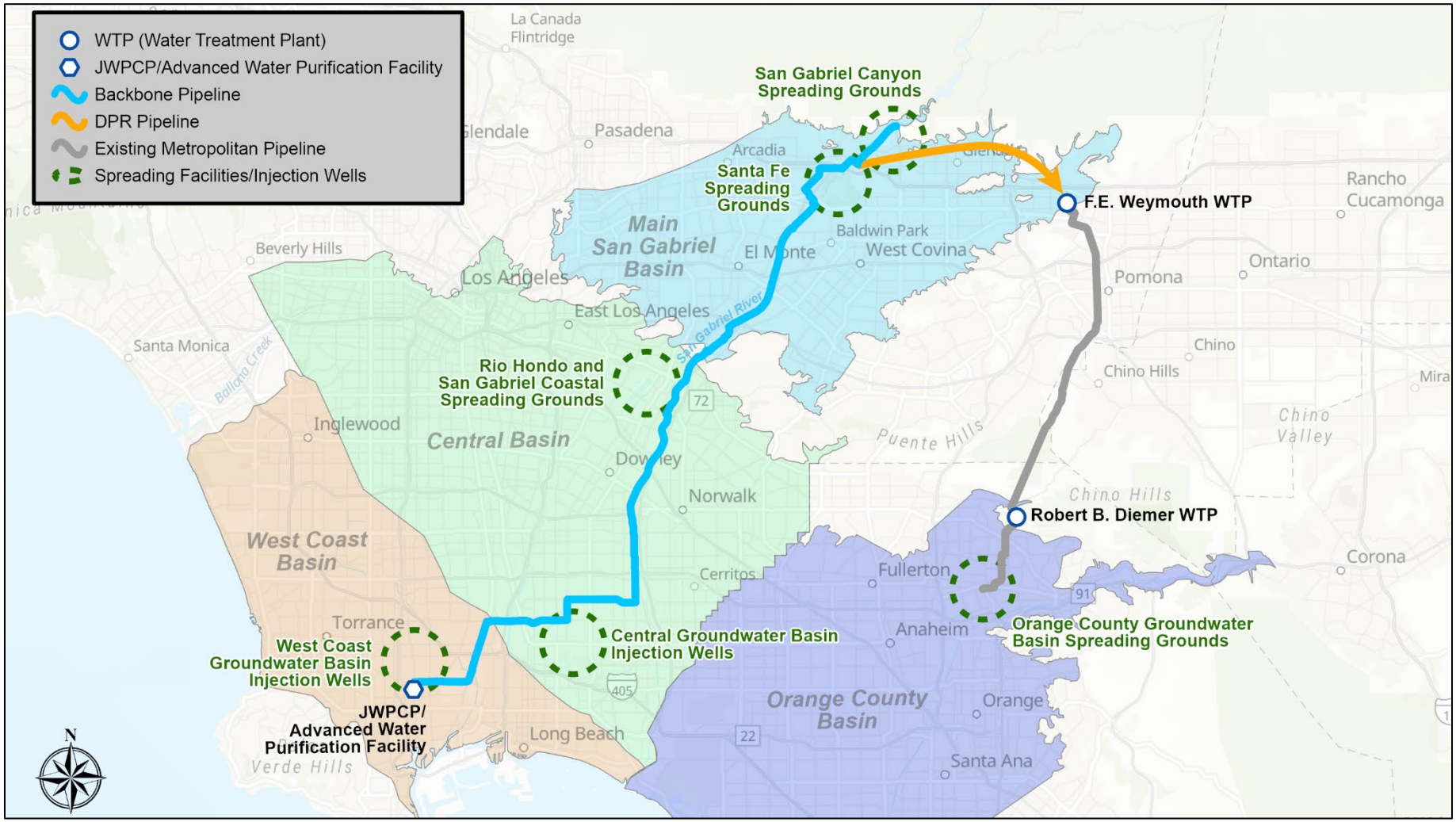
Subconsultants for Agreement with AECOM Technical Services, Inc. and Brown and Caldwell, a joint venture Pure Water Southern California Program Management

Subconsultant and Location[1]
C2PM Mission Viejo, CA
DR Consultants and Designers, Inc. Los Angeles, CA
Integrated Management, Inc. San Pedro, CA
MARRS Services, Inc. Fullerton, CA
PMCS Group, Inc. Long Beach, CA
Project Partners, Inc. Laguna Hills, CA
MA Engineering Alhambra, CA
Geosyntec Consultants Los Angeles, CA
BLP Engineers, Inc. El Cajon, CA
Brio Solutions LLC Chino, CA
Converse Consultants Redlands, CA
Flow Science, Inc. Pasadena, CA
FPL and Associates, Inc. Irvine, CA
John Friedman Alice Kimm Architects Los Angeles, CA
Kana Subsurface Engineering Riverside, CA

Subconsultant and Location[1]
Katz and Associates Glendale, CA
MBI Media Covina, CA
ProjectLine Technical Services, Inc. Costa Mesa, CA
V & A Consulting Engineers, Inc. Oakland, CA
Wagner Engineering & Survey, Inc. Northridge, CA

[1] ~~Subconsultants with estimated contract value greater than or equal to 3 percent.~~

Pure Water Southern California - Preliminary Configuration



Engineering, Operations, & Technology Committee

Pure Water Southern California Program Management Support

Item 7-5

January 9, 2023

1803

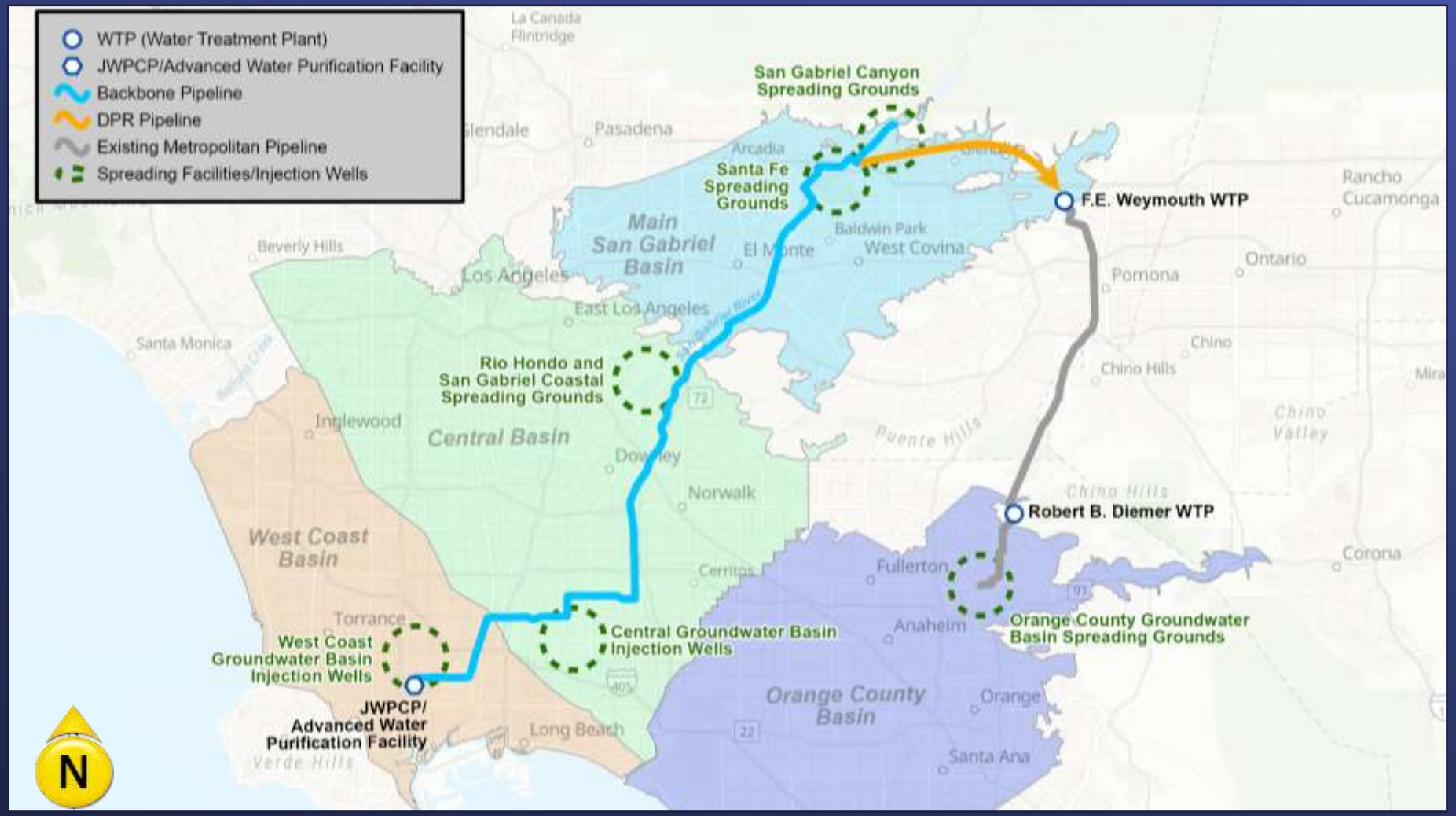
Pure Water Southern California Program Management Support

Current Action

- Authorize an agreement with the joint venture of AECOM Technical Services, Inc. & Brown and Caldwell in an amount not to exceed $25 million for program management services to support the Pure Water Southern California program
- Authorize an increase of $950,000 to an existing agreement with CDM Smith, Inc. for a not-to-exceed total of $3.7 million to support the program's ongoing process demonstration effort

Program Overview

Pure Water Southern California Program Management Support



Pure Water Southern California Program Management Support

Background – Early Implementation Activities

- December 2022 – Board authorized use of $80 million grant funding from State
  - Key early activity – development of program management team to advance program
  - Design of initial conveyance pipeline reaches
  - Planning, optimization and design of advanced water purification facility site
  - Continuing operations & testing of demonstration facility

Pure Water Southern California Program Management Support

Joint Venture AECOM & Brown and Caldwell - New Agreement

- Selected under Request for Proposal No. 1330
- NTE amount: $25,000,000
- Three-year term
- SBE participation level: 25%

Pure Water Southern California Program Management Support

Joint Venture AECOM & Brown and Caldwell – New Agreement

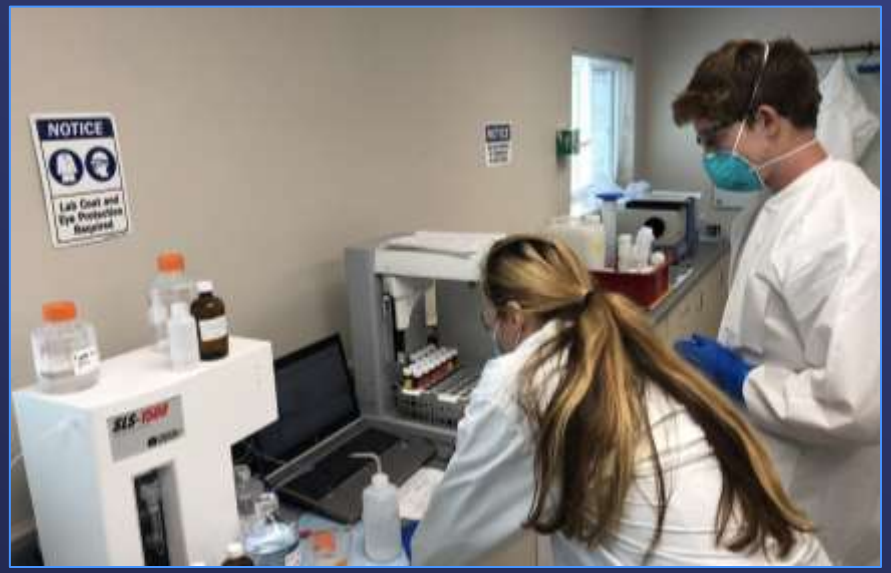
- Assist Metropolitan with developing:
  - Program implementation strategies
  - Opportunities for alternative project delivery
  - Cost, schedule, & budget reporting functions
  - Program/project-level risk identification and mitigation
  - Additional program management tasks on as-needed basis

Pure Water Southern California

Demonstration Testing Support

Background – Demonstration Testing Support

- August 2021 – Board authorized agreement with CDM Smith for support of engineering & technical studies at demo plant
- Demonstration testing is critical in selecting treatment train & confirming feasibility of full-scale program
- Secondary MBR testing & technical studies associated with the EIR are currently underway



Pure Water Southern California Demonstration Testing Support

CDM Smith, Inc. – Agreement Amendment

- Scope of Work
  - Complete secondary MBR testing
  - Support overall operations & maintenance of the demonstration plant
- Additional funds required
  - Transitioning from tertiary MBR to secondary MBR required equipment & programming changes
  - Secondary MBR pretesting period was extended to ensure a stable biological process & proper functioning of equipment & instrumentation

CDM Smith, Inc. - Agreement Amendment

Pure Water Southern California Demonstration Testing Support

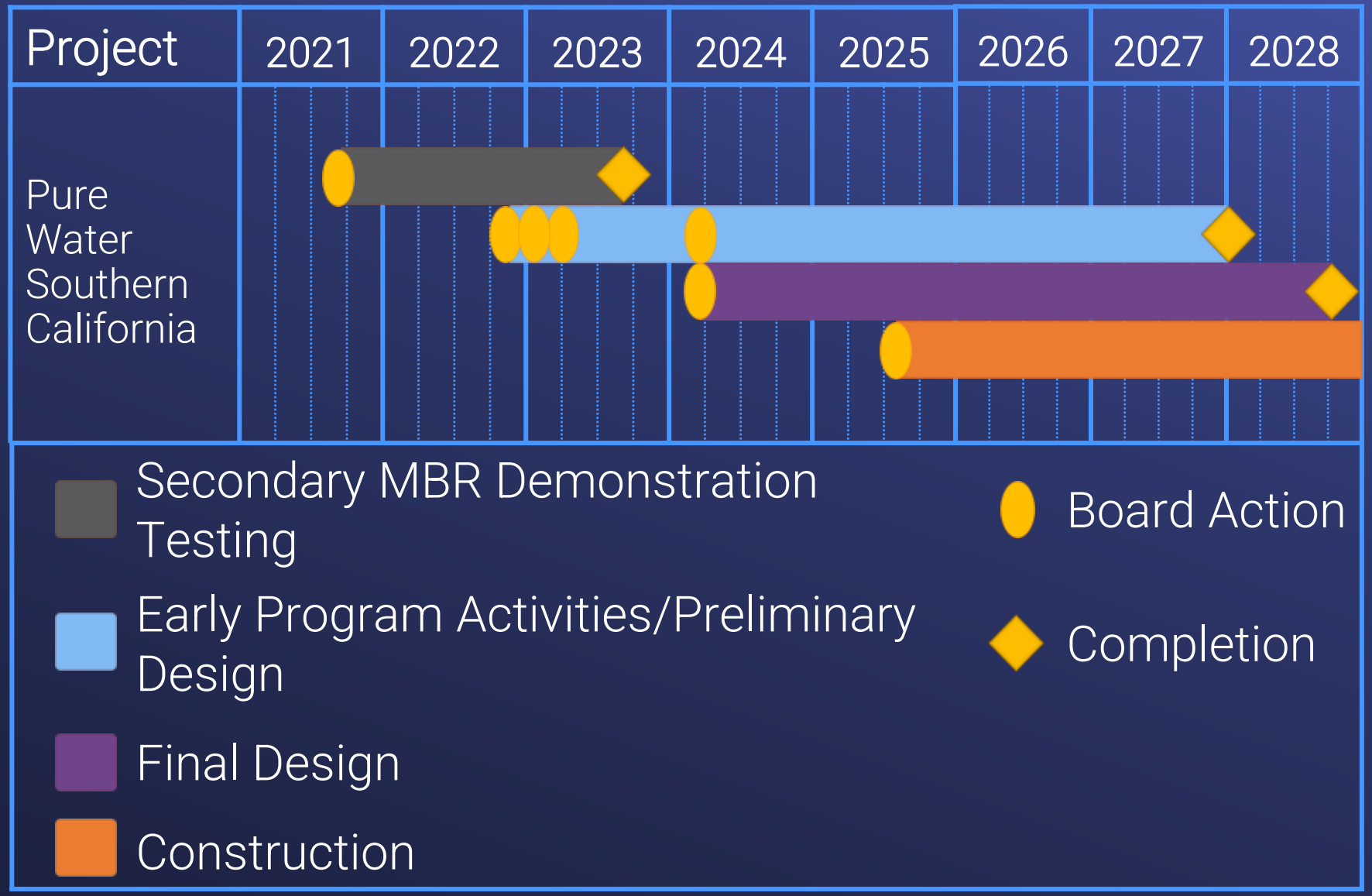
- Selected under Request for Proposal No. 1274
- SBE participation level: 25%
- Recommended increase to agreement: $950,000
- New NTE amount: $3,700,000

Pure Water Southern California Program Management & Demonstration Testing

Alternatives Considered

- Program Management
  - Metropolitan staff initially assigned to program management team
  - Consultant to provide specialized skills
  - Program management team will start quickly & ramp up over time as workload increases
- Demonstration Testing
  - Continue use of consultants for specialized technical expertise

Project Schedule



Board Options

- Option #1
  a. Authorize an agreement with the joint venture of AECOM Technical Services, Inc. and Brown and Caldwell in an amount not to exceed $25 million for program management services to support the Pure Water Southern California program.
  b. Authorize an increase of $950,000 to an existing agreement with CDM Smith, Inc. for a not-to-exceed total of $3.7 million to support the Program's ongoing process demonstration effort.
- Option #2

  Do not proceed with the agreements at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- **Board of Directors**
  Engineering, Operations, and Technology Committee

1/10/2023 Board Meeting

7-6

Subject

Amend the Capital Investment Plan for fiscal years 2022/2023 and 2023/2024 to include the Foothill Feeder Valve Replacement project; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA

Executive Summary

This action amends the Capital Investment Plan (CIP) to include a project to replace valves along the Foothill Feeder. The existing valves have been in continuous service for over 55 years, have deteriorated beyond repair, and are currently leaking. This project includes the procurement and installation of 14 new valves by Metropolitan staff during an upcoming planned shutdown. Approval of this project at this time will allow staff to procure the required equipment in a timely manner for installation during a 2024 shutdown of the Foothill Feeder.

Details

Background

The Foothill Feeder conveys untreated water from the West Branch of the State Water Project into the western portion of Metropolitan's service area. The feeder extends south from Castaic Lake, crosses under the Santa Clara River and several of its tributaries, and terminates at the Joseph Jensen Water Treatment Plant. The member agencies that rely on this supply include Calleguas Municipal Water District, Central Basin Municipal Water District, Las Virgenes Municipal Water District, West Basin Municipal Water District, and the cities of Beverly Hills, Burbank, Compton, Glendale, Long Beach, Los Angeles, San Fernando, Santa Monica, and Torrance.

The Foothill Feeder is 14.6 miles long, of which 5.9 miles are constructed of 201-inch-diameter prestressed concrete cylinder pipe (PCCP). In 2013, Metropolitan initiated a comprehensive program to inspect, manage, and rehabilitate its PCCP feeders. To maintain delivery reliability and identify any PCCP segments that may become distressed, staff inspects the PCCP feeders every five to seven years. Current state-of-the-art inspection techniques require dewatering of the pipe. The Foothill Feeder was last shut down and inspected in 2019, and the next inspection is planned for Spring 2024.

Dewatering of the pipeline utilizes seven blowoff structures. At present, the Foothill Feeder can only be dewatered completely by draining the lowest points of the pipeline through blowoff structures into the Santa Clara River and several of its tributaries. Each blowoff structure has two valves: one for isolation and the other to control flows. The existing blowoff valves on Foothill Feeder are from the original construction and have been in service continuously since 1968. Although the valves have been maintained, they have deteriorated to the point that they are no longer repairable, are unable to provide a positive seal, and as a result, leak. Staff recommends replacement of the valves during the 2024 planned shutdown.

In April 2022, the Board appropriated funds and authorized the General Manager to initiate or proceed with work on all capital projects identified in the CIP, subject to any limits on the General Manager's authority and CEQA requirements. This action amends the CIP to include the Foothill Feeder Valve Replacement project. It is not anticipated that the addition of this project to the CIP will increase CIP expenditures in the current biennium beyond those which have been previously approved by the Board. This project has been reviewed in accordance

with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP Evaluation Team to be included in the Distribution System Reliability Program.

Foothill Feeder Valve Replacement – Design and Procurement

This project will replace a total of fourteen 16-inch diameter lubricated plug valves at seven blowoff locations along the Foothill Feeder. Planned procurement phase activities include the preparation of specifications for procurement, technical support during bidding, and project management. All work related to the feeder shutdown and installation of the valves will be performed by Metropolitan staff. Staff will return to the Board for award of a procurement contract for the valves.

A total of $150,000 is required for this action. Allocated funds include $17,000 for preliminary design, $63,000 for final design and technical support, $48,000 for project management, and $22,000 for remaining budget. **Attachment 1** provides the allocation of funds. The total estimated cost to complete the project, including funds allocated for the work described in this action, and future construction costs, is anticipated to range from $1.6 million to $1.7 million. The final design cost as a percentage of the estimated construction cost is approximately five percent. Engineering Services' goal for design of projects with construction costs less than $3 million is 9 to 15 percent. The construction cost for this project is anticipated to range from $1.35 million to $1.45 million, which includes procurement of the valves. Staff will return to the Board at a later date for award of a procurement contract.

Alternatives Considered

Staff considered delaying the project and incorporating it into the next biennial CIP budget. However, shutdown of the Foothill Feeder for PCCP inspection is only planned every five to seven years in order to not impact State Water Project deliveries. In addition, the Santa Clara River and its tributary streams, which the Foothill Feeder drains into during dewatering, contains a fish listed as a California endangered and fully protected species. To avoid harm to the fish during dewatering activities, the pipeline is dewatered slowly, and this results in an extended shutdown. If staff were unable to replace the existing valves during the upcoming planned shutdown in March 2024, replacement of the leaking valves would likely not occur until sometime between 2029 and 2031. An unplanned outage would be required to replace any failed blowoff valves in the interim. The selected option to add the project to the current CIP will allow replacement of the valves during an upcoming planned shutdown and reduce the risk of an unplanned outage.

Summary

This action amends the current CIP to include needed valve replacements for the Foothill Feeder. This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal years 2022/23 and 2023/24 capital expenditure plan. See **Attachment 1** for the Allocation of Funds and **Attachment 2** for the Location Map.

Project Milestone

March 2024 – Installation of new valves

Policy

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of $600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378(b)(5)) because the amendment involves organizational or administrative activities and general policy and procedure making that would not result in a direct or indirect physical change to the environment. The study and design associated with the valve replacement work is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action provides for data collection, design, and technical support with no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1 and Class 6 (Sections 15301 and 15306) of the State CEQA Guidelines.

CEQA determination for Option #2:

None required

Board Options

Option #1

Amend the Capital Investment Plan for fiscal years 2022/2023 and 2023/2024 to include the Foothill Feeder Valve Replacement project.

Fiscal Impact: Expenditure of $150,000 in capital funds. It is not anticipated that the addition of the project listed above to the CIP will increase CIP expenditures in the current biennium beyond those which have been previously approved by the Board.

Business Analysis: This option will maintain reliability of the Foothill Feeder.

Option #2

Do not proceed with the project at this time

Fiscal Impact: None

Business Analysis: This option will forego improving reliability and may result in unplanned outages of the Foothill Feeder.

Staff Recommendation

Option #1

12/22/2022

John V. Bednarski *Date*
Manager/Chief Engineer
Engineering Services

for 12/27/2022

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Budgeted Funds

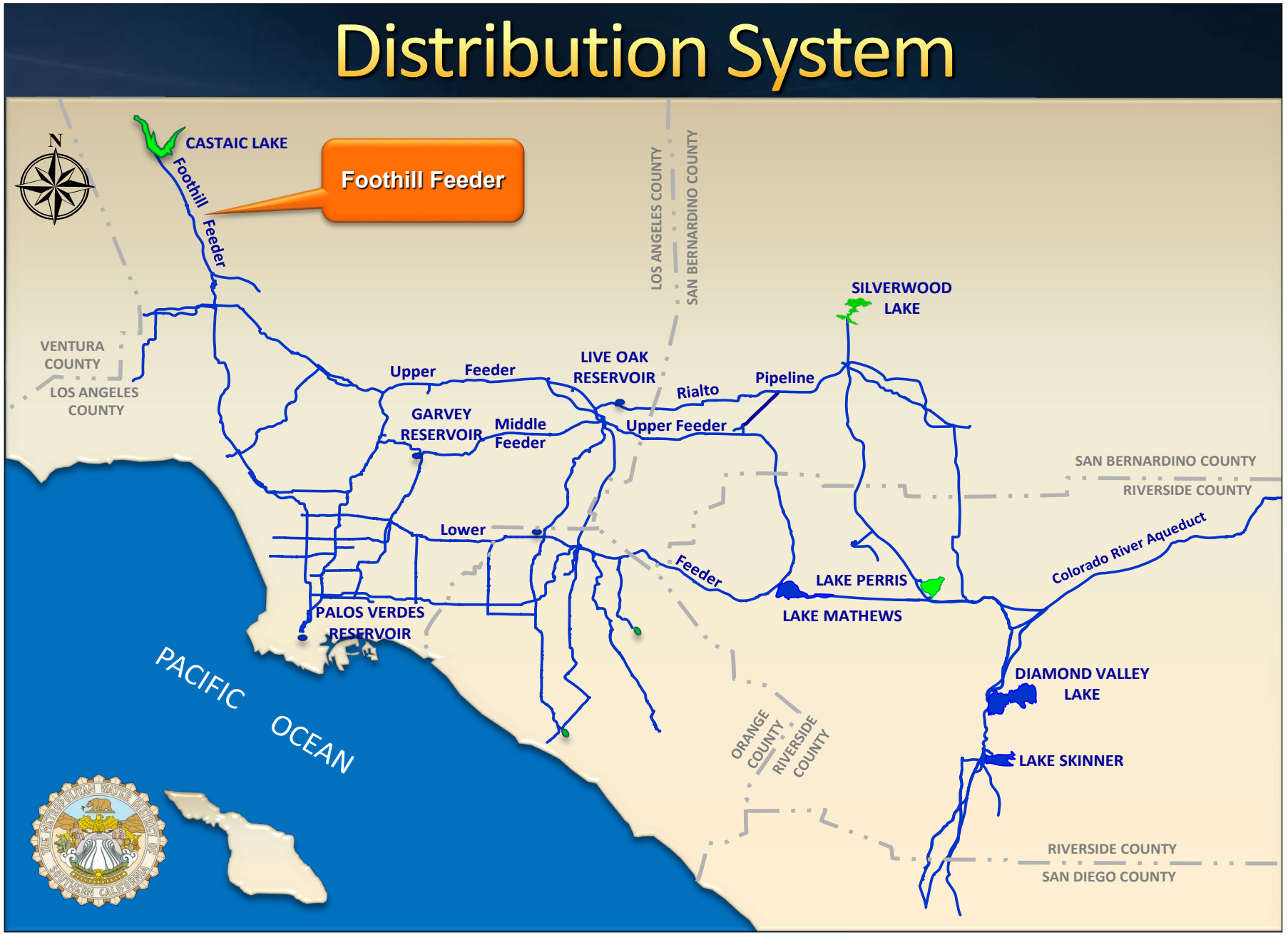
Attachment 2 – Location Map

Ref# es12686666

Allocation of Funds for the Foothill Feeder Valve Replacement

	Current Board Action (Jan. 2023)
Labor	
Studies & Investigations	$ 17,000
Final Design	63,000
Owner Costs (Program mgmt., Project Controls)	48,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	-
Remaining Budget	22,000
Total	**$ 150,000**

This is the initial allocation of funds for replacement of blowoff valves for the Foothill Feeder. The total estimated cost to complete the project, including funds allocated for the work described in this action, and future construction costs, is anticipated to range from $1.6 million to $1.7 million.


Distribution System
N
CASTAIC LAKE
Foothill Feeder
Foothill Feeder
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
VENTURA COUNTY
LOS ANGELES COUNTY
Upper Feeder
LIVE OAK RESERVOIR
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Lower Feeder
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
PACIFIC OCEAN
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY

Engineering, Operations, & Technology Committee

Foothill Feeder Valve Replacement

Item 7-6

January 9, 2023

1822

Foothill Feeder Valve Replacement

Current Action

- Amend the Capital Investment Plan for fiscal years 2022/23 & 2023/24 to include the Foothill Feeder Valve Replacement Project

Distribution System

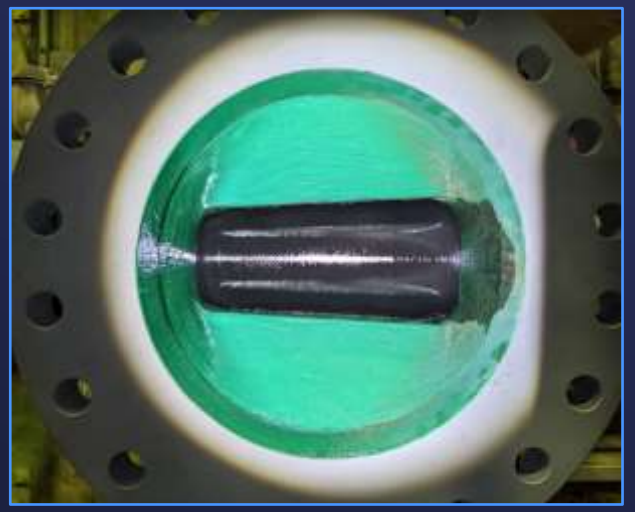
Foothill Feeder Valve Replacement

Existing Corroded Valve

Background

- April 2022 approval of Capital Investment Plan
  - Authorized all projects included in CIP Appendix
  - Requires Board action to authorize any project(s) not included in CIP Appendix
- Foothill Feeder shutdown recently moved from January 2025 to January 2024
  - Immediate need to start work on this project to meet earlier shutdown date
- Project replaces 14 leaky & deteriorated valves in blowoff structures along the feeder
  - 16-inch valves in service for over 54 years
  - New valves to be installed in January 2024 shutdown

Foothill Feeder Valve Replacement



New Valve

Alternatives Considered

- Delay project & include in next CIP
  - Foothill Feeder shutdowns only scheduled every 5 to 7 years (next 2029 to 2032)
  - Lengthy shutdown required due to environmental concerns in Santa Clara River
  - Would require unplanned outage to fix
- Selected Alternative – Replace valves now
  - Reduce risk & impacts of unplanned outage

Foothill Feeder Valve Replacement

Scope of Work

- Development & advertisement of valve procurement specification
- Shutdown planning & permitting

Allocation of Funds

Foothill Feeder Valve Replacement

Metropolitan Labor	
Studies & Investigations	$ 17,000
Final Design	63,000
Owners Costs (Proj. Mgmt., Permitting, Envir. Support)	48,000
Remaining Budget	22,000
Total	$ 150,000

Project Schedule

Board Options

- Option #1

  Amend the Capital Investment Plan for fiscal years 2022/2023 and 2023/2024 to include the Foothill Feeder Valve Replacement project.

- Option #2

  Do not proceed with the project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- **Board of Directors**
  Engineering, Operations, and Technology Committee

1/10/2023 Board Meeting

7-7

Subject

Authorize an agreement with SpearMC Management Consulting, Inc. in an amount not to exceed $1,300,000 for the implementation of the following PeopleSoft Modules from the Oracle Cloud Human Capital Management Software Application Suite: Time & Labor and Absence Management for Payroll and Timekeeping System Improvements, including Maximo interface; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

This project seeks to reimplement improved PeopleSoft payroll software and replace the current timekeeping software with a package that better integrates with the payroll system and provides a user-friendly interface. The current payroll and timekeeping applications require staff to make manual corrections, increasing the potential for errors and making the payroll process inefficient and burdensome. This project will ensure that employees are compensated accurately and timely.

Timing and Urgency

The current payroll system has experienced issues with Fair Labor Standard Act calculations and CalPERS compensation limits not being computed accurately. The software needs to be upgraded to fix significant issues causing employee compensation errors requiring manual corrections. These issues add an additional burden on payroll staff to perform manual fixes and data entries.

These issues need immediate fixes to make the system more reliable and to ease the burden on payroll staff.

Details

Background

Metropolitan is seeking services to implement two PeopleSoft HCM modules: PeopleSoft Time & Labor and PeopleSoft Absence Management, with an integration into the existing PeopleSoft payroll module. PeopleSoft HCM is an integrated suite of applications and business processes that is based on PeopleSoft's Pure Internet Architecture and portal technologies. The Time and Labor module facilitates the management, planning, reporting, and approving of time, calendar, schedule creation and usage, from one global web-based application.

Currently, Metropolitan uses Oracle EBS, PeopleSoft, Maximo, and WorkTech for managing time and labor. The modules within PeopleSoft HCM that are being utilized are Human Resources, Base Benefits, Benefits Administration, Position Management, Payroll for North America, and partial use of Time and Labor.

This project seeks to implement improved PeopleSoft Time and Labor functionality, including the Absence Management module, and replaces the current timekeeping software with a package that better integrates with payroll, time & labor, and the Maximo Application system and provides a user-friendly interface.

The project seeks to fully implement the PeopleSoft Time and Labor module along with the Absence Management module, taking into consideration the following:

- Interfacing with all data integration related to Payroll, Time & Labor, and Maximo
- Automating Absence Management/Leave Management on timesheet to payroll process
- Automating calculation of time off balance.

This action authorizes $1,300,000 for implementing the PeopleSoft Time & Labor and Absence Management modules to improve the current Payroll system and develop the Maximo interface. The total project budget is $1,970,000 and includes funds for awarding a new contract with SpearMC Management Consulting, Inc. for $1,300,000 for professional and technical services, including twelve weeks of post-implementation support. Other costs included are $527,000 for labor costs by Metropolitan staff, including owner costs and project management, $10,000 for material costs, and $133,000 for remaining budget.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2022/23 capital expenditure plan. See **Attachment 1** for the Financial Statement.

Project Milestone(s)

Board Award:	Jan 2023
Final Design:	May 2023
Development:	Sep 2023
Testing:	Nov 2023
Deployment:	Dec 2023
Closing:	Apr 2024

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of $600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and involves continuing administrative or maintenance activities (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed action is not defined as a project under CEQA because it involves other government fiscal activities, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines). Finally, where it can be seen with certainty that there is no possibility that the activity proposed action in question may have a significant effect on the environment, the proposed activity is not subject to CEQA (Section 15061(b)(3) of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an agreement with SpearMC Management Consulting, Inc. in an amount not to exceed $1,300,000 for the implementation of the following PeopleSoft Modules from the Oracle Cloud Human Capital Management Software Application Suite: Time & Labor and Absence Management for Payroll and Timekeeping System Improvements, including Maximo interface.

Fiscal Impact: Expenditure of $1,970,000 in capital funds. All funds were incurred in the current biennium and have been previously authorized

Business Analysis: Implement Peoplesoft Time & Labor and Absence Management, reimplement improved PeopleSoft payroll software and replace the current timekeeping software with a package that better integrates with the payroll system.

Option #2

Take no action and continue using the current system with no improvements.

Fiscal Impact: Increased operations and maintenance cost with intense labor costs to manually fix the issues

Business Analysis: Prone to manual errors and adds risk to Metropolitan from employee unions and grievances.

Staff Recommendation

Option #1

12/20/2022

Charlie Eckstrom *Date*
Group Manager, Information Technology

12/21/2022

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Financial Statement

Ref#it12688426

Allocated Funds for Peoplesoft Time & Labor

	Current Board Action (Jan. 2023)
Labor	
Studies & Investigations	$ -
Final Design	450,000
Owner Costs (Program mgmt.)	77,000
Submittals Review & Record Drwgs	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	10,000
Incidental Expenses	-
Professional/Technical Services	1,300,000
Equipment Use	-
Contracts	-
Remaining Budget	133,000
Total	**$ 1,970,000**

Engineering, Operations & Technology Committee

PeopleSoft Upgrade for Payroll, Time & Labor and Absence Management

Item 7-7

January 9, 2023

Current Action

Authorize an agreement with SpearMC Management Consulting Inc. in an amount not-to-exceed $1.30 million for the implementation of two new PeopleSoft Oracle Cloud Human Capital Management (HCM) Modules;

- Time & Labor
- Absence Management

And implement:

- Payroll Improvements
- Maximo interface

Background

- Metropolitan uses Oracle EBS, PeopleSoft, Maximo, and Worktech for managing the payroll, time and labor
- Current Payroll system has few issues with Time Reporting Codes (TRC) that calls for manual intervention for correcting them
- These computational errors must be eliminated, and any correction process need to be automated, saving Staff's intensive manual labor
- There is also a need for an interface that connects new Time & Labor to Maximo Application

Scope of Work

- Metropolitan is seeking services to implement the new improved PeopleSoft HCM modules replacing the current Timekeeping system with a package that better integrates with the payroll system, providing a friendly interface for end users

- To add the Absence Management (AM); another new module, automating the calculations of employee time off balance

Scope of Work

- Interface to Payroll, Time & Labor, Maximo and Absence Management Modules, providing a robust data integration
- Verify and Validate that the new PeopleSoft implementation has resolved all the identified issues, adding value to Metropolitan's Business
- Post deployment Hyper care support for 12 weeks

Procurement

- Aug 10, 2022 - RFP 1325 with Business Requirements issued
- Sep 20, 2022 - Three Vendors responded with proposals
- Nov 07, 2022 – Evaluation & Scoring completed. The Panel consisted of five scorers, one from each stakeholder group, and two SMEs
- Nov-Dec 07, 2022 - Follow up Q&A conducted by Procurements & Contracts for all Vendors
- Dec 15, 2022 – a Request To Award a Memo (RTAM) was approved

Vendor Selection

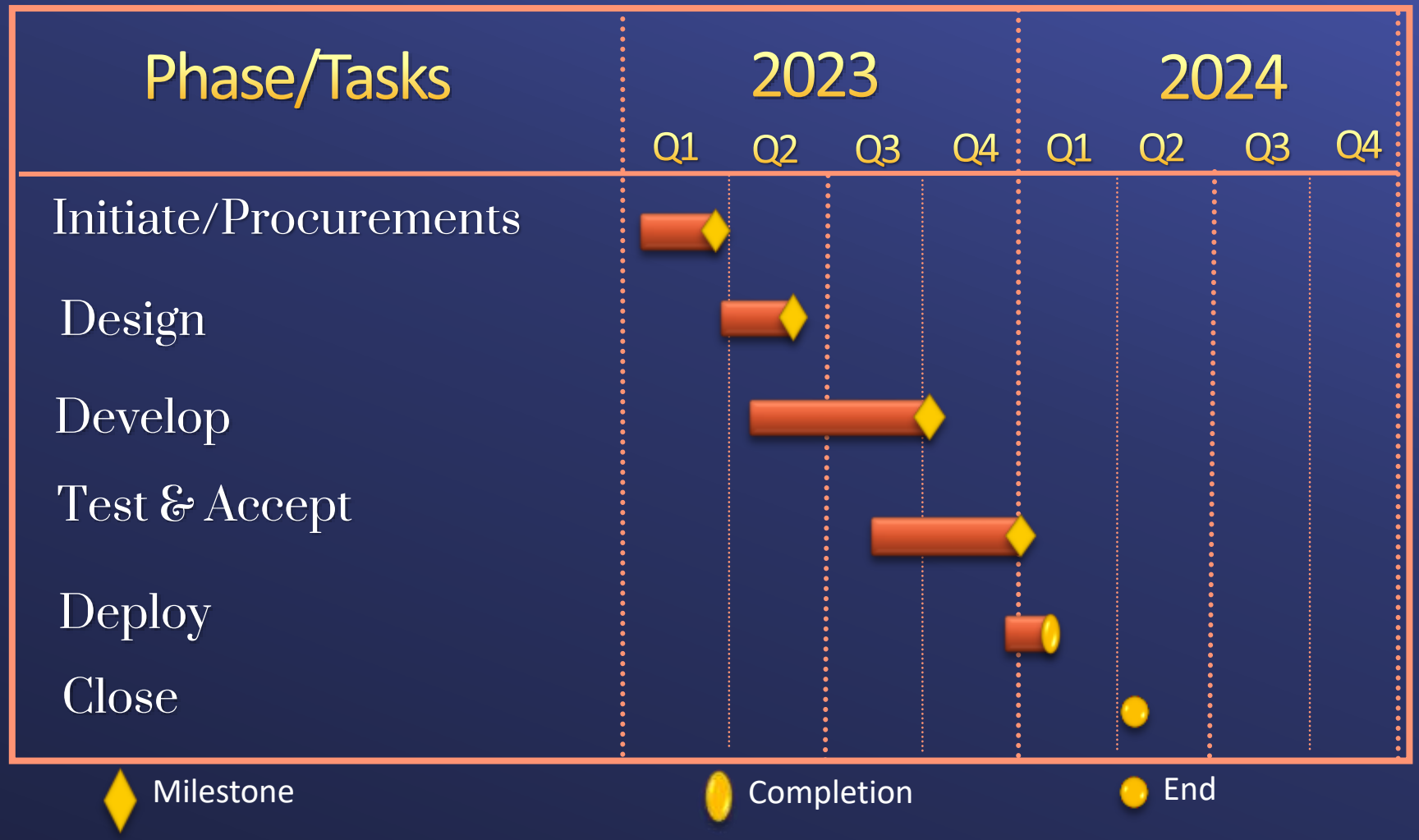
- Vendor selection was based on final scores derived from the evaluation criteria defined in the RFP
- The SBE/RBE/DVBE participation goal designated for this solicitation was twenty-five percent (25%)
- Dec 07, 2022, SpearMC Management Consulting Inc. was selected as the winning bidder

Budget Cost Breakdown

Description	FY 2022-23	FY 2023-24	Total
PeopleSoft Improvements			
Labor	$ 350,000	$ 177,000	**$ 527,000**
Materials	$ 10,000		**$ 10,000**
Professional & Technical Services	$ 800,000	$ 500,000	**$ 1,300,000**
Contingency	$ 133,000		**$ 133,000**
Total Project Budget	**$ 1,293,000**	**$ 677,000**	**$ 1,970,000**

Project Plan Milestones

Timeline



Board Options

- Option #1
  - Authorize an agreement with SpearMC Management Consulting Inc. in an amount not to exceed $1,300,000 for the implementation of the following PeopleSoft Modules from Oracle Cloud Human Capital Management Software Application Suite: Time & Labor and Absence Management for Payroll and Timekeeping System Improvements, including Maximo interface
- Option #2
  - Take no action and continue using the current system with no improvements.

Staff Recommendations

Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- **Board of Directors**
  Engineering, Operations, and Technology Committee

1/10/2023 Board Meeting

7-8

Subject

Authorize an agreement with Digital Scepter Corporation in an amount not to exceed $1,469,000 for procurement of equipment to replace network switches at Metropolitan's Headquarters Building at Union Station; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

This project seeks to replace network switches at Metropolitan's Headquarters at Union Station. Network switches are the backbone of the IT network, allowing for the connectivity and integration of all IT systems, infrastructure, and communications.

The current switches will no longer be supported by the manufacturer, and software updates or patches will not be available. Without this support, the network would be less reliable and lack the performance and robustness to support business operations.

Timing and Urgency

The current switches will soon reach end of life and will be out of support. Global supply chain issues are causing delays in estimated delivery time to a minimum ten-month lead time.

Details

Background

Network switches are critical components that support the Metropolitan network backbone. The switches support essential operations and critical systems for Metropolitan's business operations.

Metropolitan's Headquarters at Union Station has twelve floors, and each run on a network switch. The current network switches were originally installed between 2014 to 2016. They are reaching end of life and will no longer be supported or produced by the manufacturer.

Outdated switches have a higher risk of failure. If a failure occurs, replacement hardware will not be available to purchase. Staff will have no choice but to replace failing equipment with new equipment on an emergency ad hoc basis.

Additionally, without updated software patches, the network system will be exposed to vulnerabilities such as unstable connectivity, unreliable network service, and a higher risk of cyber security threats. These issues could lead to an interruption of critical operations.

Metropolitan is seeking to purchase replacement switches to avoid the risks mentioned above. This contract will include twelve Arista switches, a power supply, fiber optics, a line card, a twelve-month subscription license, twelve-month care support services, as well as estimated tariffs and logistics fees.

Global supply chain issues have caused delays in procuring hardware in general. Replacement switches are projected to arrive ten months after the order is placed.

After the equipment is procured, internal resources will progressively perform replacement activities during non-business hours, such as weekends and holidays, to reduce interruption to business operations until all floors are completed.

This action authorizes $1,469,000 for the replacement of network switches at Metropolitan's Headquarters at Union Station. The total project budget is $2,350,000 and includes funds for awarding a new contract with Digital Skepter Corporation for $1,469,000. Other costs included are $210,000 for labor costs by Metropolitan staff and project management, $458,000 for other material costs, and $213,000 for remaining budget.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2022/23 capital expenditure plan. See **Attachment 1** for the Financial Statement.

Project Milestones

Board Award	Jan 2023
Award of Contract/Agreement	Jan 2023
Equipment Delivery	Nov-Dec 2023
Implementation	Jan 2024 – April 2024
Deploy	May 2024

Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Metropolitan Water District Administrative Code Section 5108: Appropriations

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of $600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and involves continuing administrative or maintenance activities (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed action is not defined as a project under CEQA because it involves other government fiscal activities, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines). Finally, where it can be seen with certainty that there is no possibility that the activity proposed action in question may have a significant effect on the environment, the proposed activity on is not subject to CEQA (Section 15061(b)(3) of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an agreement with Digital Scepter Corporation in an amount not to exceed $1,469,000 million for procurement of equipment to replace network switches at Metropolitan's Headquarters at Union Station.

Fiscal Impact: Expenditure of $2,350,000 in capital funds. All funds were incurred in the current biennium and have been previously authorized

Business Analysis: Replace end-of-life equipment, mitigating vulnerabilities and increasing the network's reliability at Metropolitan's Headquarters at Union Station.

Option #2

Do not proceed with the project

Fiscal Impact: Unknown

Business Analysis: Accept the risk of equipment/network failure, cybersecurity threats, and unreliable network.

Staff Recommendation

Option #1

12/21/2022

Charlie Eckstrom *Date*
Group Manager, Information Technology

12/22/2022

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Financial Statement

Ref# it2693423

Allocated Funds for Replacement of Network Switches at Metropolitan's Headquarters Building at Union Station

	Current Board Action (Jan. 2023)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt.)	210,000
Submittals Review & Record Drwgs	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Hardware Supplies	1,927,000
Incidental Expenses	-
Professional/Technical Services	-
Equipment Use	-
Contracts	-
Remaining Budget	213,000
Total	**$ 2,350,000**

Engineering, Operations & Technology Committee

Replacement of Network Switches at Metropolitan Headquarters

Item 7-8

January 9, 2023

Replacement of Network Switches In Metropolitan Headquarters

Current Action

- Authorize an agreement with Digital Scepter Corporation in an amount not to exceed $1,469,000 for procurement of equipment to Replace Network Switches in Metropolitan Water District of Southern California Union Station Headquarters.
- The General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Background

- Network Switches provide internet and connectivity between computers, laptops, printers and network devices in Union Station Headquarters
- Current switches were installed between 2014 and 2016
- Current switches are reaching end of life, no longer manufactured and not supported with updated software

Risk of Outdated Switches

- Old switches present greater risk of failure
- If failure happens, there will be unknown network downtime until replaced
- Replacements are no longer manufactured therefore hard to find and substitute may not be compatible with existing equipment
- Additionally, outdated software increases vulnerability such as unstable connectivity and higher chance of security breach

Equipment for Replacement of Network Switches at Metropolitan Headquarters

Project Scope of Work

- Replace network switches and related equipment in every network rooms in Union Station Headquarters (19 switches)
- Metropolitan resources will perform the replacement

Procurement Strategy

- Equipment will be purchased using competitive bidding
  - Process began with advertisement of RFB-RB-417794. It posted on 10/7/2022 until 10/26/2022
  - 9 total bids were received
- Final selection was made based on price
- Selected vendor qualified as a regional business
- Selected vendor is Digital Scepter Corporation

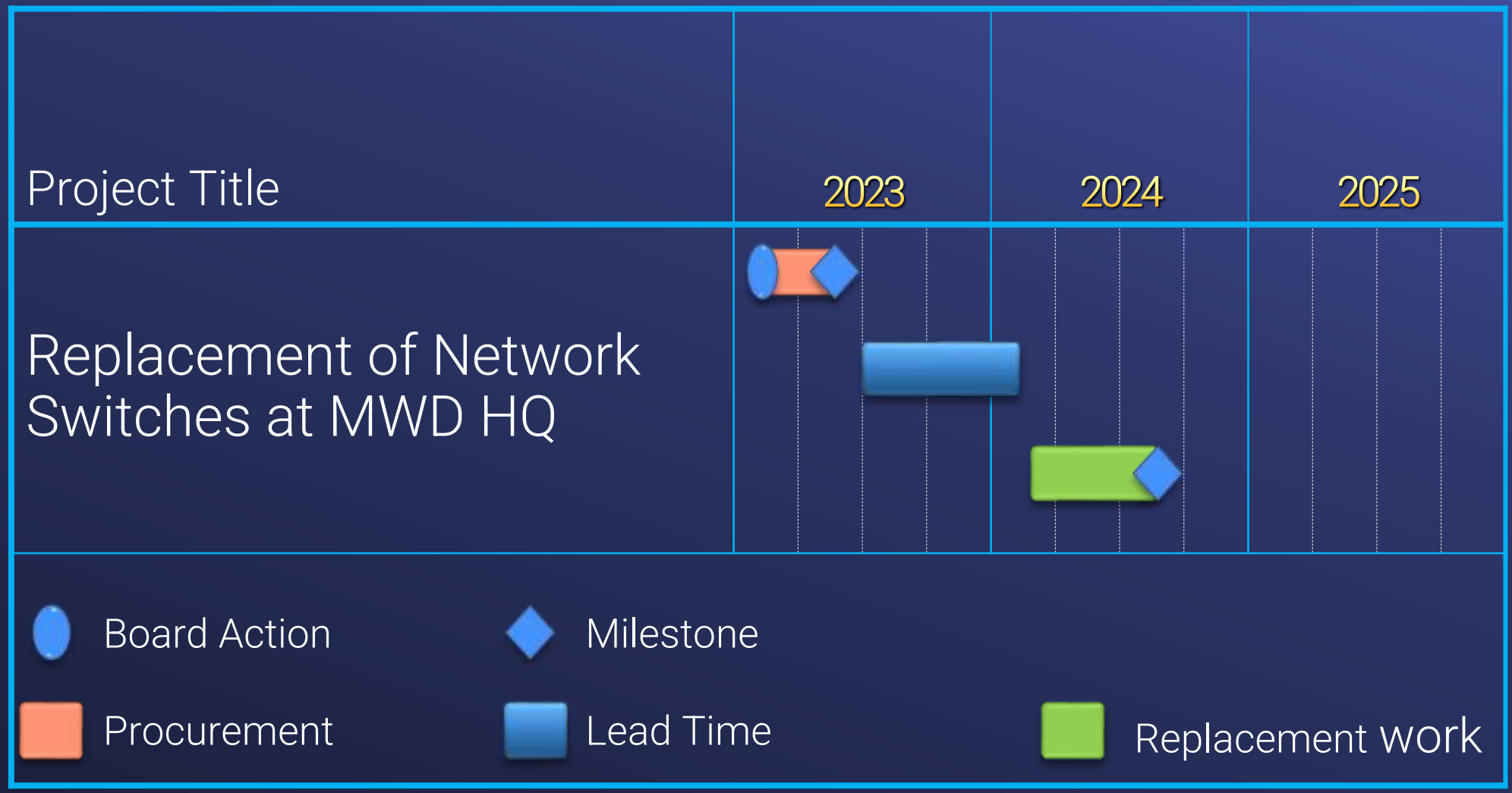
New Agreement

- 19 switches
- 72 Power supply units
- 96 Line cards
- 100 Optics modules
- 12 months Software Subscription

Allocation of Funds

Labor	$ 210,000
Materials & Supplies Network Equipment	$ 1,469,000
Fiber & Cabling	$ 240,000
Fiber Installation Services	$ 218,000
Remaining Budget	$ 213,000
Total	$ 2,350,000

Project Schedule



Board Options

- Option #1 – Authorize an agreement with Digital Scepter Corporation in an amount not to exceed $1,469,000 for procurement of equipment to replace network switches at Union Station.

- Option #2 – Do nothing at this time

Next Step

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

1864

Engineering, Operations, & Technology Committee

Metropolitan's Dam Safety Initiatives Program

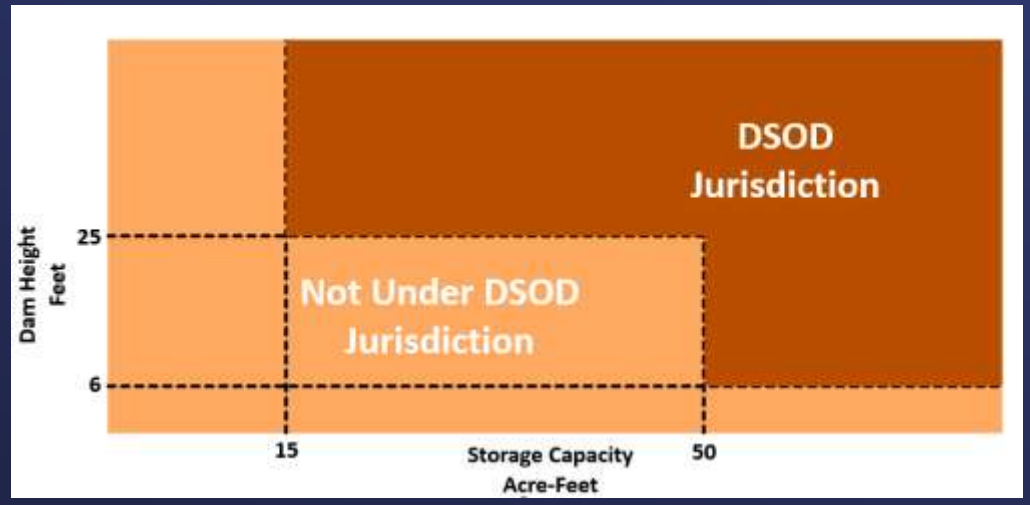
Item 6a

January 9, 2023

Metropolitan's Dams & Reservoirs

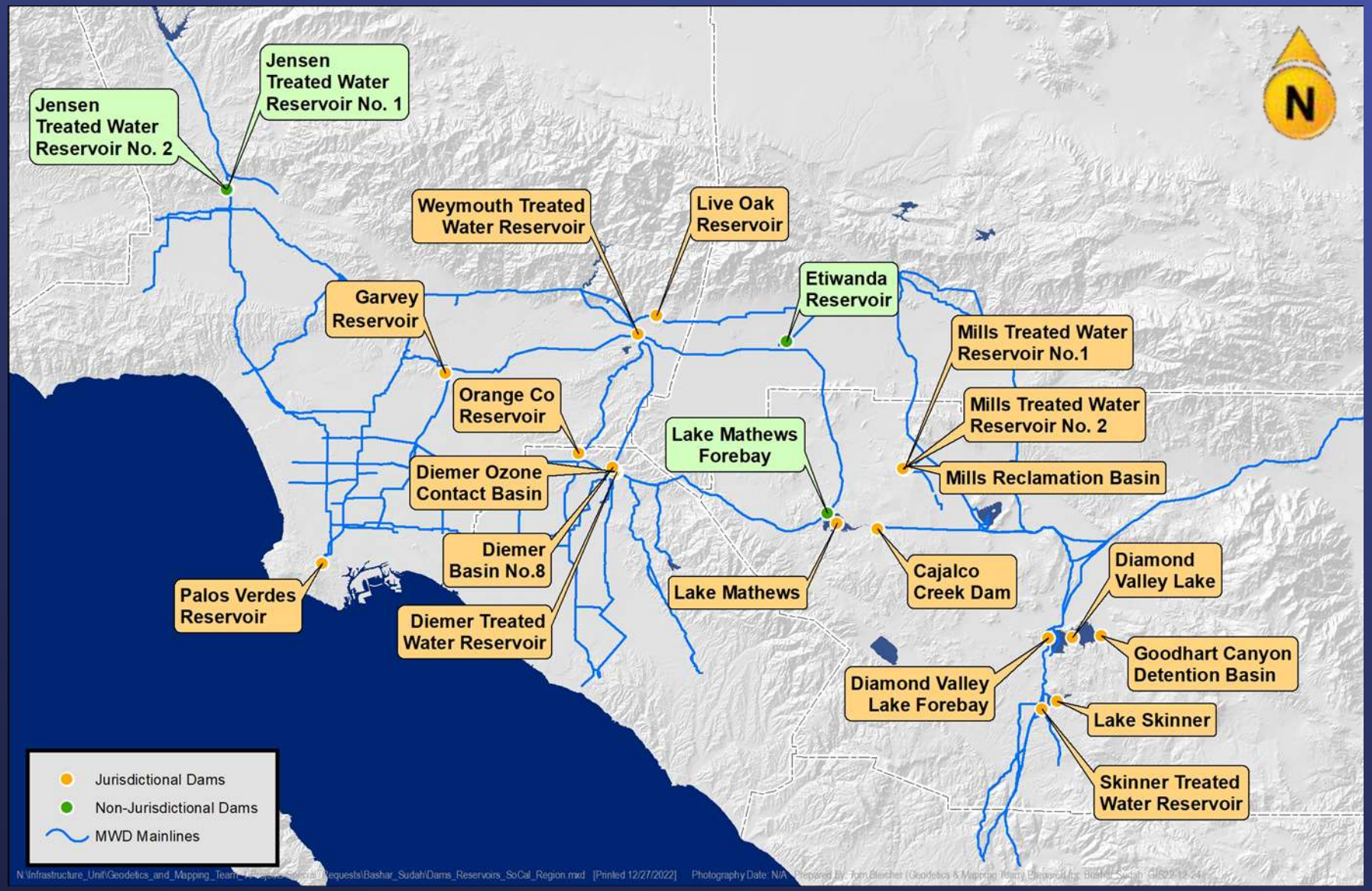
Overview

- 26 Reservoirs
- 20 Reservoirs under DSOD jurisdiction
  - Two with multiple dams
    - Diamond Valley Lake (3 dams)
    - Lake Mathews (3 dams)
  - Includes finished water reservoirs



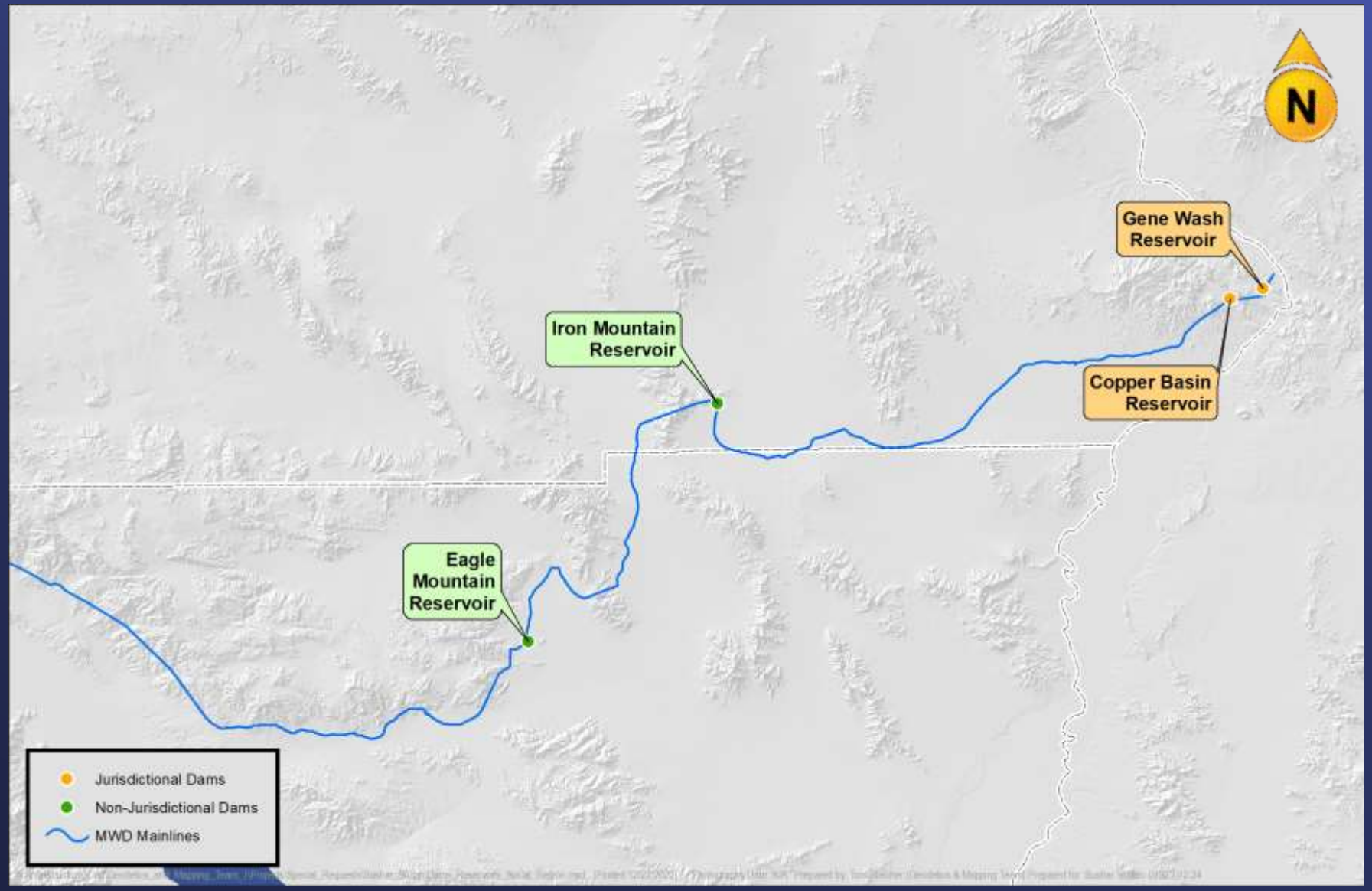
Reservoir Locations

Metropolitan's Dams & Reservoirs



Reservoir Locations

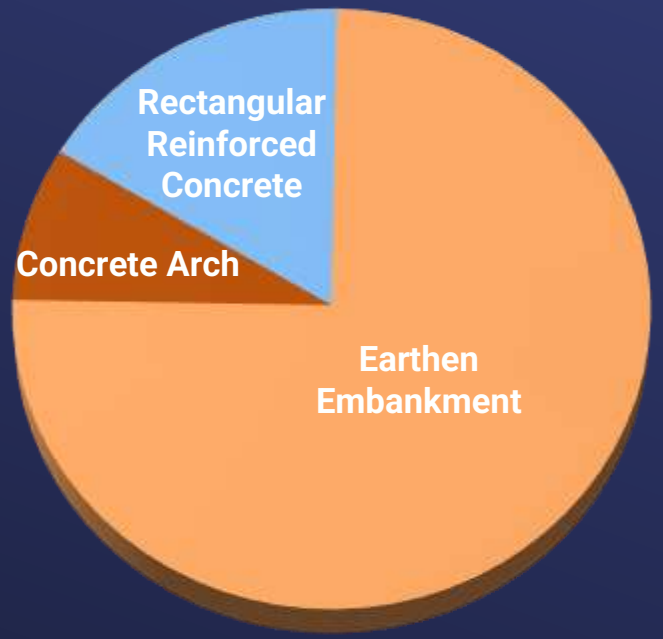
Metropolitan's Dams & Reservoirs

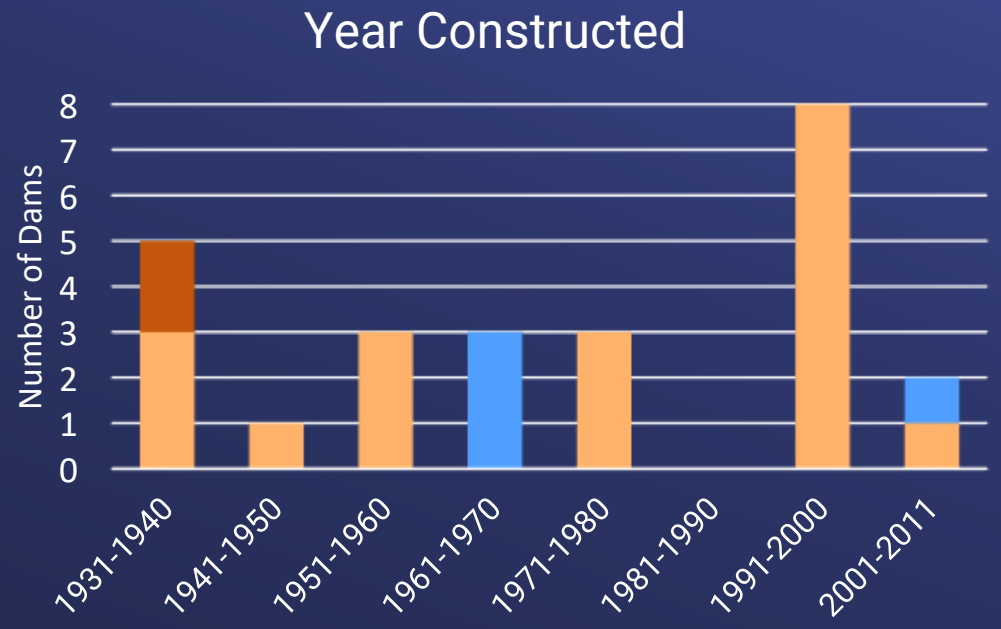


Metropolitan's Dams & Reservoirs

Jurisdictional Dam Portfolio

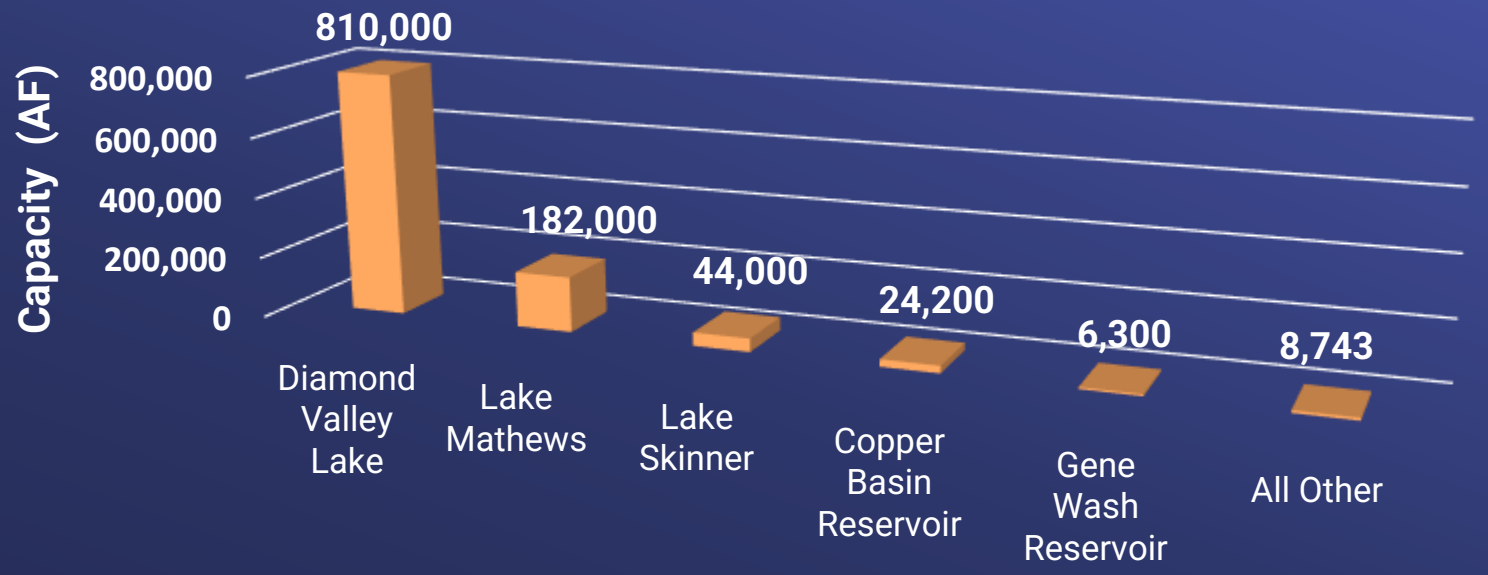
- Dam heights range from 15 to 284 feet
- Dam lengths range from 265 to 10,900 feet





Metropolitan's Dams & Reservoirs

Reservoir Capacities



Diamond Valley Lake

Diemer Basin No.8

Metropolitan's Dams & Reservoirs

Evaporation Losses at Metropolitan's Reservoirs

Water Body	Max Area (Acre)	Max Volume (AF)	Estimated Annual Evap. Loss (AF)
DVL	4,500	810,000	22,383
Lake Mathews	2,750	182,000	9,694
Lake Skinner	1,200	44,423	4,445
Copper Basin	425	24,370	3,054*
Gene Wash	220**	6,300	1,581*
Live Oak	65	2,500	317*
DVL Forebay	40	750	215*
Etiwanda	31	450	152*
CRA	NA	NA	3,000

Total evaporative loss (AF)	**44,842**
Total maximum reservoir (AF)	1,070,793

Average evaporation as a fraction of total maximum reservoir volume (%)	4%
Annual Evaporative System Loss (%)	**2%**

*Estimation assumes that the reservoir remained at maximum pool throughout the year (possible overestimation)
**Estimated from capacity curve

Metropolitan's Dams & Reservoirs

Dam Safety Regulations Updates

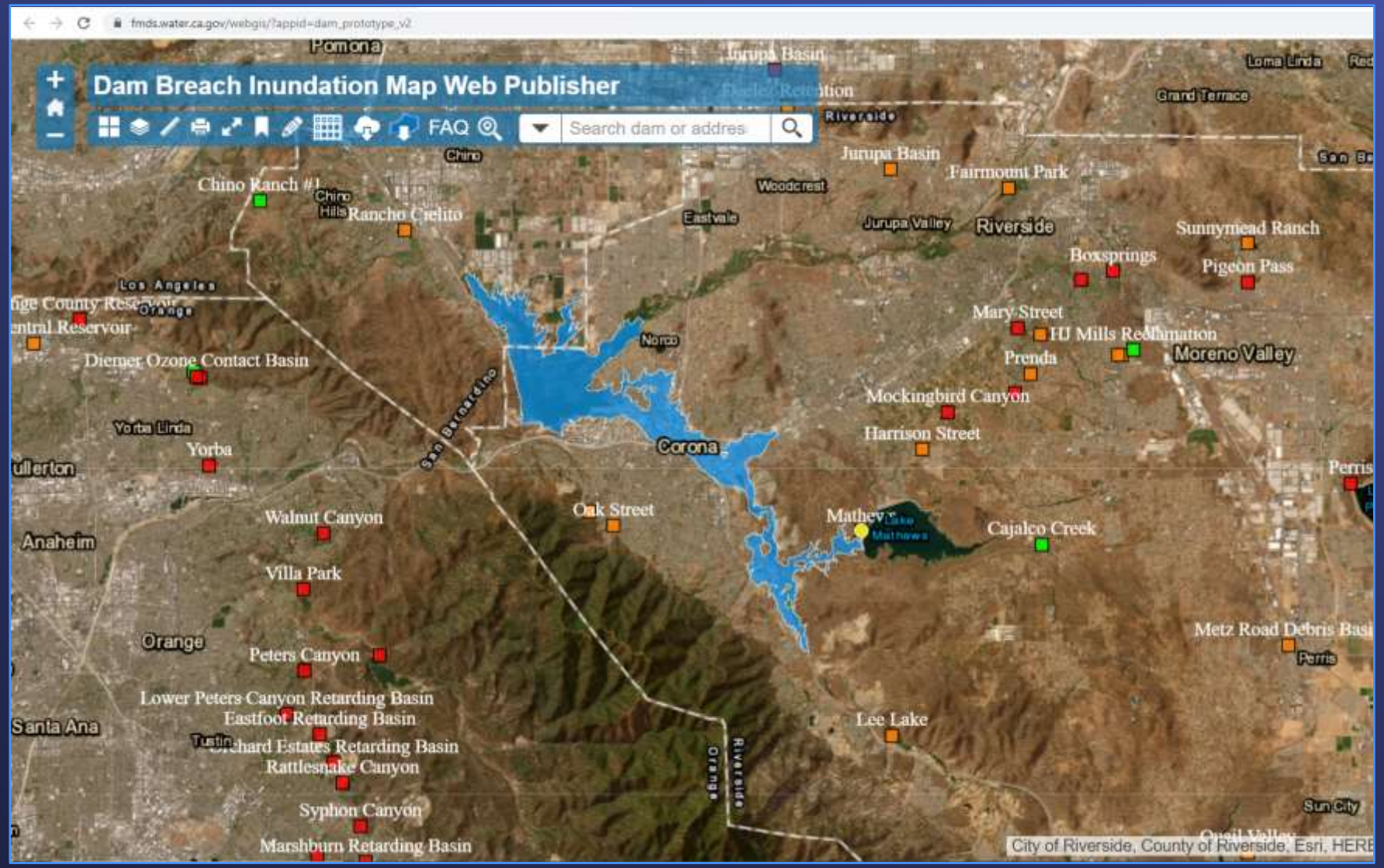
- Spillway comprehensive assessments
  - Lake Mathews and Lake Skinner
- California Senate Bill 92 in June 2017
  - Inundation Maps
  - Emergency Action Plans

Lake Skinner Spillway

Lake Skinner Spillway GPR Testing

Inundation Maps - Lake Mathews Example

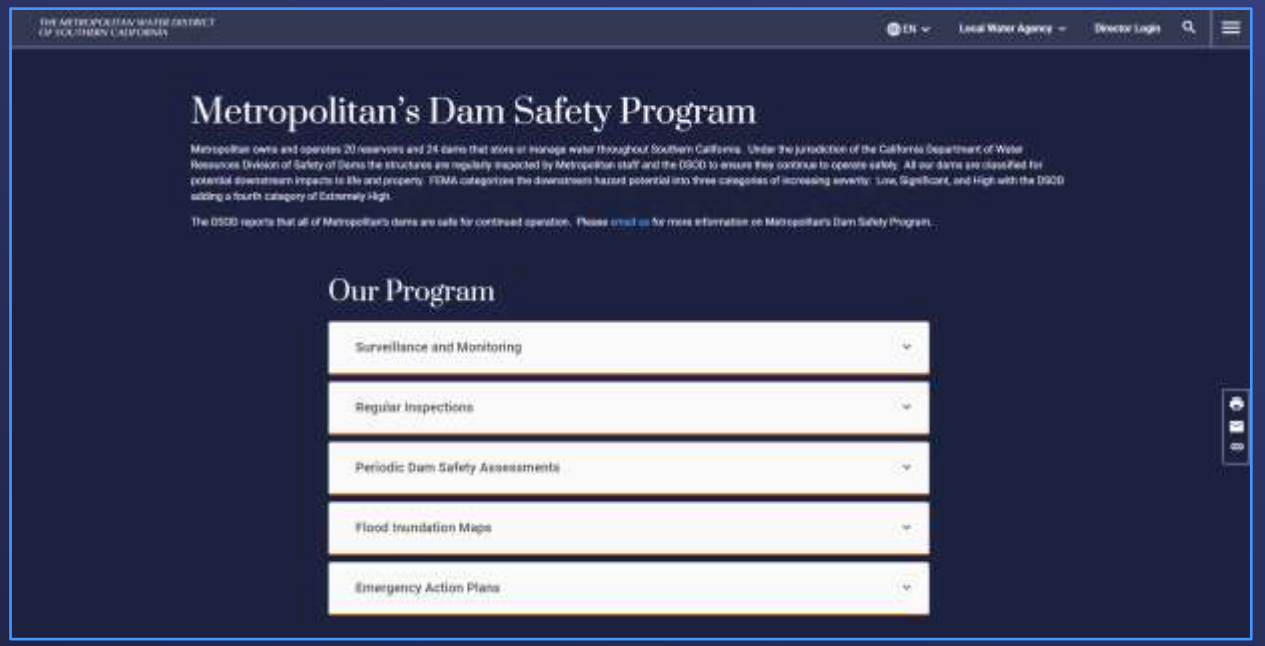
Metropolitan's Dams & Reservoirs



Metropolitan's Dams & Reservoirs

Emergency Action Plans (EAPs)

- Coordination with the Cal OES
- Update EAPs to new Cal OES format
- Outreach to local emergency agencies
- Complete all EAP updates by 2024

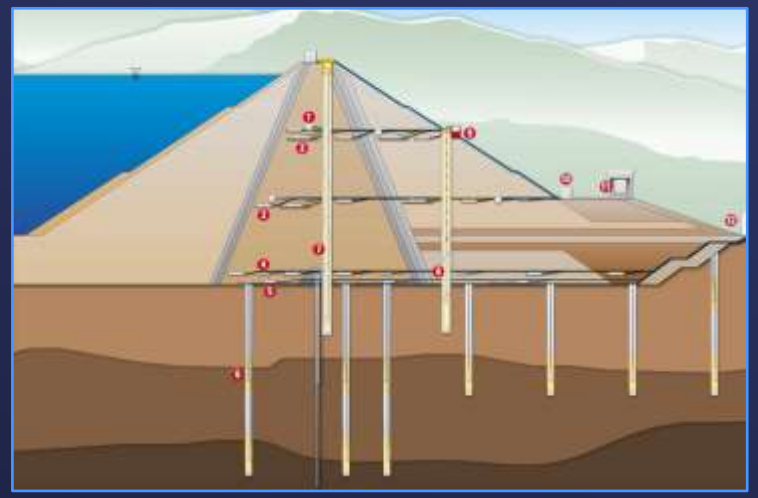


https://www.mwdh2o.com/how-we-plan/

Metropolitan's Dams & Reservoirs

Inspection & Monitoring

- Visual Inspections
  - Three Levels of Inspection:
    1 – by MWD staff in the presence of DSOD inspectors
    2 – by MWD staff on monthly, quarterly or semi-annually
    3 – by MWD staff conducted on routine daily or weekly
- Monitoring Instrumentation



Typical Dam Instrumentation Section

DVL Seepage Monitoring Station

Metropolitan's Dams & Reservoirs

Dam Safety Assessments

- Evaluate performance of dams & appurtenances
- Mandated by DSOD or initiated by staff
- Completed in-house or by consultants
- Identify necessary improvements

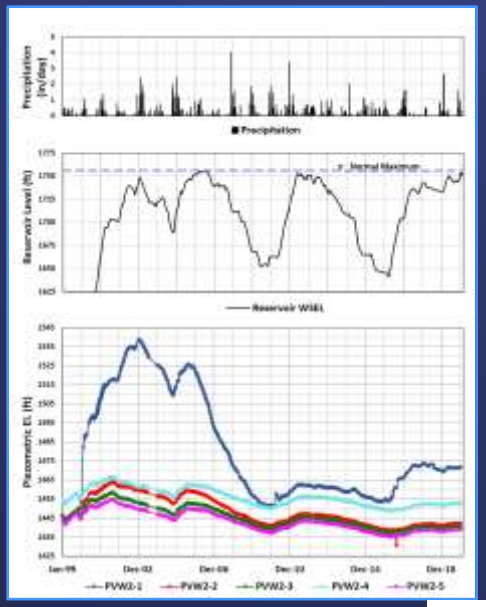
Copper Basin Dam

Metropolitan's Dams & Reservoirs

Dam Safety Initiatives

- Dam monitoring system upgrades
  - Technology scan – Isle Utilities
  - RFQ 1318 identified qualified service providers
  - Instrumentation & data acquisition
  - Data management & dashboarding
  - Planned board action - April 2023

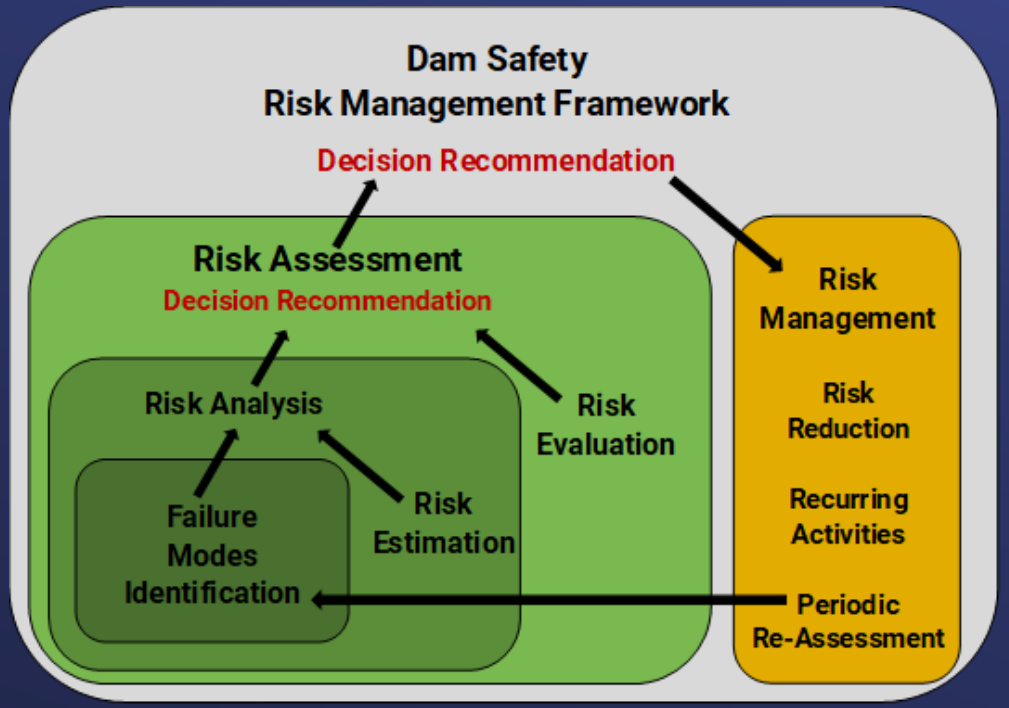
DVL Remote Monitoring Unit



Metropolitan's Dams & Reservoirs

Dam Safety Initiatives

- Dam Risk Assessments
  - Identify potential failure modes
  - Estimate risk
  - Identify risk reduction measures



Metropolitan's Dams & Reservoirs

Summary

- Planned board action for dam monitoring systems in mid-2023
- Begin Dam Risk Assessments in 2023
- Continue work on EAPs, with completion by 2024
- Continue routine dam monitoring and reporting


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

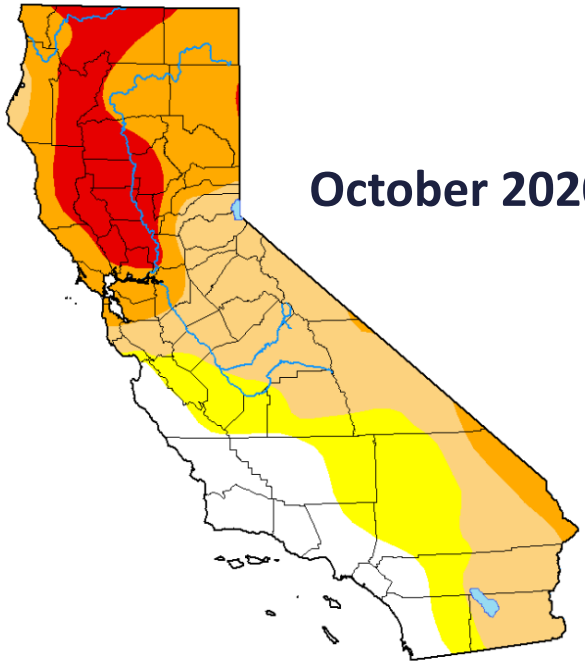
Engineering, Operations, & Technology Committee

2022 System Operations
A Year in Review

Item 6b

Monday, January 9, 2023
9:30 a.m.

Continued Extreme Drought Conditions

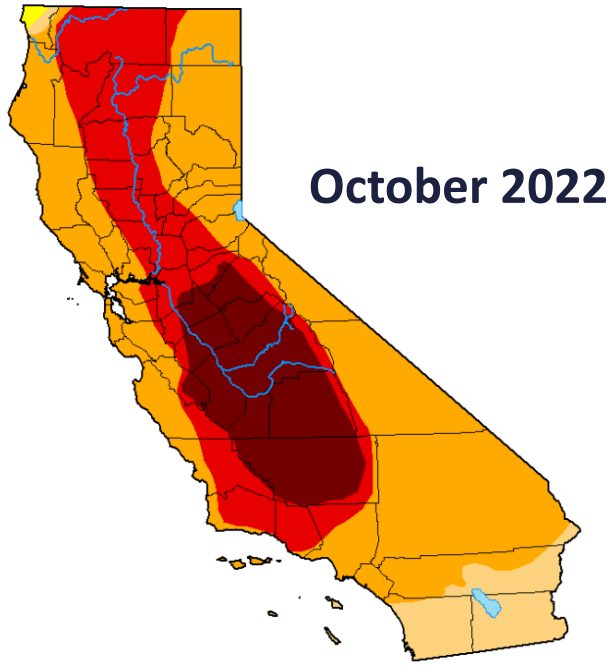


October 2020

20% SWP Allocation

October 2021

5% SWP Allocation



October 2022

5% SWP Allocation + HH&S

None

D0 (Abnormally Dry)

D1 (Moderate Drought)

D2 (Severe Drought)

D3 (Extreme Drought)

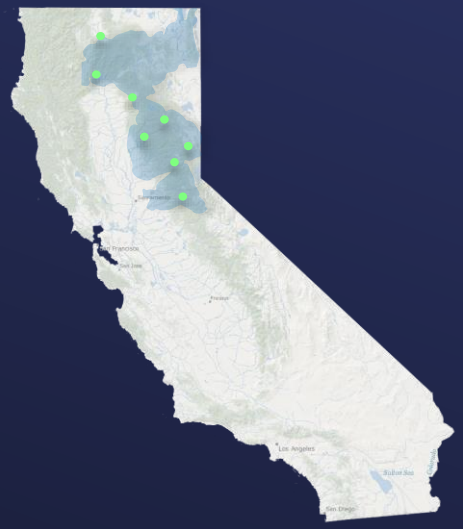
D4 (Exceptional Drought)

White areas on map indicate no drought

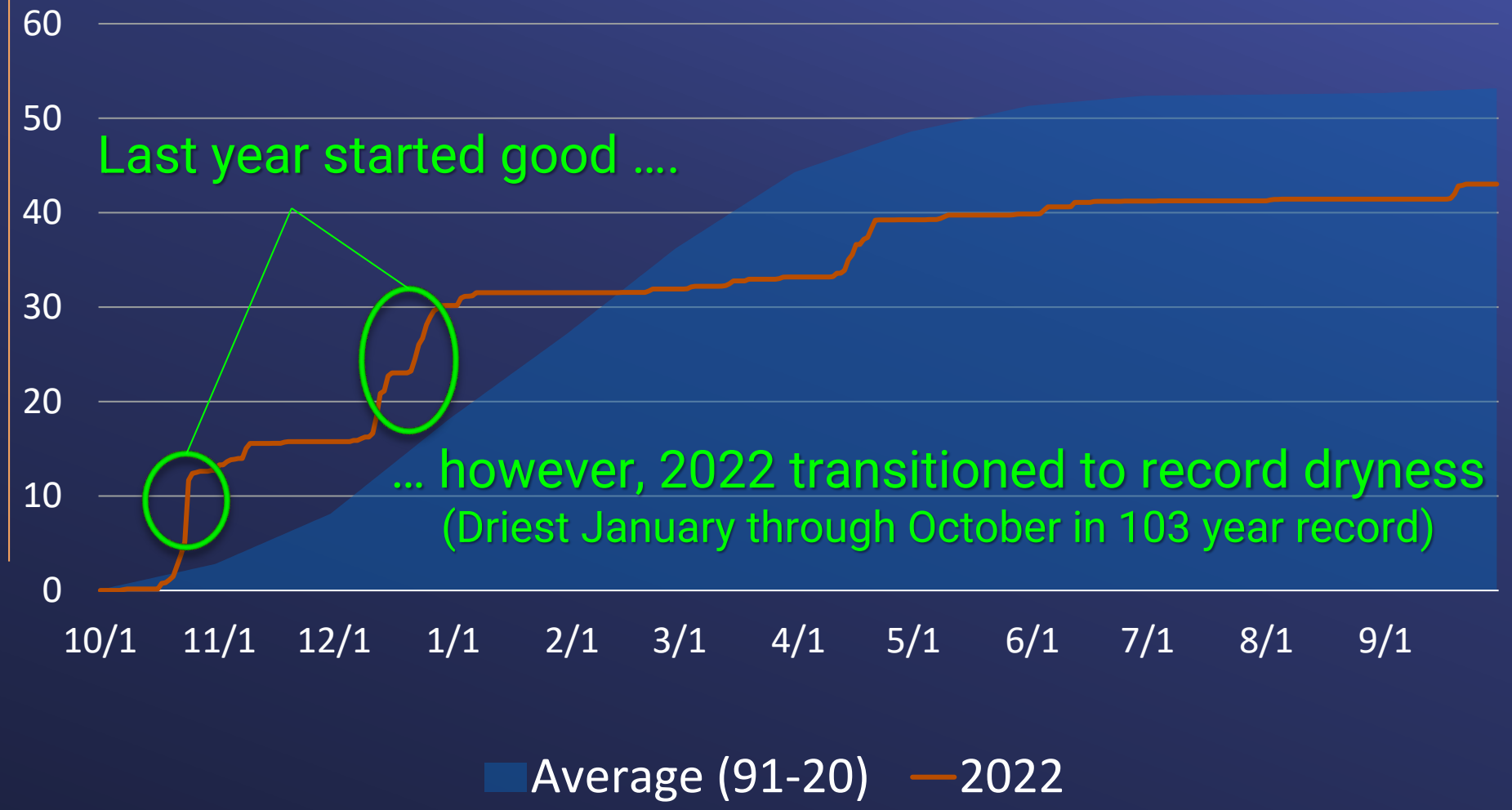
Images from the United States Drought Monitor

8-Station Index

Northern Sierra 8-Station Index



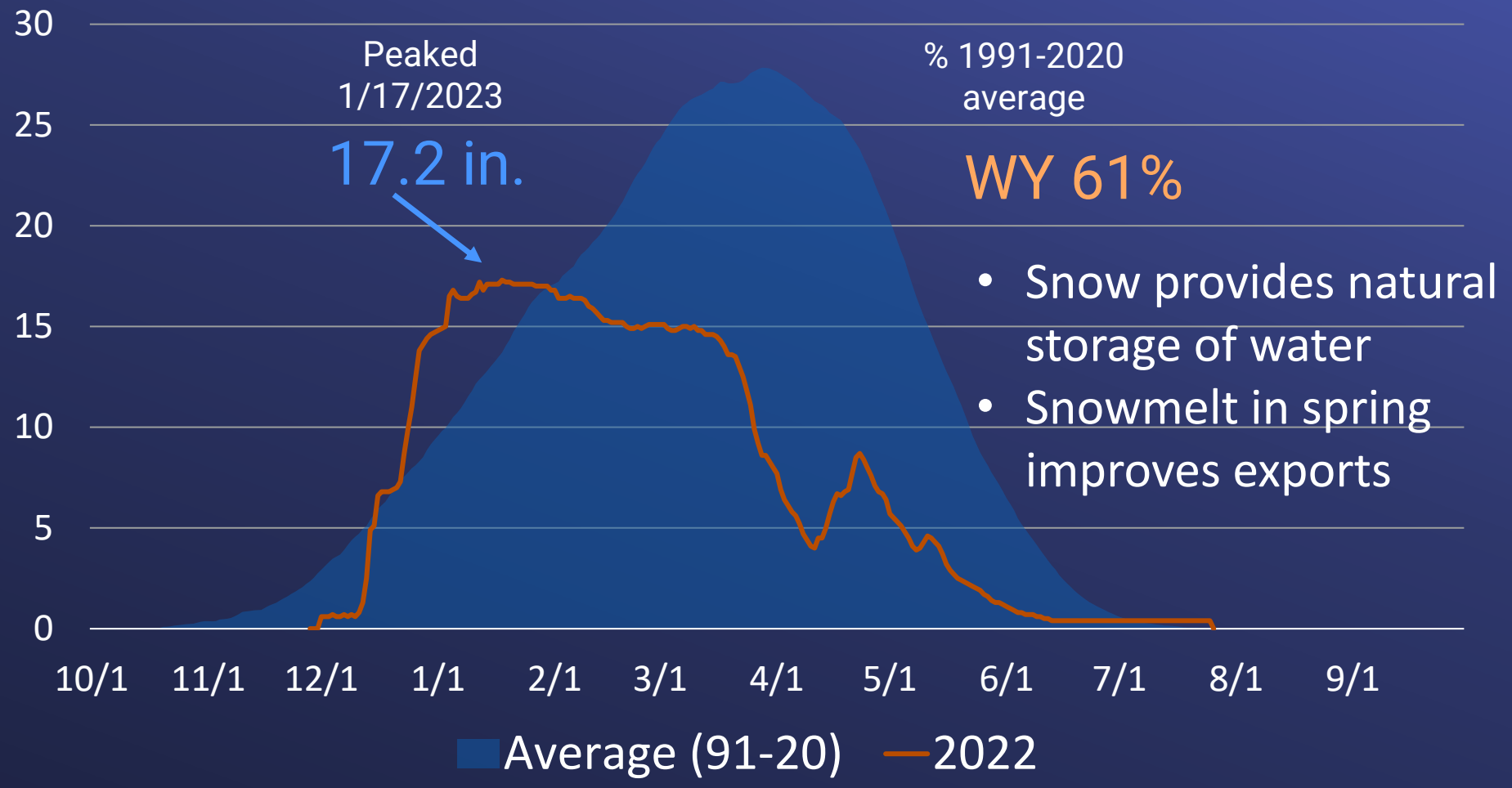
Water Year Cumulative 8-Station Precipitation (inches)



Below-Average Snowpack WY 2022

Northern Sierra Snowpack

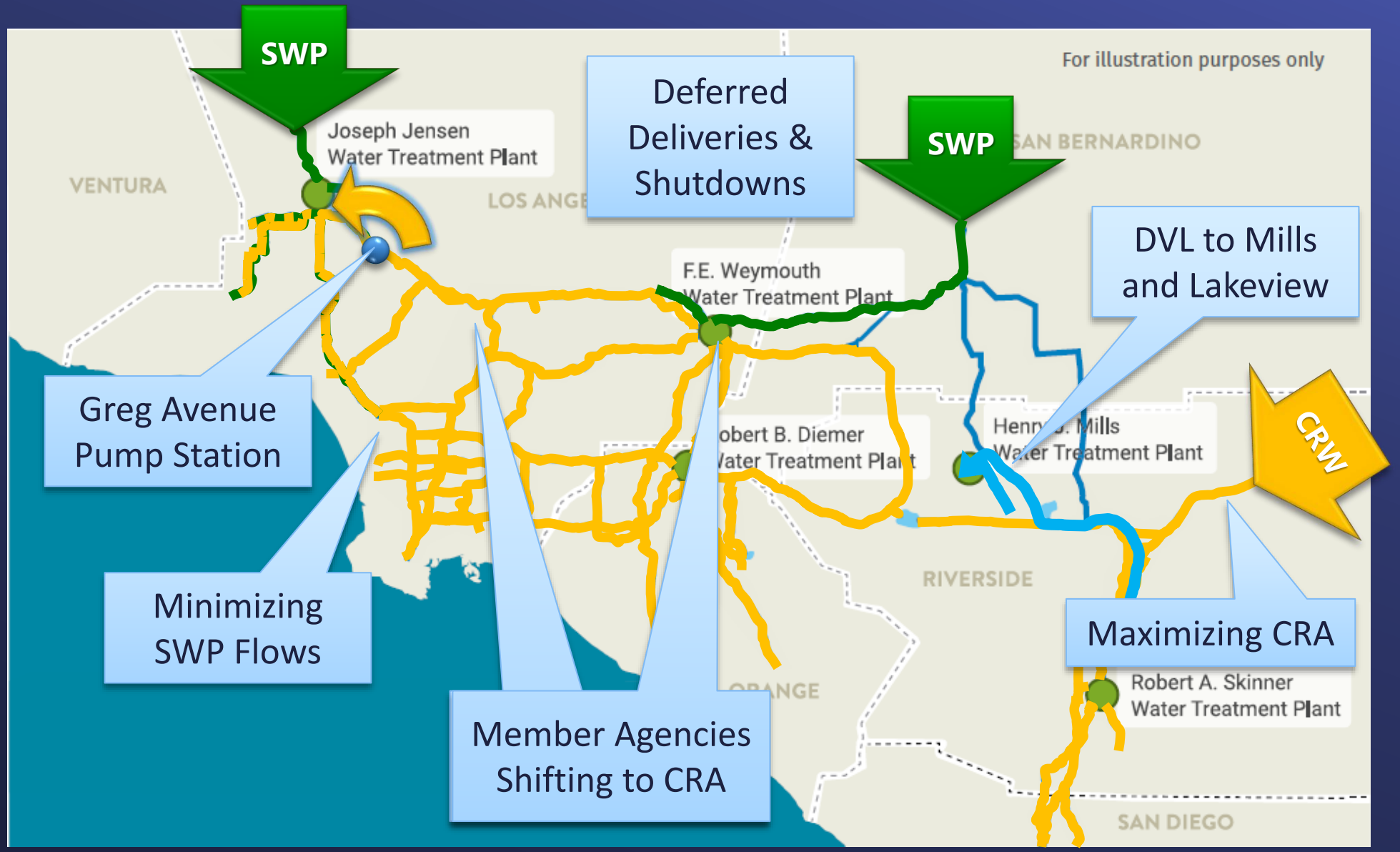
Phillips Snow Course April 1, 2022



- Snow provides natural storage of water
- Snowmelt in spring improves exports

Source: https://cdec.water.ca.gov/snowapp/sweq.action

Drought Actions to Conserve SWP Supplies



Actions Conserve SWP Supplies

Extraordinary Drought Actions

Drought Operations	2022 (AF)
Defer Deliveries	49,500
Defer Shutdowns	36,200
DVL to Lakeview Pipeline	22,400
DVL to Mills	49,300
Greg Avenue Pumping	35,000
Shift to CRW Connections	80,300
System Modifications	14,300
Total	**286,900 AF**

Total conserved supply is more than a 15% SWP allocation, and a 42% increase over last year's drought actions

Colorado River Aqueduct Flowed Full Most of 2022

Cleaning CRA while operating

Cleaning CRA during shutdown

Branch tee for recirculation

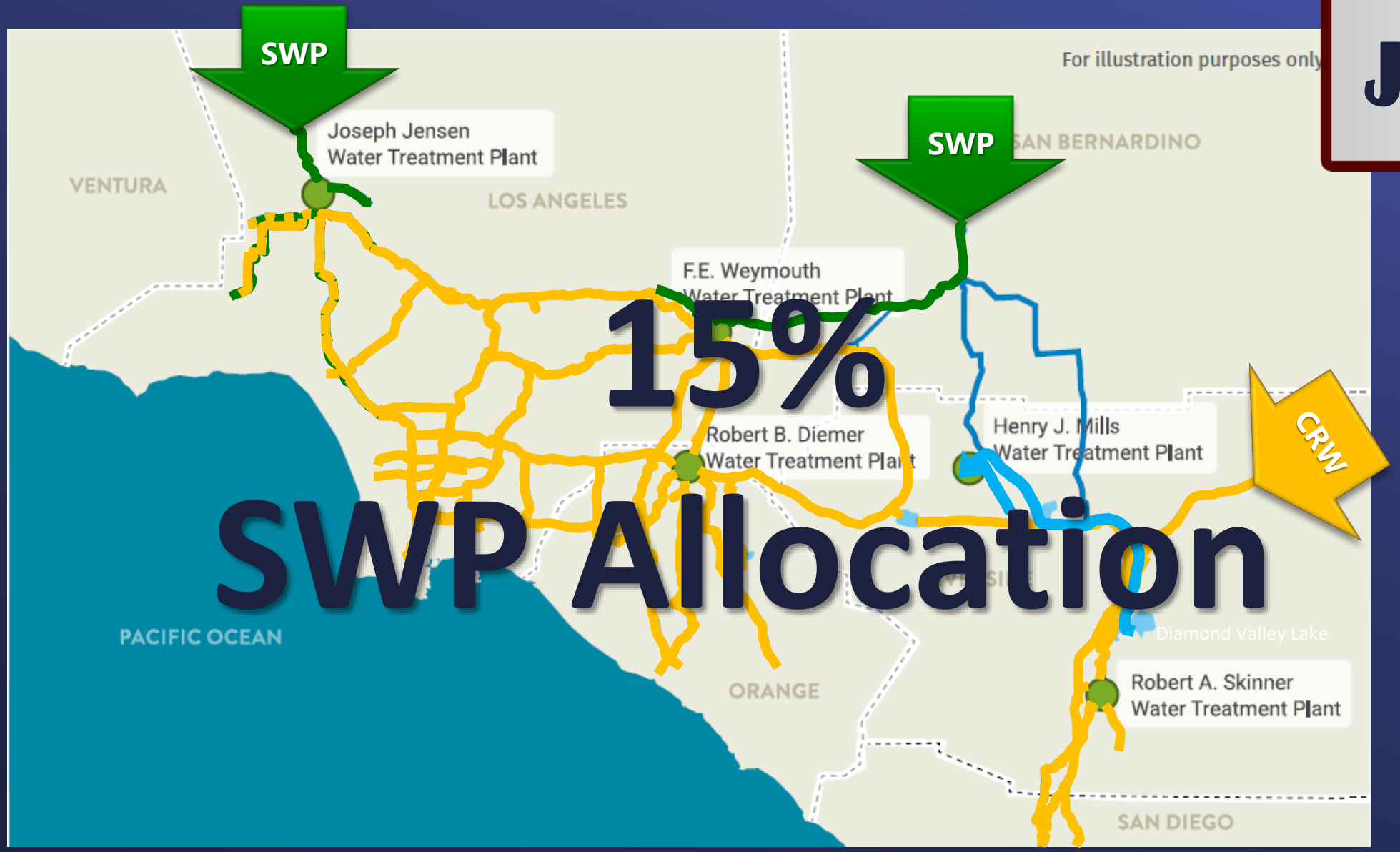
Installing orifice gates at Hinds Pumping Plant

CRA flowing at capacity

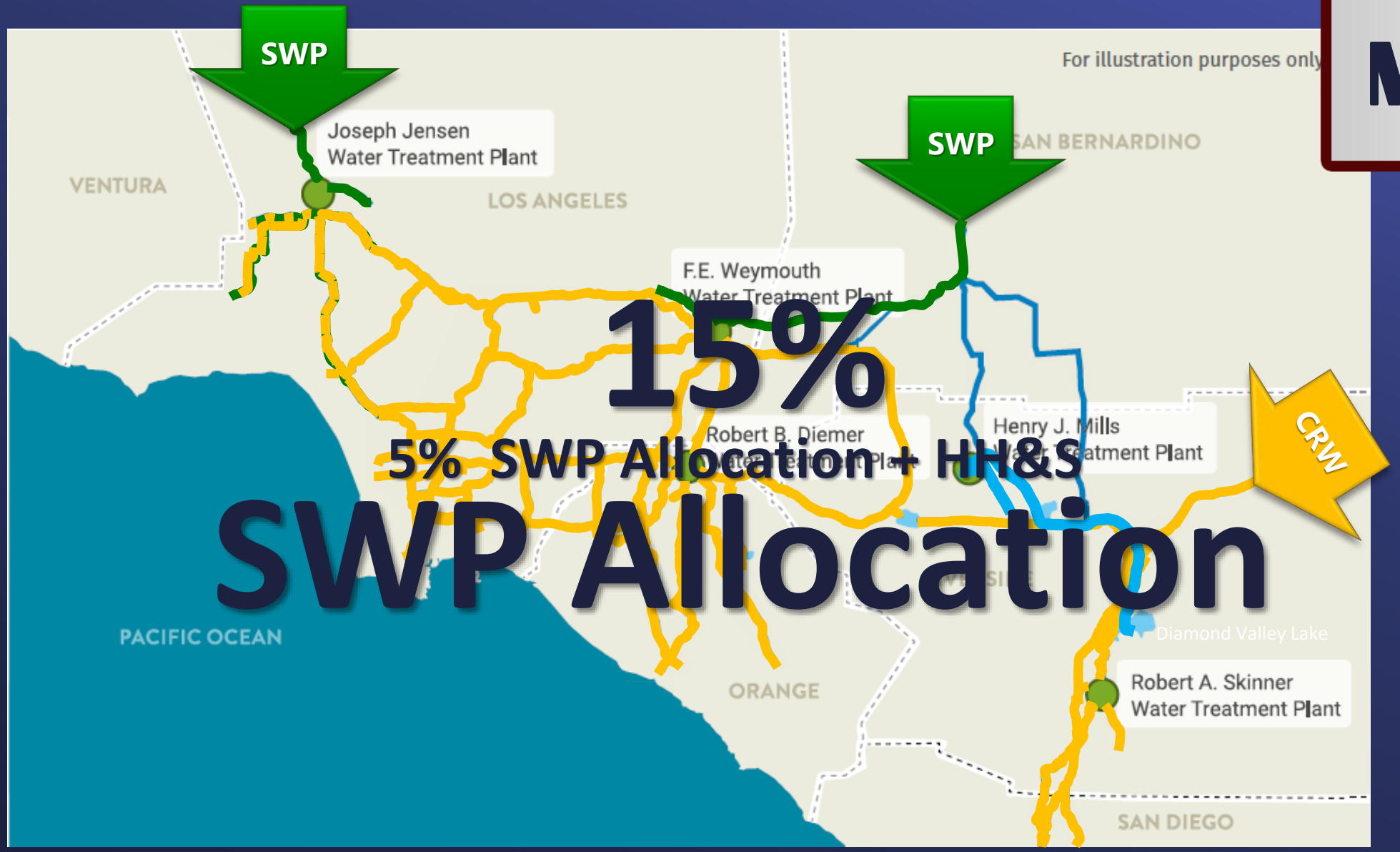
Preparing pump recirculation at Eagle Pumping Plant

A Year of Challenges

January SWP Allocation



SWP Allocation Reduced



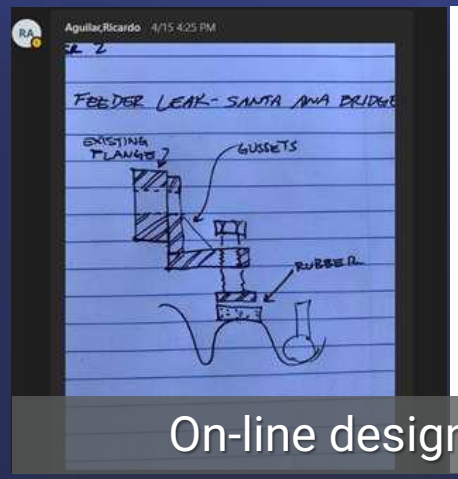
MAR

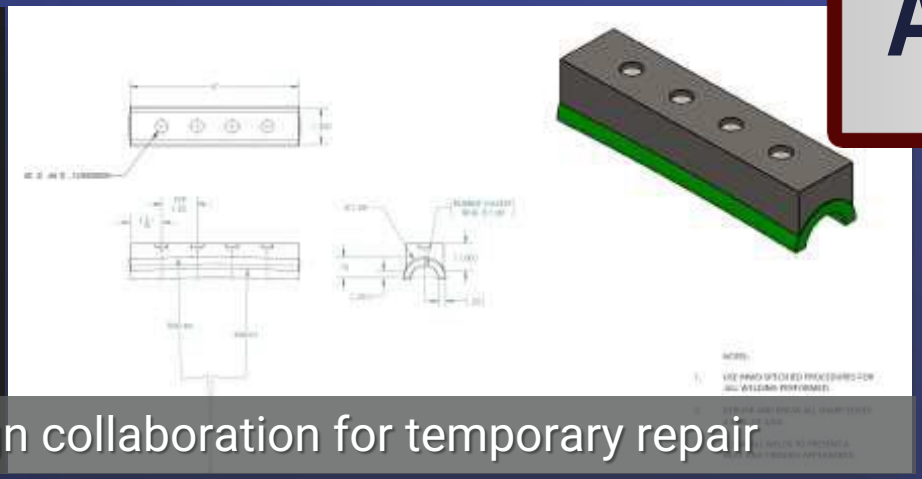
Upper Feeder Leak – Emergency Repair

Upper Feeder Leak

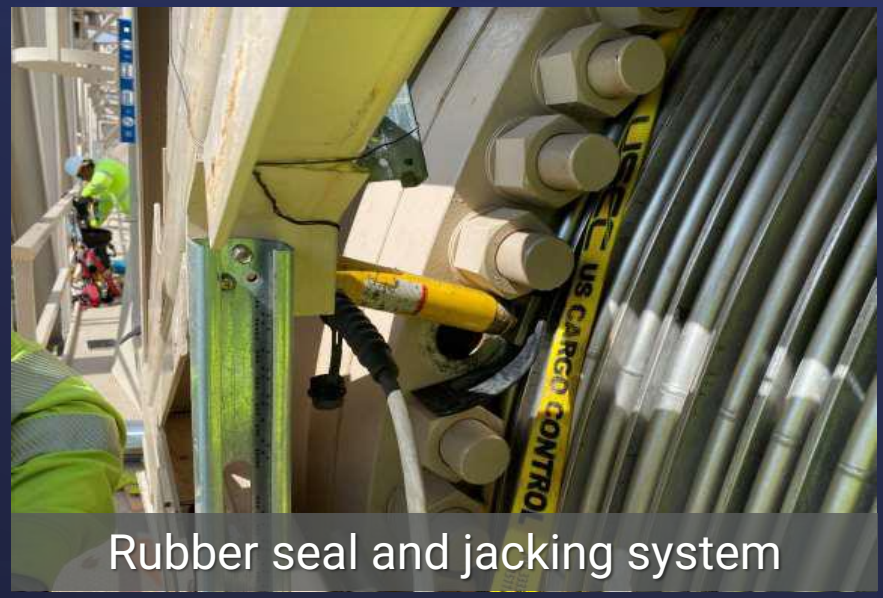
Collaborating on innovative short-term repair

Initial leak on bellows joint

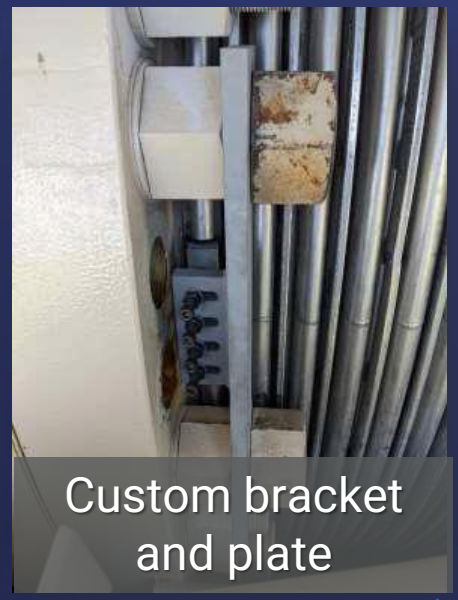




On-line design collaboration for temporary repair

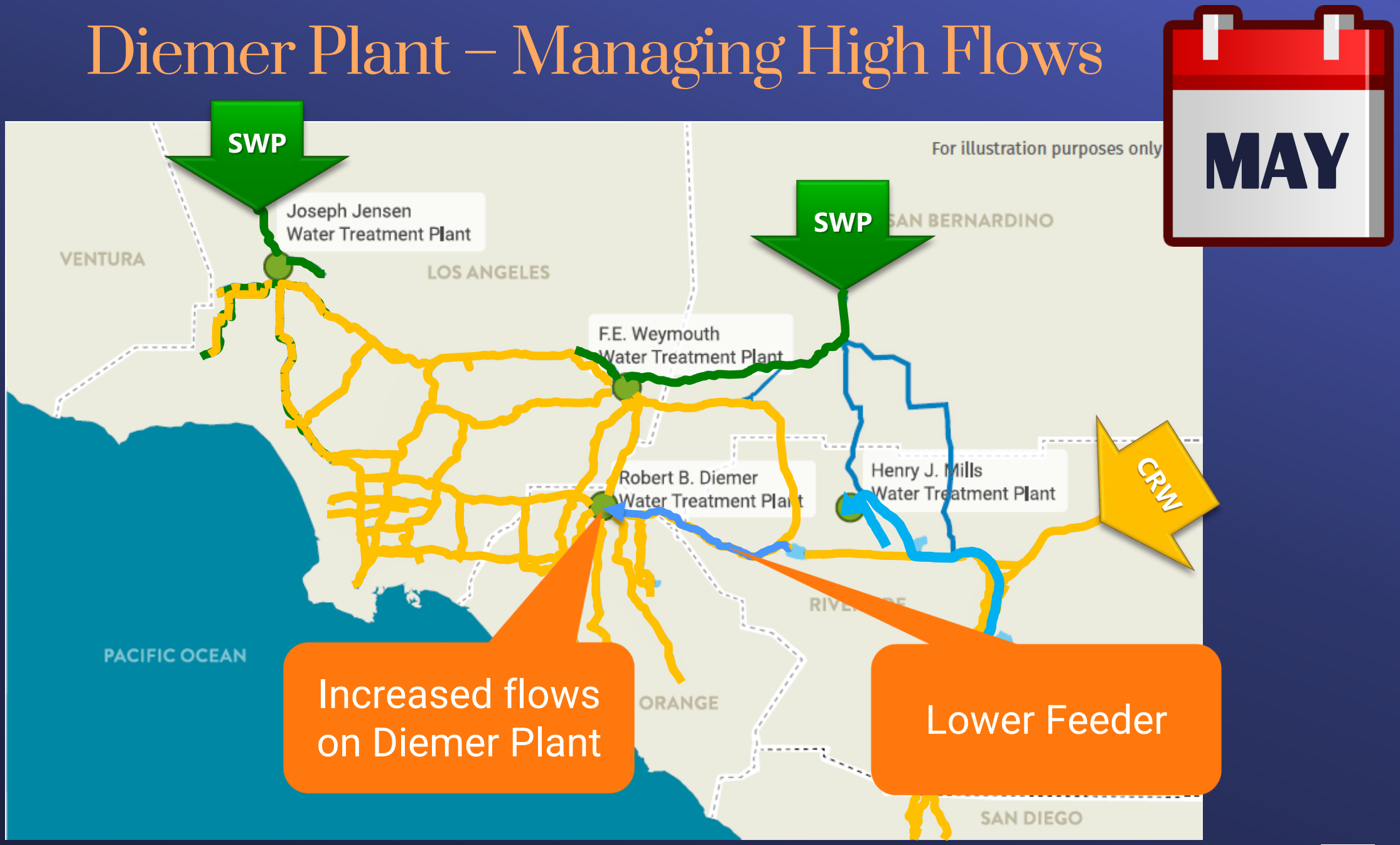


Rubber seal and jacking system



Custom bracket and plate

Diemer Plant – Managing High Flows

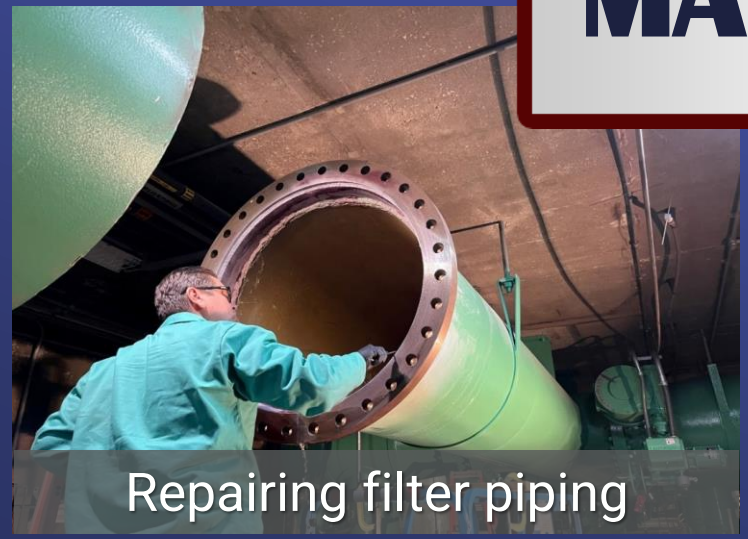


Lower Feeder and Diemer Plant

Overcoming challenges to maximize CRW deliveries

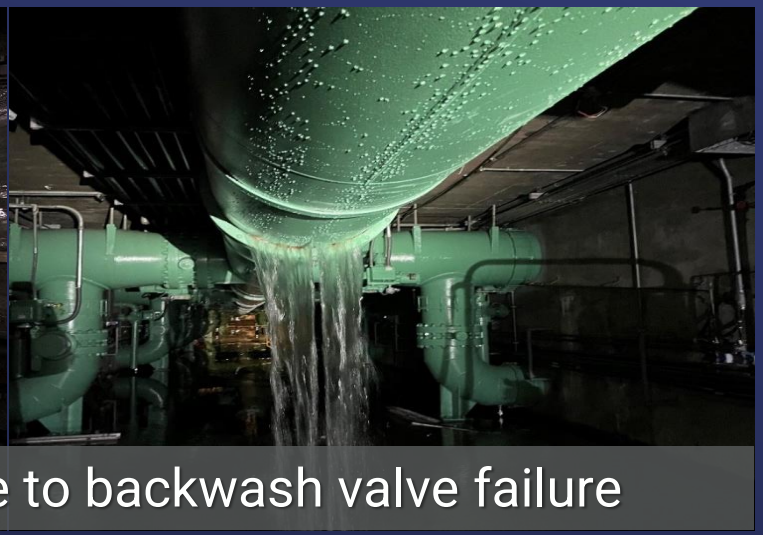
Replacing filter media

Foam buildup on basins

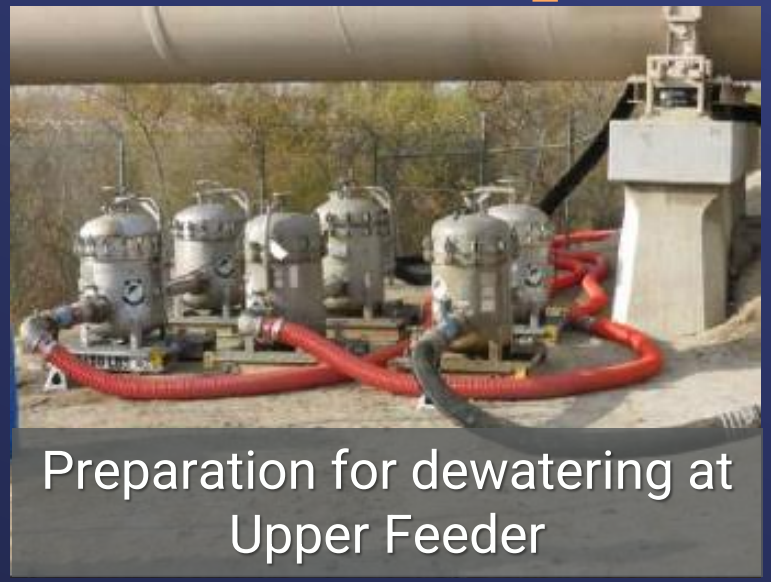


Repairing filter piping

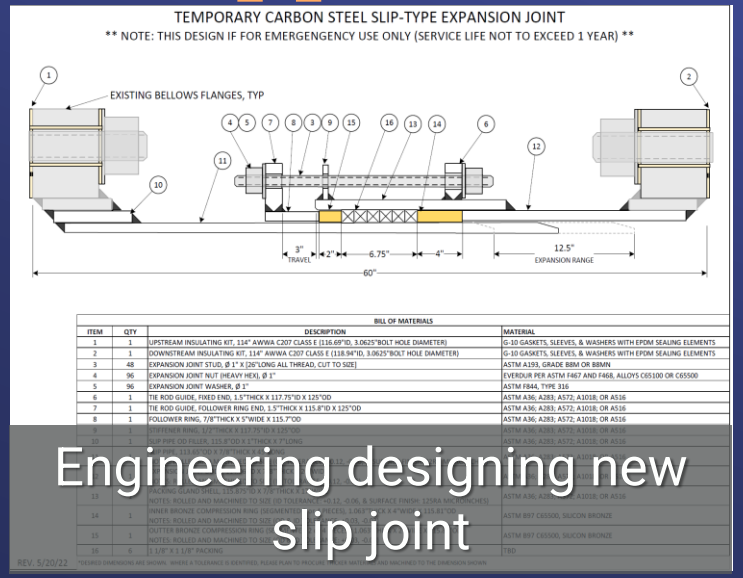
Filter piping damage due to backwash valve failure



Preparing for Upper Feeder Shutdown



Preparation for dewatering at Upper Feeder



Engineering designing new slip joint

Rolling steel

Monitoring & Measuring

Flat Carbon Steel

Metropolitan shop manufacturing slip joint

Hoover Dam Electrical Transformer Fire

Explosion at Hoover Dam July 19, 2022

Transformer fire due to 230kV bushing failure

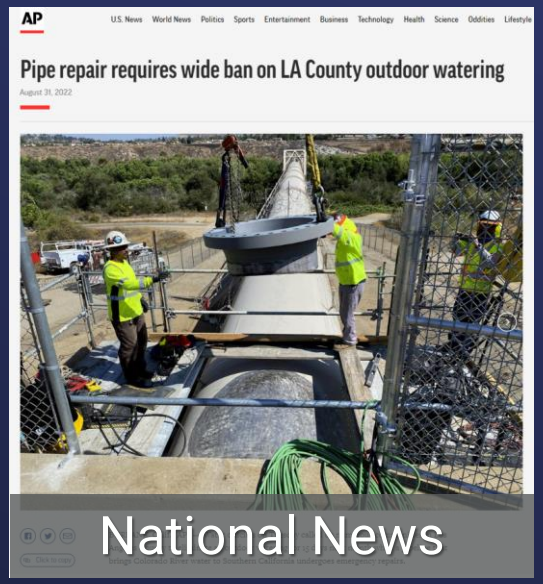
USBR fire crews quickly extinguish fire

Reduced Metropolitan's allocation of Hoover power by about 10 MW, requiring additional purchase of supplemental energy for 2022 CRA operations

Upper Feeder Preparation and Messaging

General Manager and Board Chair messaging conservation during Upper Feeder Shutdown

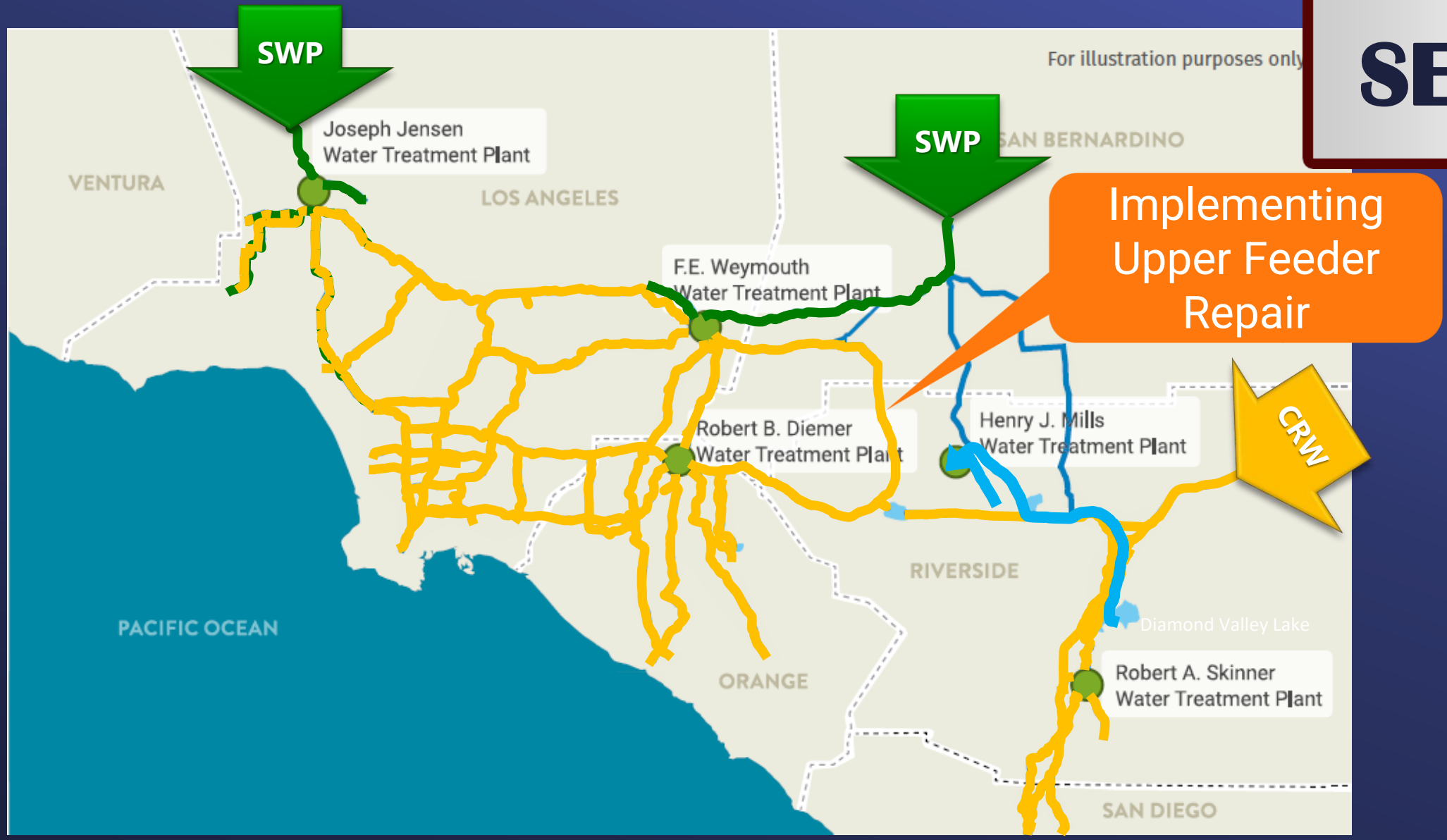
Slip joint completed



National News

Slip joint delivered to job site

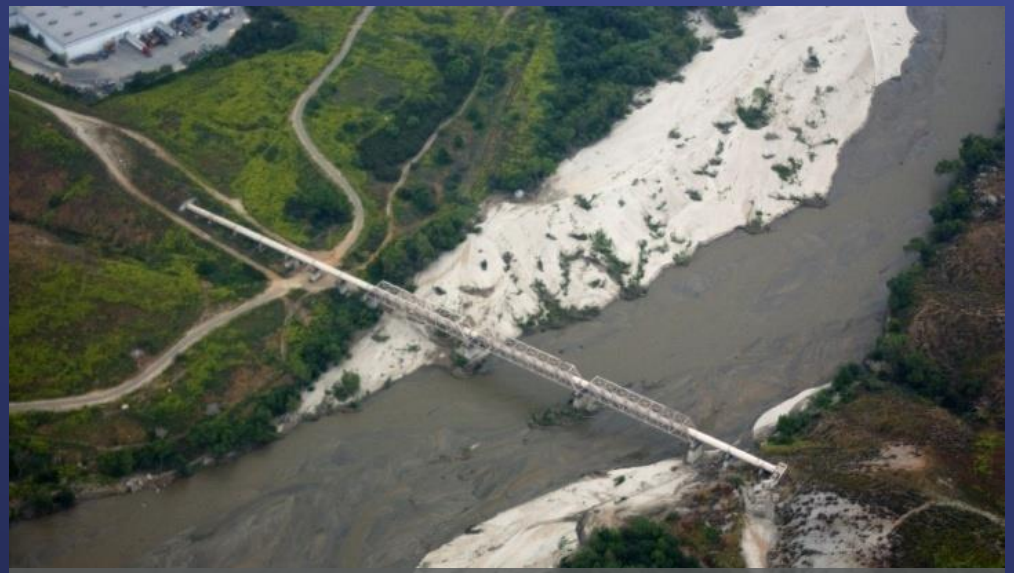
Upper Feeder Shutdown



SEP

Upper Feeder Shutdown

Santa Ana River Low Flows



Santa Ana River Flowing

Crane Positioned in River

SEP

HEAT WAVE advisory

CAISO

EEA 3

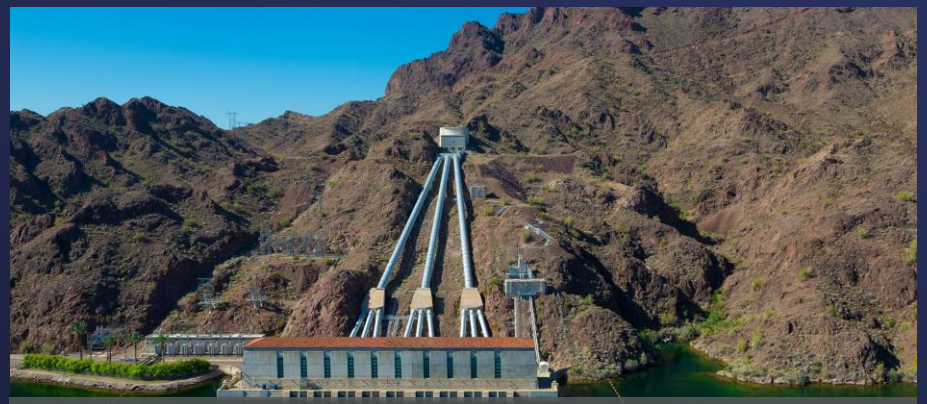
ISO Emergency

Hurricane Kay

Responding to California ISO Emergency

Devil Canyon Powerplant

Red Mountain Hydroelectric Plant

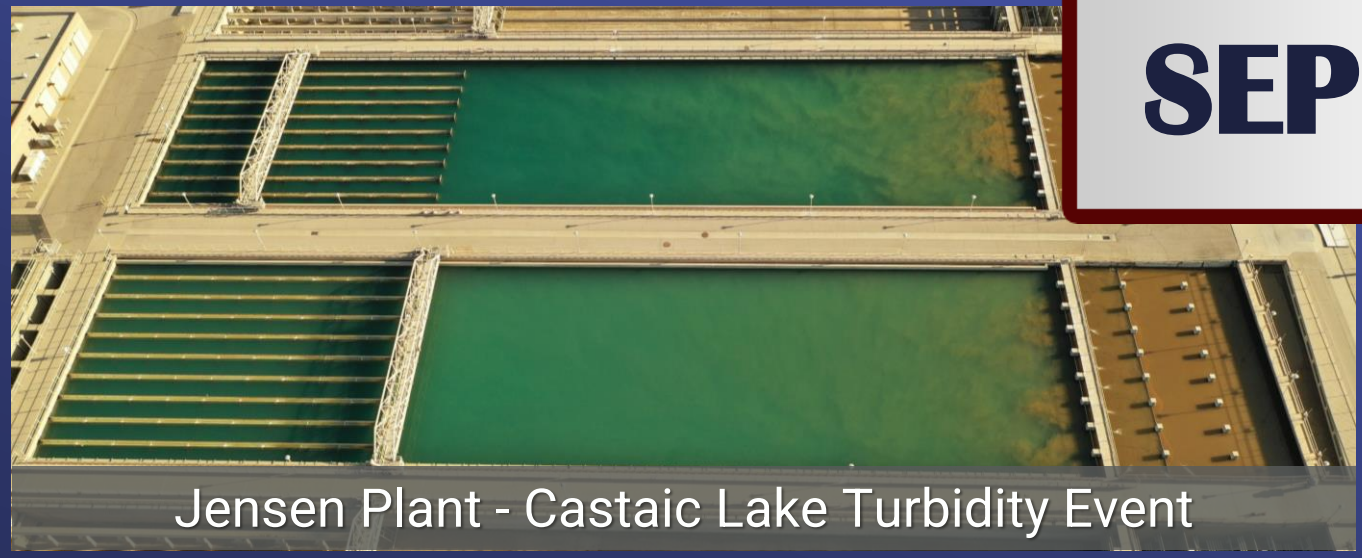


Intake Pumping Plant

Gene Pumping Plant

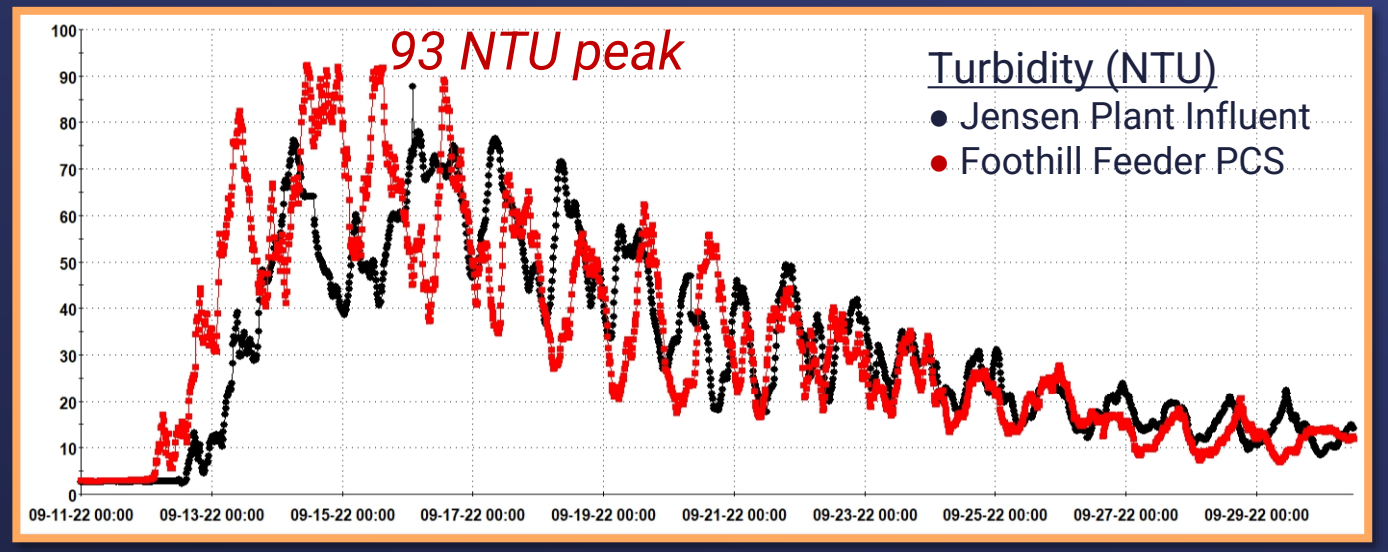
Additional Challenges


Fairview Fire near
DVL and Skinner Plant

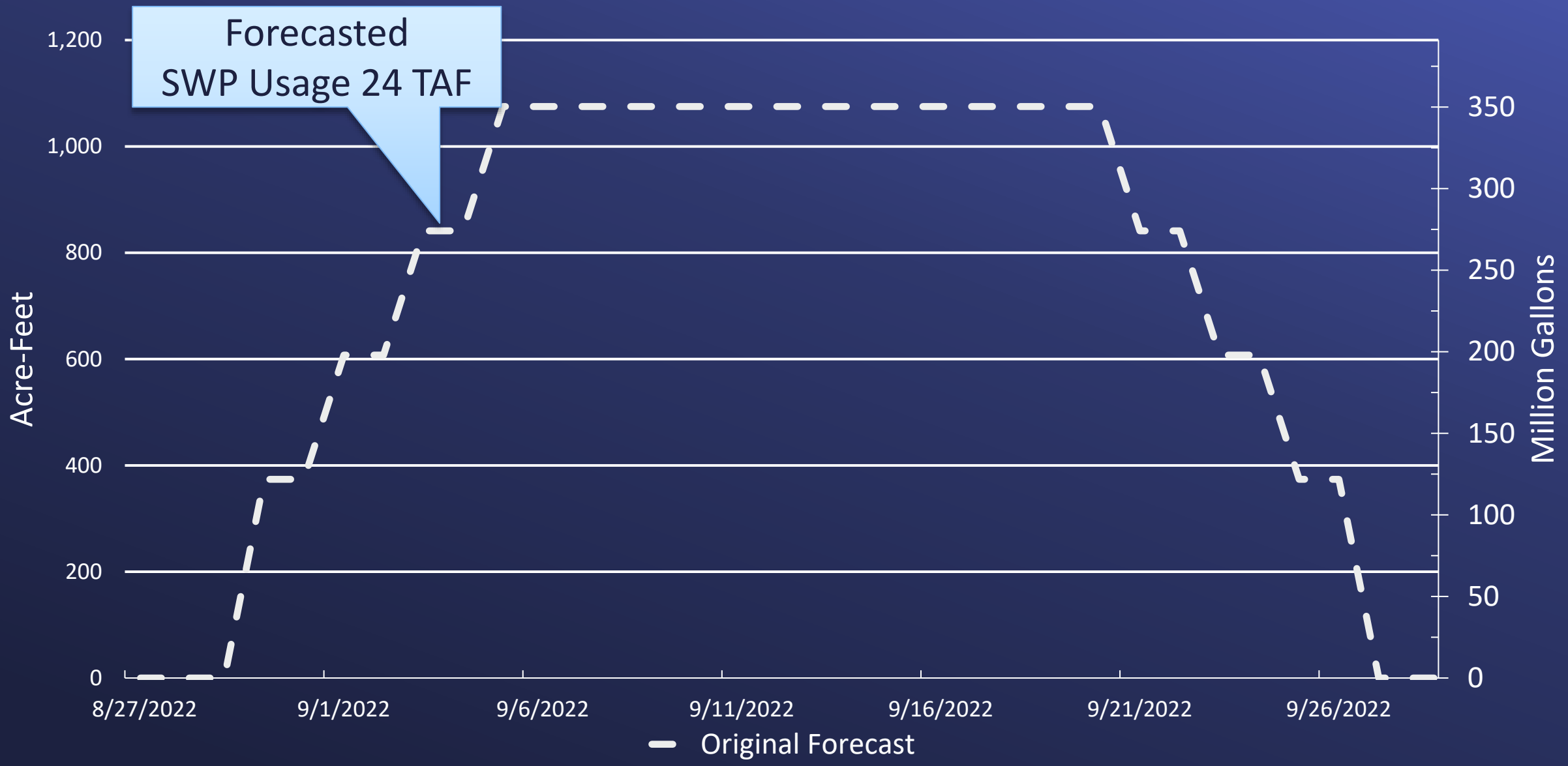

Jensen Plant - Castaic Lake Turbidity Event

SEP

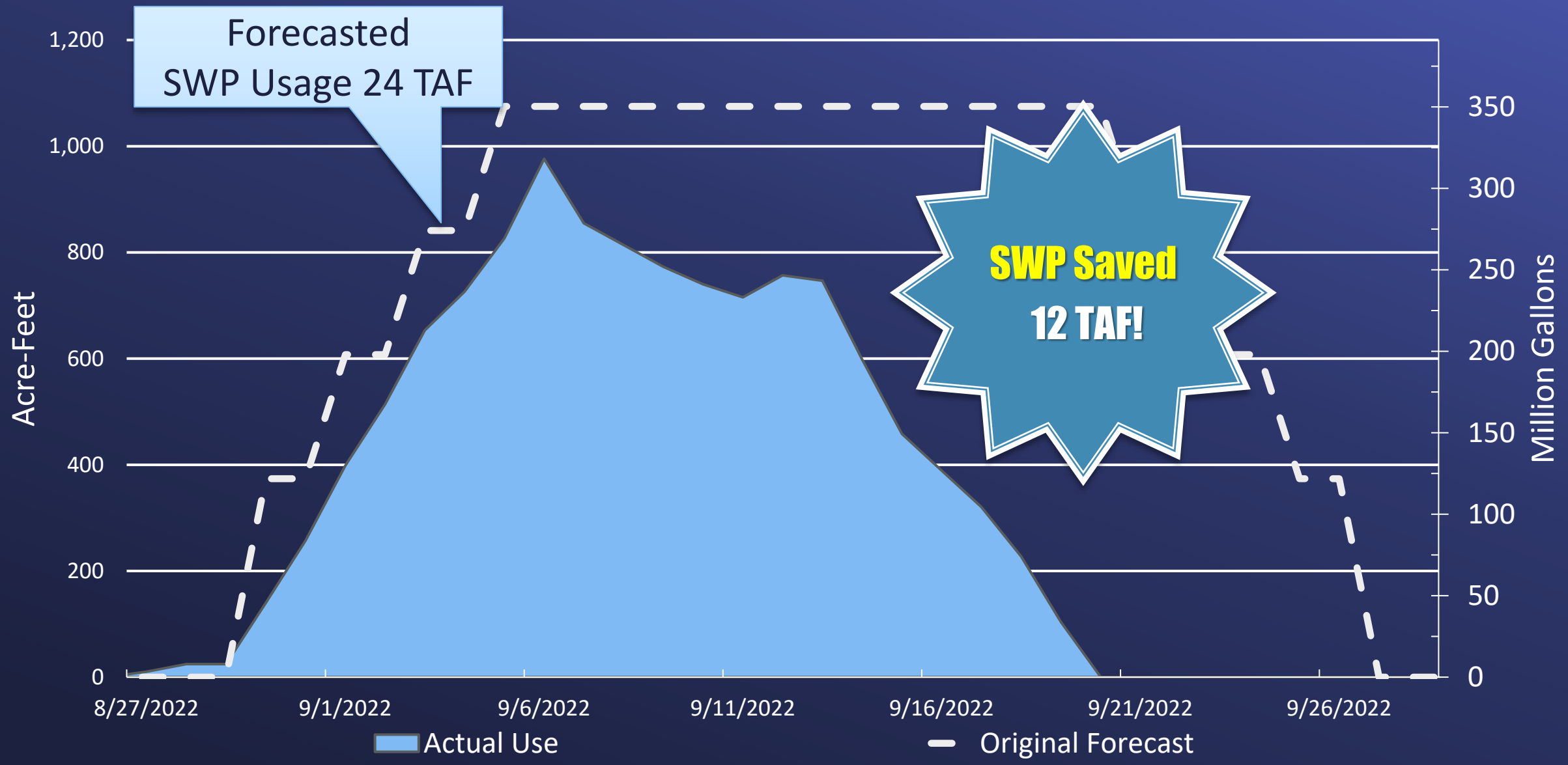

Helicopters pulling water from DVL



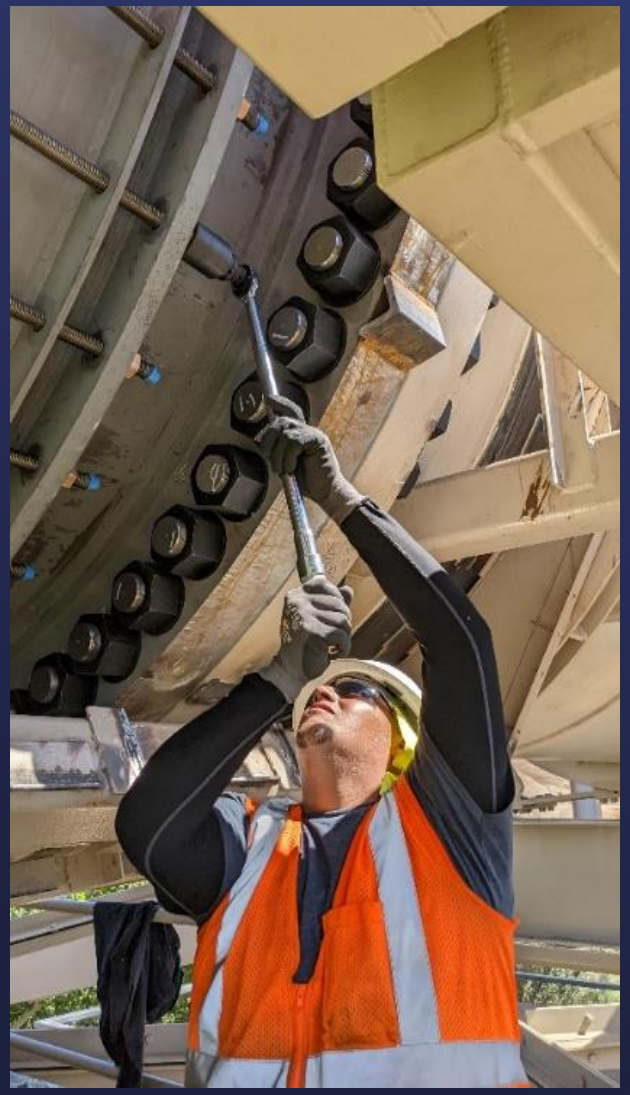
SWP Usage During Upper Feeder Shutdown

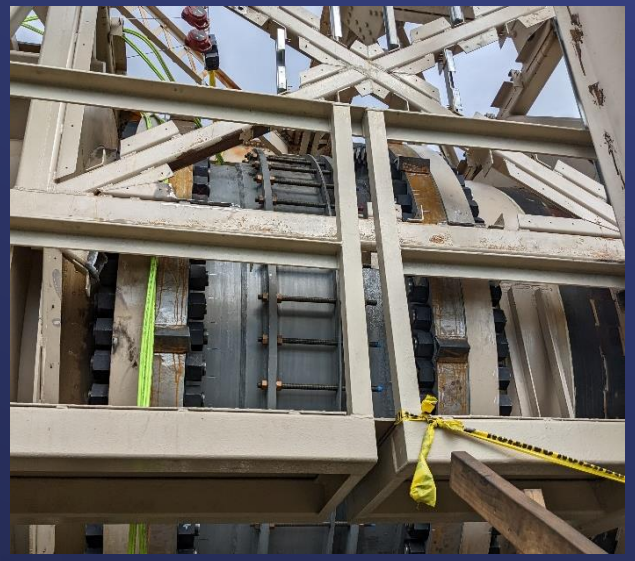


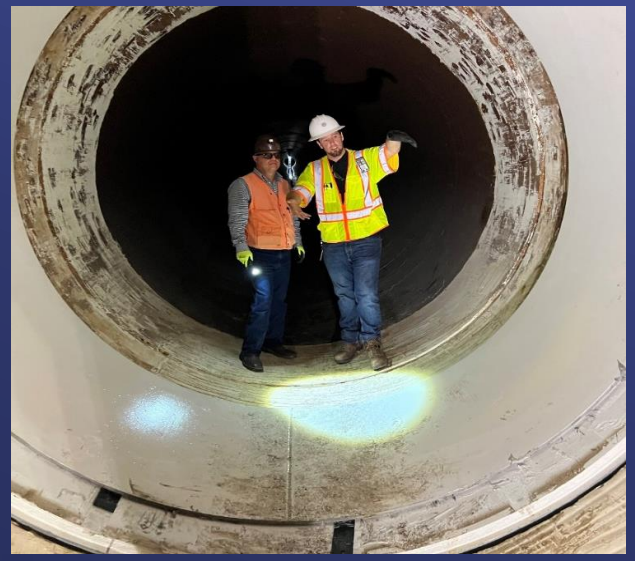
SWP Usage During Upper Feeder Shutdown

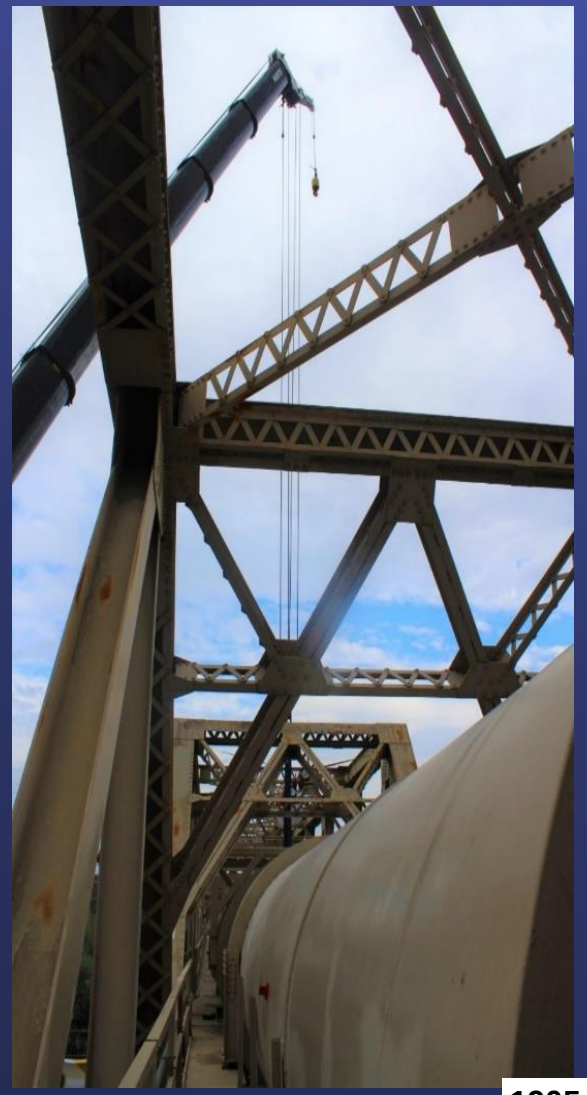


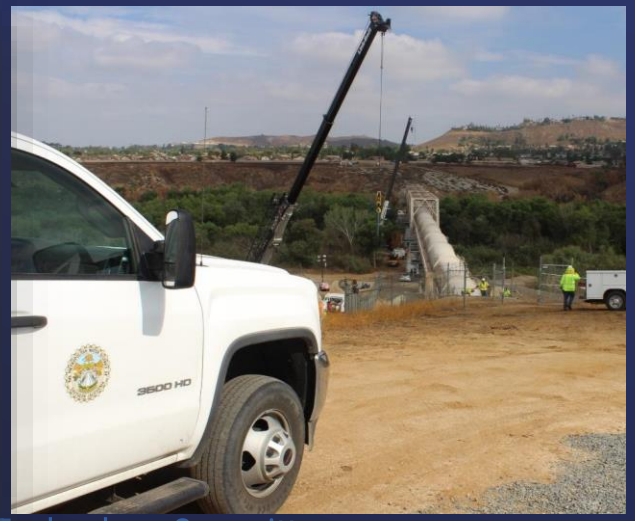
Upper Feeder Shutdown Completed Successfully and Safely









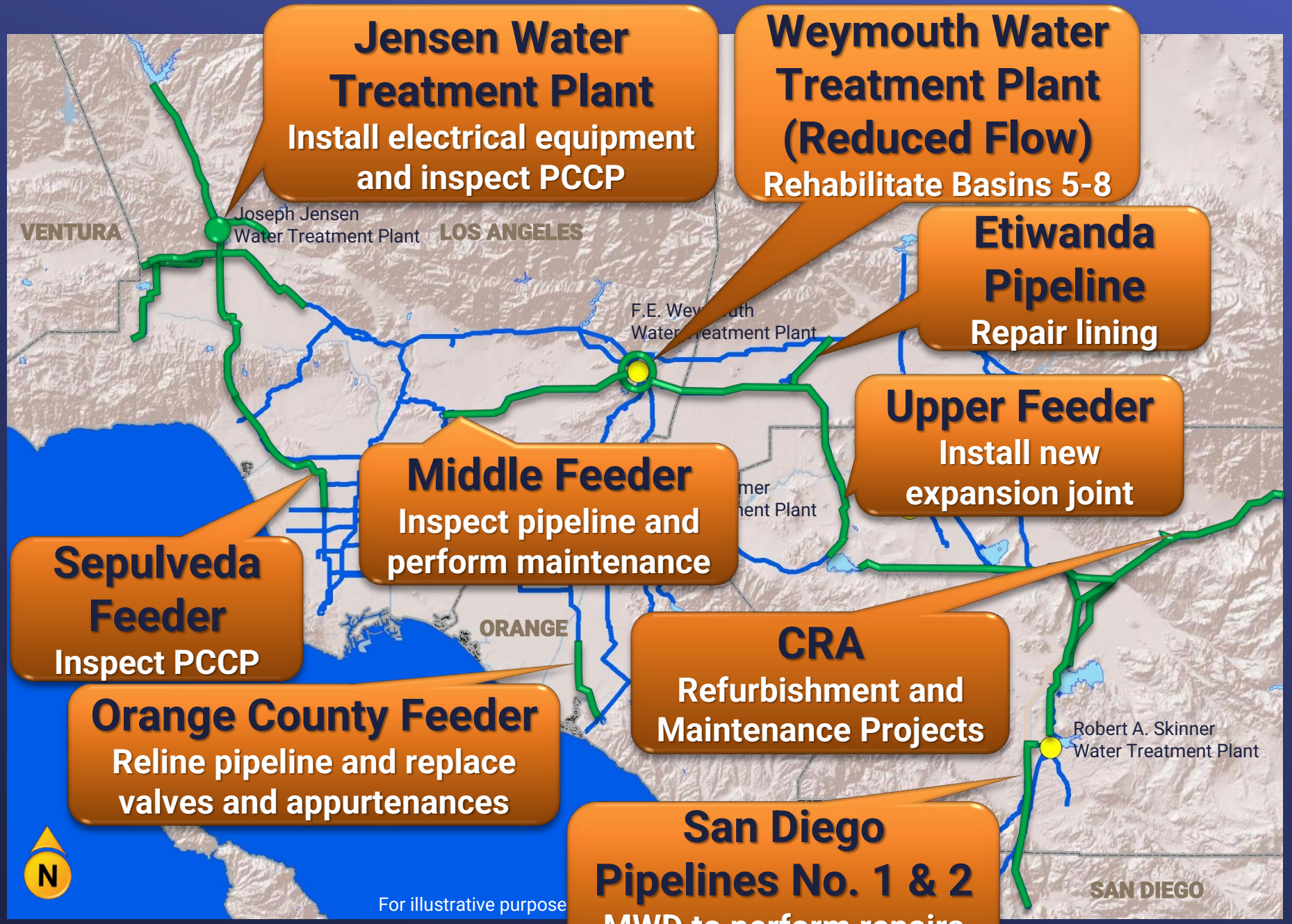


Safety First

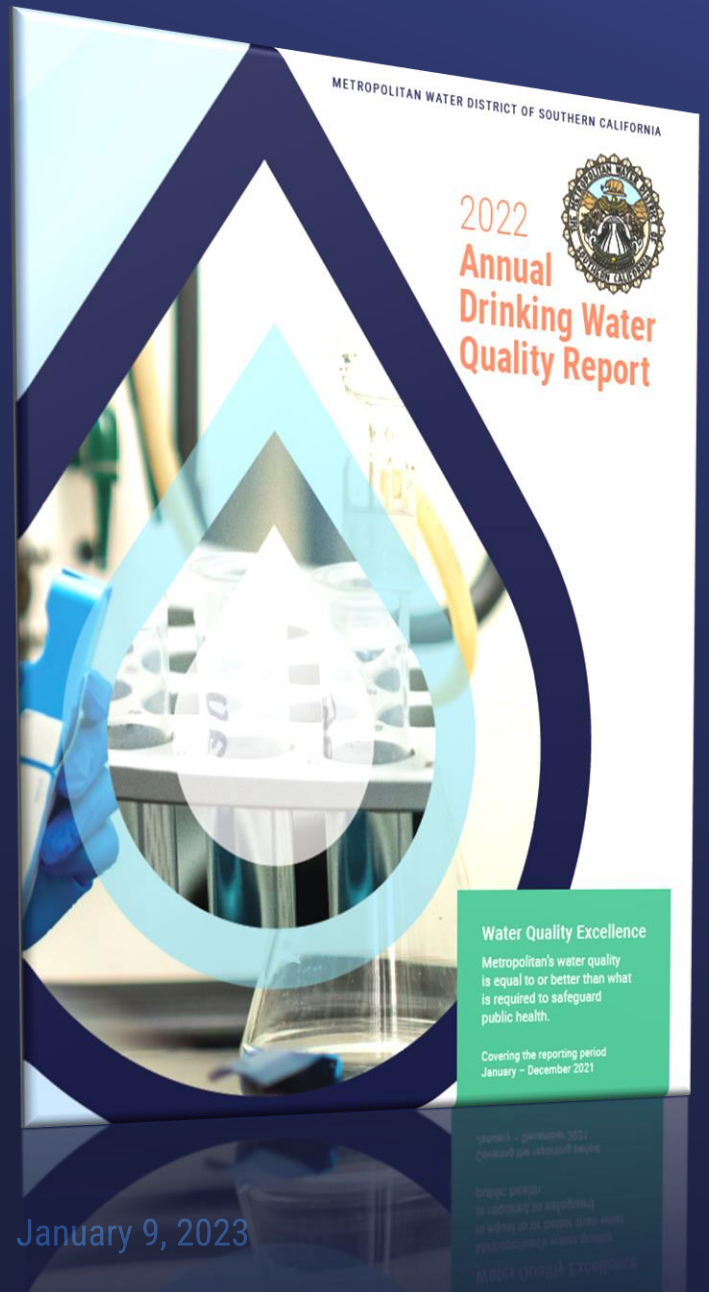
Site-wide cleanups, awards, facility tours, technical workshops, vendor exhibits, staff celebratory luncheons, and more.

Safety Awareness Days at our field facilities reinforced that Safety is Essential to everything we do

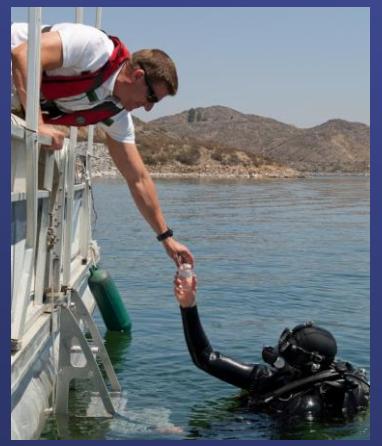
Shutdowns Ensuring Continued System Reliability



Ensuring High Quality Water



Berkeley Springs International Water Tasting

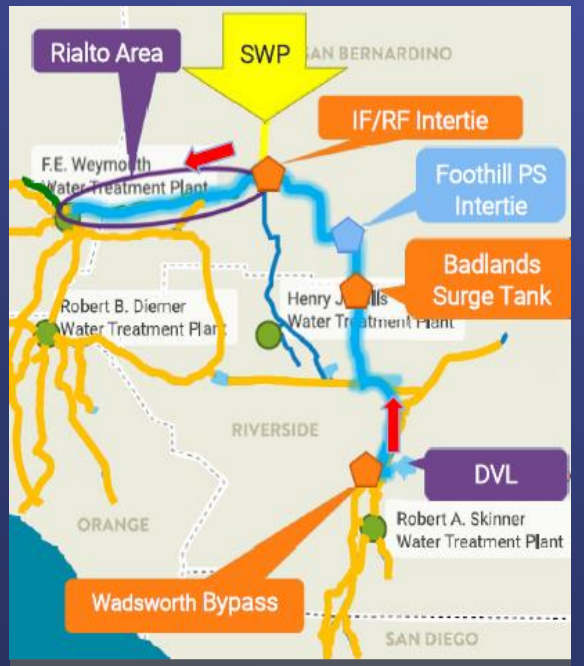


Preparing for future droughts

PUREWATER SOUTHERN CALIFORNIA

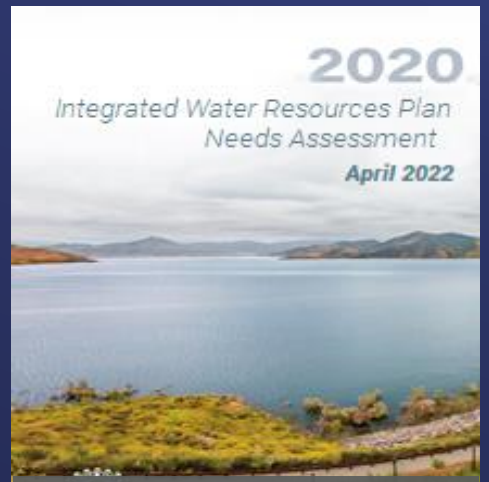
Sepulveda Pump Station

AVEK High Desert Water Bank



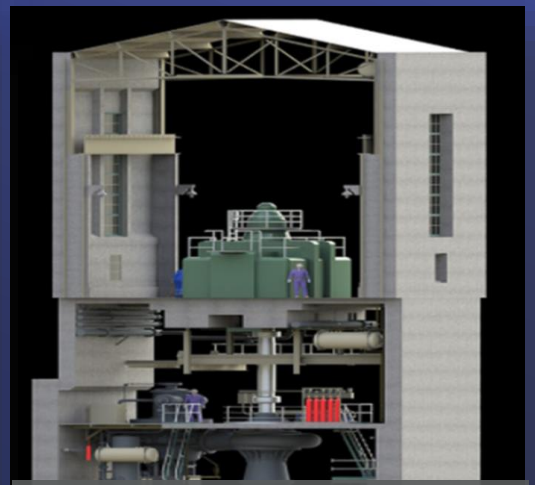
DVL to Rialto

Success through Teamwork

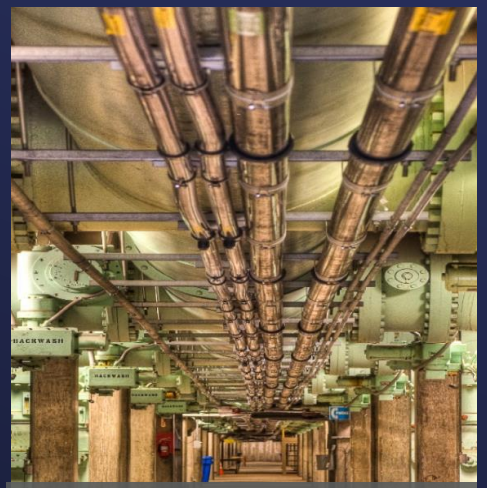


Planning

Leading

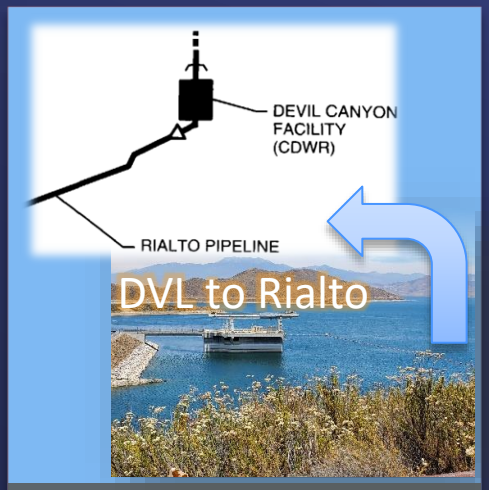

Engineering


Constructing


Operating


Maintaining

Partnering



Innovating

What will 2023 bring?

Metropolitan staff are prepared to meet the challenge whether we continue in the drought or shift to surplus conditions. We are working to improve the reliability of the region today, tomorrow, and long into the future.


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

1912

Engineering, Operations, & Technology Committee

Water System Operations Manager's Report

Item 7a

Monday, January 9, 2023
9:30 a.m.

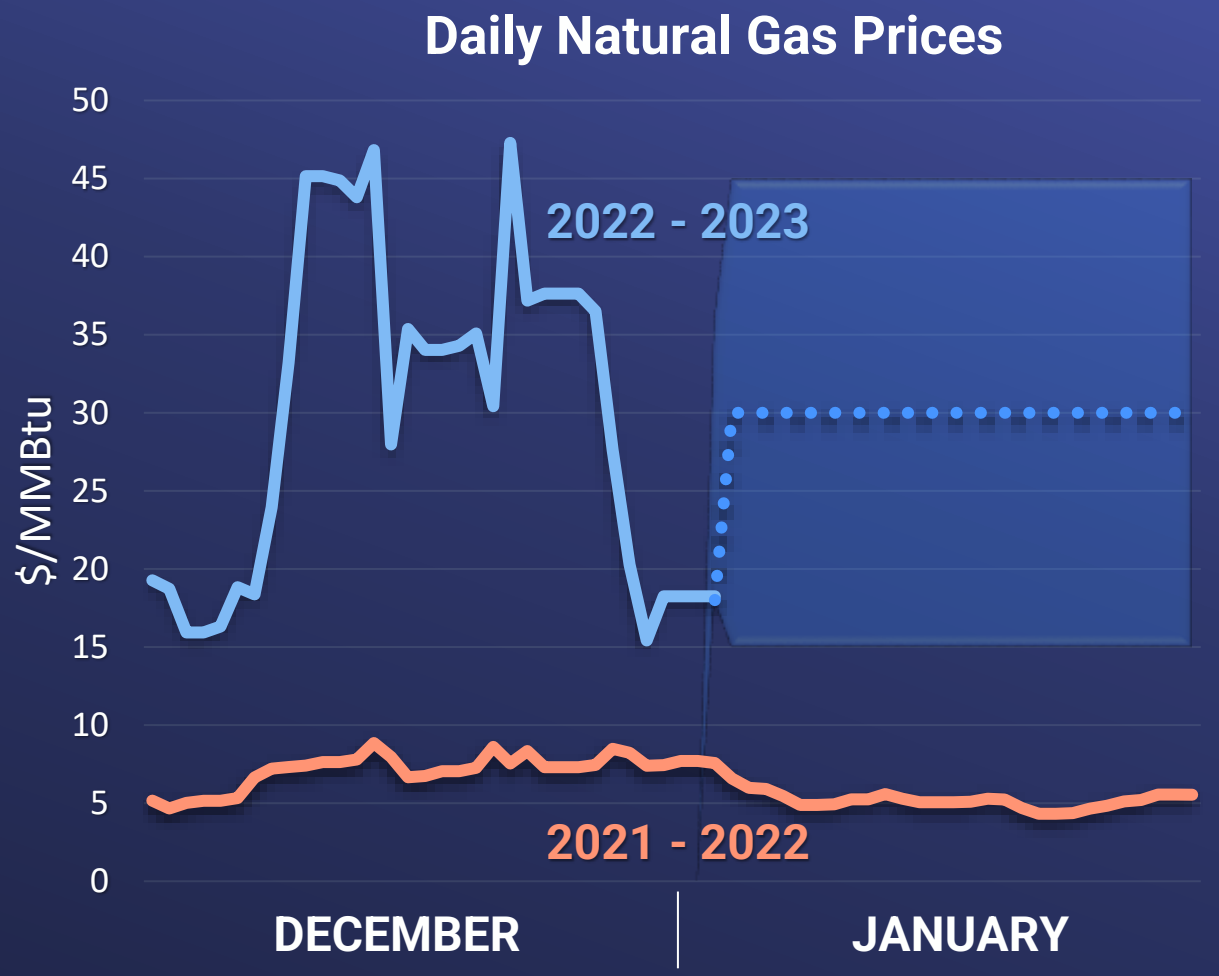
Current Operational Conditions

Continuing Drought Operations

- 2023 SWP Allocation is 5% plus HH&S
- SWP blend targets are 0% at Weymouth, Diemer, and Skinner plants
- CRA at 5-pump flow
- DVL to Mills drought operation continues to perform well
- Managing storage based on WSDM principles
- December 2022 deliveries of 97 TAF were ll TAF lower than December 2021

Balancing Water and Power Operations

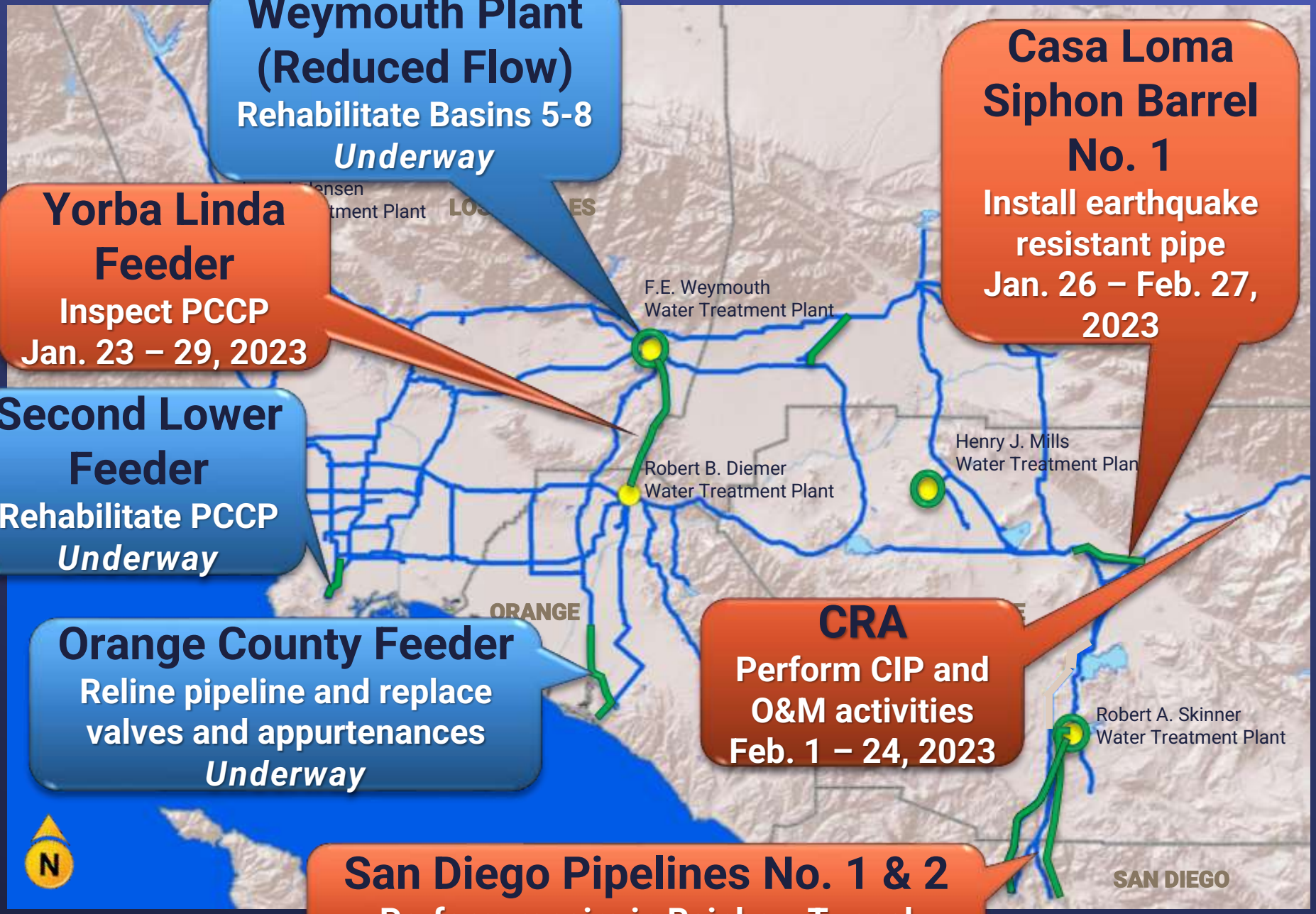
Cold weather and winter storms triggered a major spike in natural gas prices affecting CRA power costs



Balancing Water and Power Operations

- Reduced from 8- to 7-pump flow in mid-December, and further reduced to 5-pump flow in early January
- $8-12 million in estimated savings from reduced December/January CRA energy use
- Lake Mathews expected over 90% full prior to CRA shutdown; well positioned for 2023 operations
- CRA power costs and water demands continue to be monitored to determine if any further operational adjustments are needed
- Update at EO&T Committee on power operations and energy markets in March

Ensuring Continued System Reliability




THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

1918

Engineering, Operations, & Technology Committee

Engineering Services Manager's Report

Item 7b

January 9, 2023

Construction & Procurement Contracts November 2022

Construction & Procurement Contracts Through November 2022	
Number of Contracts at end of November 2022	42
Total Bid Amount of Contracts in Progress at end of November 2022	$435M
Contracts Awarded in November 2022	1
Contracts With Notice To Proceed Issued in November 2022	2
Contracts Completed in November 2022	2
Contract Gross Earnings in November 2022	$9.9M

Lake Mathews Reservoir PCCP Rehabilitation
Valve Storage Building Progress

Checkerboard placement of concrete foundation slab

Etiwanda Pipeline Relining Contract

Removal of damaged cement mortar lining

Recent Collaborations

- Barcelona Spain – Provided background on MWD's hydraulic model
- City of Los Angeles – Hydraulic assessment of Pure Water & Operation NEXT synergies
- Drought scenario planning

Metropolitan Infrastructure Resilience Strategy

WACO Presentation – December 9, 2022

- Metropolitan's System Reliability Strategy
- Metropolitan's Seismic Resilience Strategy
  - Lessons from Past Earthquakes
- Recent upgrades to Metropolitan's System in Orange County
- Partnerships & Emergency Response
- Innovations

Planned February 2023 Board Actions

- Award contract for procurement of a 20-inch diameter valve for an upcoming project on the Rialto Feeder
- Adopt the Mitigated Negative Declaration for the CRA Reclamation Plan in San Bernardino and Riverside Counties, and approve the CRA Master Reclamation Plan
- Authorize an agreement to support the upgrade of the Datacenter Backup Infrastructure


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

1926