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
D. Alvarez
M. Camacho
A. Chacon
B. Dennstedt
S. Faessel
L. Fong-Sakai
R. Lefevre
J. McMillan
C. Miller
J. Morris
G. Peterson
T. Quinn
K. Seckel
T. Smith

Engineering, Operations, and Technology Committee - Final - Revised 1

Meeting with Board of Directors *

April 10, 2023

9:00 a.m.

Monday, April 10, 2023 Meeting Schedule

09:00 a.m. EOT
11:00 a.m. Break
11:30 a.m. OWS
01:30 p.m. LRAC
03:00 p.m. EIA

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: 862 4397 5848. 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 or click https://us06web.zoom.us/j/81520664276?pwd=a1RTQWh6V3h3ckFhNmdsUWpKR1c2Zz09

MWD Headquarters Building • 700 N. Alameda Street • Los Angeles, CA 90012
Teleconference Locations:
Fullerton City Hall Council Chambers • 303 W. Commonwealth Avenue • Fullerton, CA 92832
5707 Ocean View Boulevard • La Canada, CA 91011
8700 Beverly Boulevard, Ste M313 • Los Angeles, CA 90048
Los Angeles Cleantech Incubator (LACI), 525 S. Hewitt Street, Los Angeles, CA 90013

* 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))

2. SUBCOMMITTEE REPORTS

A. Report from Subcommittee on Pure Water Southern California and Regional Conveyance **21-2113**

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

3. CONSENT CALENDAR OTHER ITEMS - ACTION

US 2-456

A. Approval of the Minutes of the Engineering, Operations, and Technology Committee for March 13, 2023 (Copies have been submitted to each Director, Any additions, corrections, or omissions) **21-2080**

Attachments: 04112023 EOT 3A (03132023) Minutes

4. CONSENT CALENDAR ITEMS - ACTION

7-1 Adopt CEQA determination that the proposed action was previously addressed in the Mitigated Negative Declaration and related CEQA actions, and award an $8,656,568 contract to Granite Construction Company for construction of structural protection measures at 24 cut-and-cover conduit locations along the Colorado River Aqueduct; authorize agreements with: (1) Environmental Science Associates in an amount not to exceed $1,200,000 for biological surveys and environmental monitoring; and (2) Deto, Inc. in an amount not to exceed $325,000 for compensatory environmental mitigation credits **21-2053**

Attachments: 04112023 EOT 7-1 B-L
04102023 EOT 7-1 Presentation

7-2 Award a $6,174,000 contract to West Valley Investment Group for seismic upgrades to the Foothill Hydroelectric Plant and Control Building; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-2057**

Attachments: 04112023 EOT 7-2 B-L
04102023 EOT 7-2 Presentation

7-3 Authorize an agreement with Stantec Consulting Services, Inc. in an amount not to exceed $900,000 for a detailed seismic analysis of the Lake Skinner outlet tower; and award a $1,174,475 procurement contract to B&K Valves and Equipment, Inc. for the replacement of two valves at the Lake Skinner outlet tower; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-2056**

Attachments: 04112023 EOT 7-3 B-L
04102023 EOT 7-3 Presentation

7-4 Authorize an increase of $475,000 to an agreement with Brown & Caldwell, for a new not-to-exceed amount of $715,000, to investigate potential modifications to Metropolitan's existing East-West conveyance and distribution system; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-2054**

Attachments: 04112023 EOT 7-4 B-L
04102023 EOT 7-4 Presentation

7-5 Authorize an increase of $5.4 million to an existing agreement with Arcadis U.S., Inc., for a new not-to-exceed total amount of $6.35 million, for engineering design services to rehabilitate Garvey Reservoir; the General Manager has determined that this proposed action is exempt or otherwise not subject to CEQA **21-2058**

Attachments: 04112023 EOT 7-5 B-L
04102023 EOT 7-5 Presentation

7-6 Authorize an agreement with Canary Systems California, LLC, for an amount not to exceed $1.95 million to upgrade the data acquisition systems at Diamond Valley Lake and Garvey Reservoir; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-2059**

Attachments: 04112023 EOT 7-6 B-L
04102023 EOT 7-6 Presentation

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

5. OTHER BOARD ITEMS - ACTION

NONE

6. BOARD INFORMATION ITEMS

NONE

7. COMMITTEE ITEMS

a. Annual Seismic Resilience Update [REVISED SUBJECT 4/3/23] **21-2081**

Attachments: 04102023 EOT 7a Presentation

b. Jensen Operating Capacity Analysis **21-2087**

Attachments: 04102023 EOT 7b Presentation

c. Update on Jensen Reliability Projects **21-2082**

Attachments: 04102023 EOT 7c Presentation

d. Quarterly Cybersecurity Update [Conference with Metropolitan Director of Info Tech Services, Information Technology, Jacob Margolis, or designated agents on threats to public services or facilities; to be heard in closed session pursuant to Gov. Code Section 54957(a)] **21-1986**

8. MANAGEMENT REPORTS

a. Water System Operations Manager's Report **21-2076**

Attachments: 04102023 EOT 8a Presentation

b. Engineering Services Manager's Report **21-2077**

Attachments: 04102023 EOT 8b Presentation

c. Information Technology Manager's Report **21-2078**

9. FOLLOW-UP ITEMS

NONE

10. FUTURE AGENDA ITEMS

11. 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. Committee agendas may be obtained on Metropolitan's Web site https://mwdh2o.legistar.com/Calendar.aspx. 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 https://mwdh2o.legistar.com/Calendar.aspx.

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.

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

MINUTES

ENGINEERING, OPERATIONS & TECHNOLOGY COMMITTEE

March 13, 2023

Chair Erdman called the hybrid teleconference and in-person meeting to order at 9:30 a.m.

Members present: Chair Erdman, Directors Alvarez, Camacho, Chacon, Dennstedt (entered after roll call), Faessel, Fong-Sakai, Lefevre, McMillan, Miller, Morris, Peterson, Quinn (entered after roll call), Seckel, and Smith.

Members absent: Director Petersen

Other Board members present: Directors Abdo, Ackerman, Armstrong, Atwater, Cordero, Dick, Fellow, Goldberg, Gray, Kurtz, Luna, Ortega, and Repenning,

Committee staff present: Bednarski, Chapman, Chaudhuri, Eckstrom, Hagekhalil, Jarrad, Parsons, and Upadhyay

1. OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE COMMITTEE ON MATTERS WITHIN THE COMMITTEE'S JURISDICTION

Kelly Rowe OCWD

2. OPPORTUNITY FOR DIRECTORS WHO ARE NOT MEMBERS OF THE COMMITTEE TO ADDRESS THE COMMITTEE ON MATTERS WITHIN THE COMMITTEE'S JURISDICTION

NONE

Directors Dennstedt and Quinn entered the meeting

CONSENT CALENDAR ITEMS -- ACTION

3. CONSENT CALENDAR OTHER ITEMS - ACTION

A. Approval of the Minutes of the Engineering, Operations, and Technology Committee for January 9, 2023, and Minutes of the Special Engineering, Operations, and Technology Committee Meeting for February 10, 2023
B. Approve creating the Subcommittee on Pure Water Southern California and Regional Conveyance and establish a two-year term

4. CONSENT CALENDAR ITEMS - ACTION

Director Smith recused himself from items 7-3, due to the fact that he currently owns Black & Veatch stock.

Director Smith left the room

7-3 Subject: Authorize agreement with Black & Veatch Corporation, Inc. in an amount not to exceed $8 million for the preliminary design of conveyance Reach 1 of the Pure Water Southern California program; authorize agreement with HDR Engineering, Inc. in an amount not to exceed $9 million for preliminary design of conveyance Reach 2 of the Pure Water Southern California program; and adopt a resolution to support a grant application to the U.S. Bureau of Reclamation for water recycling and desalination planning and authorize the General Manager to accept the grant if awarded; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA

Presented by: Kim Wilson, Team Manager, Program Management, Engineering Services Group

Motion:

a. Authorize agreement with Black & Veatch Corporation, Inc. in an amount not to exceed $8 million for the preliminary design of conveyance Reach 1 of the Pure Water Southern California program.
b. Authorize agreement with HDR Engineering, Inc. in an amount not to exceed $9 million for preliminary design of conveyance Reach 2 of the Pure Water Southern California program.
c. Adopt a resolution to support a grant application to the U.S. Bureau of Reclamation for water recycling and desalination planning and authorize the General Manager or a designated representative to accept the grant if awarded

The following Directors provided comments or asked questions

1 Atwater
2 Dennstedt
3 Faessel
4 Fong-Sakai
5 Miller
6 Ortega
7 Peterson
8 Repenning
9 Seckel

Staff responded to the Directors' questions and comments.

Director Smith returned to the room

7-4 Subject: Authorize an increase of $500,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Presented by: John Bednarski, Group Manager, Engineering Services Group

Motion: Authorize an increase of $500,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants.

7-5 Subject: Authorize on-call agreements with Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc., in amounts not to exceed $3 million each, for a maximum of five years for geotechnical engineering services; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Presented by: John Bednarski, Group Manager, Engineering Services Group

Motion: Authorize on-call agreements with Fugro USA Land, Inc., GeoPentech, Inc., Geosyntec Consultants, Inc., and Kleinfelder West, Inc., in amounts not to exceed $3 million each, for a maximum period of five years for geotechnical engineering services.

7-6 Subject: Award a $394,534 contract to Slater Waterproofing, Inc. to rehabilitate concrete walls within the ozone contactor structure at the Robert A. Skinner Water Treatment Plant; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Presented by: John Bednarski, Group Manager, Engineering Services Group

Motion: Award a $394,534 contract to Slater Waterproofing, Inc. to rehabilitate concrete walls within the ozone contactor structure at the Robert A. Skinner Water Treatment Plant.

7-7 Subject: Adopt Mitigated Negative Declaration for the Copper Basin Discharge Valve Replacement and Access Road Improvements Project and take related CEQA actions

Presented by: John Bednarski, Group Manager Engineering Services Group

Motion: Adopt the Mitigated Negative Declaration for the Copper Basin Discharge Valve Replacement and Access Road Improvements Project and take related CEQA actions

Director Morris made a motion, seconded by Director Camacho, to approve the consent calendar consisting of items 3A, 3B, 7-3, 7-4, 7-5, 7-6, and 7-7.

The vote was:

Ayes:	Chair Erdman, Directors Alvarez, Camacho, Chacon, Dennstedt, Faessel, Fong-Sakai, Lefevre, McMillan, Miller, Morris, Peterson, Quinn, Seckel, and Smith.
Noes:	None
Abstentions:	
Not Voting:	Smith (7-3)
Absent:	Director Petersen

The motion for Items 3A, 3B, 7-4, 7-5, 7-6, and 7-7 passed by a vote of 15 ayes, 0 noes, 0 abstentions, and 1 absent.

The motion for Item 7-3 passed by a vote of 14 ayes, 0 noes, 0 abstentions, 1 not voting, and 1 absent.

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

5. OTHER BOARD ITEMS ACTION

NONE

6. BOARD INFORMATION ITEMS

NONE

7. COMMITTEE ITEMS

a. Subject: Capital Investment Plan Quarterly Report for Period ending December 2022

Presented by: John Bednarski, Group Manager Engineering Services

Mr. Bednarski provided a brief overview.

The following Directors provided comments or asked questions

1 Smith

Staff responded to the Directors' questions and comments.

c. Subject: Power Operations and Planning Update

Presented by: John Jontry, Interim Section Manager, Water System Operations

Mr. Jontry reported on the following topics and themes:

- Metropolitan's power requirements and transmission system
- Colorado River Aqueduct and State Water Project energy use and costs
- Changes in the energy market and how Metropolitan is adapting
- Metropolitan's electrical reliability regulatory compliance program
- Plans and programs to enhance energy resiliency and sustainability for the future

The following Directors provided comments or asked questions

1 Morris
2 LeFevre
3 Peterson
4 Faessel
5 Erdman

b. Subject: Quarterly Cybersecurity Update

Presented by: Deferred to April 2023

8. MANAGEMENT REPORTS

a. Subject: Water System Operations Manager's Report

Presented by: Mickey Chaudhuri, Water System Operations, Interim Group Manager

Mr. Chaudhuri reported on the following:

- Current operations and adapting to wet weather conditions
- Jensen plant's response to high turbidity event
- Current and recent shutdowns, including the CRA shutdown
- Microplastics workshop for member agencies
- 2023 Annual Operating Plan

b. Subject: Engineering Services Manager's Report

Presented by: John Bednarski, Engineering Services, Chief Engineer and Group Manager

Mr. Bednarski reported on the following:

- National Engineers Week (E-Week)
- Construction & Procurement contracts as of January 2023
- CIP Quarterly Report – October – December 2022
- CIP Performance – FYs 2022/23 & 2023/24
- Planned April 2023 Board Actions
- Alternative Project Delivery Update – Sepulveda Feeder Pump Stations, Approximate Value, Delivery Method, and Current Schedule
- CRA Replacement of Casa Loma Siphon Barrel No. 1
- 12th Japan-US-Taiwan Conference on Water System Seismic Practices
- Upcoming presentations for the Subcommittee on Pure Water & Regional Conveyance
- Industry Day – February 2, 2023, Carson, CA
- Subcommittee on Pure Water & Regional Conveyance

c. Subject: Information Technology Manager's Report

Presented by: Charles Eckstrom, Information Technology Group Manager

Mr. Eckstrom reporting on the following:

- Completion of the Datacenter Modernization and Relocation Project

9. FOLLOW-UP ITEMS

NONE

10. FUTURE AGENDA ITEMS

NONE

The next meeting will be held on April 10, 2023.

Meeting adjourned at 11:41 am.

Dennis Erdman
Chair

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

4/11/2023 Board Meeting

7-1

Subject

Adopt CEQA determination that the proposed action was previously addressed in the Mitigated Negative Declaration and related CEQA actions, and award an $8,656,568 contract to Granite Construction Company for construction of structural protection measures at 24 cut-and-cover conduit locations along the Colorado River Aqueduct; authorize agreements with: (1) Environmental Science Associates in an amount not to exceed $1,200,000 for biological surveys and environmental monitoring; and (2) Deto, Inc. in an amount not to exceed $325,000 for compensatory environmental mitigation credits

Executive Summary

The Colorado River Aqueduct (CRA) has 55 miles of cut-and-cover conduits where vehicles and stormwater flows can cross over the aqueduct. These conduits were not designed to accommodate loads from the heavy equipment used to conduct current operations and maintenance activities. The CRA Conduit Structural Protection Project will protect the CRA conduits from potential structural damage resulting from repeated heavy equipment loading. This action awards a contract to construct structural protection measures over the aqueduct's cut-and-cover conduits at 24 of the most vulnerable locations. This action also authorizes two agreements to support the construction phase of the project, including environmental monitoring and compensatory mitigation credit purchase, as required by the Mitigated Negative Declaration (MND).

Details

Background

The CRA is a 242-mile-long conveyance system that transports water from the Colorado River to Lake Mathews in Riverside County. The CRA consists of five pumping plants; 124 miles of tunnels, siphons, and reservoirs; 63 miles of canals; and 55 miles of cut-and-cover conduits. The aqueduct was constructed in the late 1930s and was placed into service in 1941.

The CRA's cut-and-cover conduits are unreinforced concrete horseshoe-shaped structures that are 16-feet high and vary in width from 22.5 feet to 30.5 feet. The conduits vary in length from 890 feet to 34,870 feet and were constructed in areas where heavy stormflows, flooding, and sandstorms were expected. These conduits were originally constructed with a minimum 3 feet of soil cover. While burying the conduits offered protection from the elements, these conduits are not designed to support heavy equipment that are now part of routine operations and maintenance activities.

Operation and maintenance activities include regular cleaning of the conveyance system to remove algae and deposits that can reduce the flow of water within the CRA. These activities have become more frequent because of warmer aqueduct temperatures and increased biological fouling of concrete surfaces. During cleaning activities and other maintenance work, Metropolitan staff transports large equipment such as the tunnel cleaning machine, blowers, dewatering pumps, and 30-ton cranes over the cut-and-cover conduits at several locations. At some locations where dirt access roads cross the aqueduct and there is minimal soil cover, the conduits are vulnerable to damage when heavy equipment crosses over the conduit or is placed near the conduit for access into tunnels or siphons. If structural enhancements are not constructed, the conduits could be unintentionally damaged during maintenance activities, and an unplanned shutdown of the CRA could be required to make repairs.

In January 2021, Metropolitan's Board adopted a Mitigated Negative Declaration for the installation of structural protection at 24 locations along the CRA conveyance system. Design for the project is complete, and staff recommends proceeding with award of a construction contract at this time.

In accordance with the April 2022 action on the biennial budget for fiscal years 2022/23 and 2023/24, the General Manager authorized staff to proceed with construction of the CRA Conduit Structural Protection, pending board award of the construction contract described below. Based on the current Capital Investment Plan expenditure forecast, funds for the work to be performed pursuant to this action during the current biennium are available within the Capital Investment Plan 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 CRA Reliability Program.

CRA Conduit Structural Protection – Construction

The scope of the contract consists of constructing structural protection measures at 24 locations along the CRA conveyance system. The improvements include: (1) reinforced concrete slabs at access road crossings; (2) concrete retaining walls; (3) re-aligning dirt access roads; (4) structural pads to support heavy equipment operations; (5) transition structure concrete repairs and cover replacement; (6) grading and drainage improvements; and (7) new road signage indicating load restrictions.

A total of $13.3 million is allocated for this work. In addition to the construction contract amount, other agreement costs include $1,200,000 for environmental monitoring by Environmental Science Associates; $85,000 for tribal cultural monitoring by the Soboba Band of Luiseño Indians; and $325,000 for the purchase of compensatory mitigation credits from Deto, Inc. Additional details of the construction contract and agreements are provided below. Other allocated funds for Metropolitan staff work include: $1,150,000 for construction management and inspections; $450,000 for submittals review, responding to requests for information, and preparation of record drawings; $760,000 for contract administration, environmental monitoring support, Project Labor Agreement (PLA) administration, and project management; and $673,432 for remaining budget. **Attachment 1** provides the allocation of the required funds. The total estimated cost to complete construction of the CRA Structural Protection Project, including the amount appropriated to date, and funds allocated for work described in this action, is $15.8 million.

Award of Construction Contract (Granite Construction Company)

Specification No. 1878 for the construction of the CRA Conduit Structural Protection was advertised on January 25, 2023. As shown in **Attachment 2**, three bids were received and opened on March 1, 2023. The low bid from Granite Construction Company in the amount of $8,656,568 complies with the requirements of the specifications. The other bids were $9,965,927 and $14,650,000, and the engineer's estimate for this project was $10,750,000. For this contract, Metropolitan established a Small Business Enterprise participation level of at least 25 percent of the bid amount. Granite Construction Company 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. Engineering Services' performance metric goal for inspection of projects with construction greater than $3 million is between 9 to 12 percent. For this project, the performance metric for inspection is 13.3 percent of the total construction cost. The inspection costs for this project are expected to exceed the goal due to the remote locations of the 24 sites, which stretch across 60 miles of the aqueduct.

Environmental Monitoring Services (Environmental Science Associates) – New Agreement

Environmental Science Associates is recommended to perform pre- and post-construction biological surveys and environmental monitoring during construction activities. Environmental Science Associates was prequalified through Request for Qualification No. 1265. Environmental Science Associates was selected for this project based on the firm's extensive experience with environmental monitoring and compliance.

The planned activities include conducting biological surveys ahead of the construction activities, environmental monitoring at each of the 24 remote sites for the entire duration of construction activities, and biological surveys following completion of construction activities, as well as monitoring for compliance with regulatory permitting

including permits from the California Department of Fish and Wildlife (CDFW) and Colorado River Basin Regional Water Quality Control Board (RWQCB).

This action authorizes an agreement with Environmental Science Associates for a not-to-exceed amount of $1,200,000 to provide environmental monitoring services before, during, and following completion of construction of the CRA Structural Protection project. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 15 percent. Environmental Science Associates has agreed to meet this level of participation. The planned subconsultants for this work are Blackhawk Environmental, Mountainview Biological Consulting, and Artemis Environmental.

Compensatory Mitigation Credit Purchase (Deto, Inc.) – New Agreement

The construction of this project will affect 1.76 acres of environmentally protected habitats. The permits issued by CDFW and RWQCB require a purchase of 5.35 acres of Ephemeral Intermittent Stream Habitat Credits to compensate for any loss of habitats associated with the project. Deto, Inc. was approved by CDFW for the purchase of the required mitigation credits. This action authorizes an agreement with Deto, Inc. for a not-to-exceed amount of $325,000 to purchase the required compensatory mitigation credits.

Tribal Cultural Monitoring (Soboba Band of Luiseño Indians) – New Agreement

As part of the project's Mitigation Monitoring and Reporting Program, Metropolitan prepared a tribal cultural resources management plan to reduce potential impacts to tribal cultural resources as the project is located within the Soboba Band of Luiseño Indians' ancestral tribal territory. The plan requires tribal monitoring and treatment of finds during construction. Long-term curation options will also be prepared as part of this effort based on the cultural finds.

An agreement under the General Manager's Authority will be awarded to the Soboba Band of Luiseño Indians for a not-to-exceed amount of $85,000 to provide tribal cultural resource monitoring services during the construction for the CRA Structural Protection project.

Alternatives Considered

During planning and design of this project, staff considered prioritizing construction of the sites, based on their existing conditions and constructing one at a time to expedite construction of individual sites. However, this option would require multiple years to complete the work and would delay addressing known vulnerabilities. In addition, these sites are remotely located, which limits the number of contractors willing to bid on a small-value contract for a small number of sites. The selected option to group the sites into a single contract will allow construction to be completed efficiently and attract a larger, more experienced pool of contractors, thus allowing for more competitive bids and lower aggregate construction costs.

Summary

This action awards an $8,656,568 construction contract for conduit structural protection measures at 24 locations along the CRA conveyance system and authorizes new agreements with Environmental Science Associates for environmental monitoring and a purchase agreement for compensatory mitigation credits with Deto, Inc. 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

November 2024 – Complete construction of CRA conduit structural protection

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 52244, dated January 12, 2021, the Board adopted a Mitigated Negative Declaration and a Mitigation Monitoring and Reporting Plan for the CRA Conduit Structural Protection Project.

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.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

To comply with CEQA and the State CEQA Guidelines, Metropolitan as the Lead Agency prepared a Mitigated Negative Declaration (MND) for the CRA Conduit Structural Protection Project. The MND was distributed for a 30-day public review period that began on October 26, 2020. On January 12, 2021, the Board adopted the MND and the Mitigation Monitoring and Reporting Program (MMRP). The present board action is based on awarding a construction contract and not on any changes to the approved project itself. Hence, the previously adopted environmental documentation in conjunction with the current action, fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further environmental documentation is necessary for the Board to act on with respect to the proposed action.

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt CEQA determination that the proposed action was previously addressed in the Mitigated Negative Declaration and related CEQA actions, and

a. Award an $8,656,568 contract to Granite Construction Company for construction of structural protection measures at 24 cut-and-cover conduit locations along the Colorado River Aqueduct;
b. Authorize an agreement with Environmental Science Associates in an amount not to exceed $1,200,000 for biological surveys and environmental monitoring; and
c. Authorize an agreement with Deto, Inc. in an amount not to exceed $325,000 for compensatory environmental mitigation credits.

Fiscal Impact: Expenditure of $13.3 million in capital funds. Approximately $9.5 million will be incurred in the current biennium and have been previously authorized. The remaining funds from this action will be accounted for and appropriated under the next biennial budget.

Business Analysis: This option will enhance reliability of the CRA and reduce the risk of unplanned outages.

Option #2

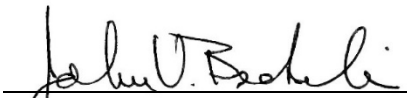
Do not proceed with this project at this time.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to reduce the risk of damage to the CRA conveyance system.

Staff Recommendation

Option # 1



3/23/2023

John V. Bednarski *Date*
Manager/Chief Engineer

3/24/2023

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Listing of Subcontractors for the Low Bidder

Attachment 4 – Location Map

Ref# 12687394

Allocation of Funds for CRA Structural Protection Project

	Current Board Action (Apr. 2023)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	740,000
Submittals Review & Record Drwgs.	450,000
Construction Inspection & Support	1,150,000
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	20,000
Professional/Technical Services	
Environmental Science Associates	1,200,000
Soboba Band of Luiseño Indians	85,000
Deto, Inc.	325,000
Right-of-Way	-
Contracts	
Granite Construction Company	8,656,568
Remaining Budget	673,432
Total	**$ 13,300,000**

The total amount expended to date for the CRA Structural Protection Project is approximately $2.5 million. The total estimated cost to complete, including the amount appropriated to date and funds allocated for the work described in this action, is $15.8 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on March 1, 2023, at 2:00 P.M.

Specifications No. 1878
CRA Conduit Structural Protection

The work includes installing reinforced concrete slab protection crossings over portions of the Colorado River Aqueduct (CRA), crushed aggregate base pads for heavy equipment setup areas, segmental concrete retaining walls; transition structure concrete repairs and cover replacement; re-aligning dirt access roads; performing grading and drainage improvements; and new road signage indicating load restrictions.

Engineer's estimate: $10,750,000

Bidder and Location	Total	SBE $	SBE %	Met SBE[1]
Granite Construction Company Indio, CA	**$8,656,568**	**$2,225,415.87**	**25.7%**	**Yes**
Miller Equipment Company, Inc. Lancaster, CA	$9,965,927	-	-	-
J. F. Shea Construction, Inc. Walnut, CA	$14,650,000	-	-	-

[1] Small Business Enterprise (SBE) participation level established at 25% for this contract.

The Metropolitan Water District of Southern California

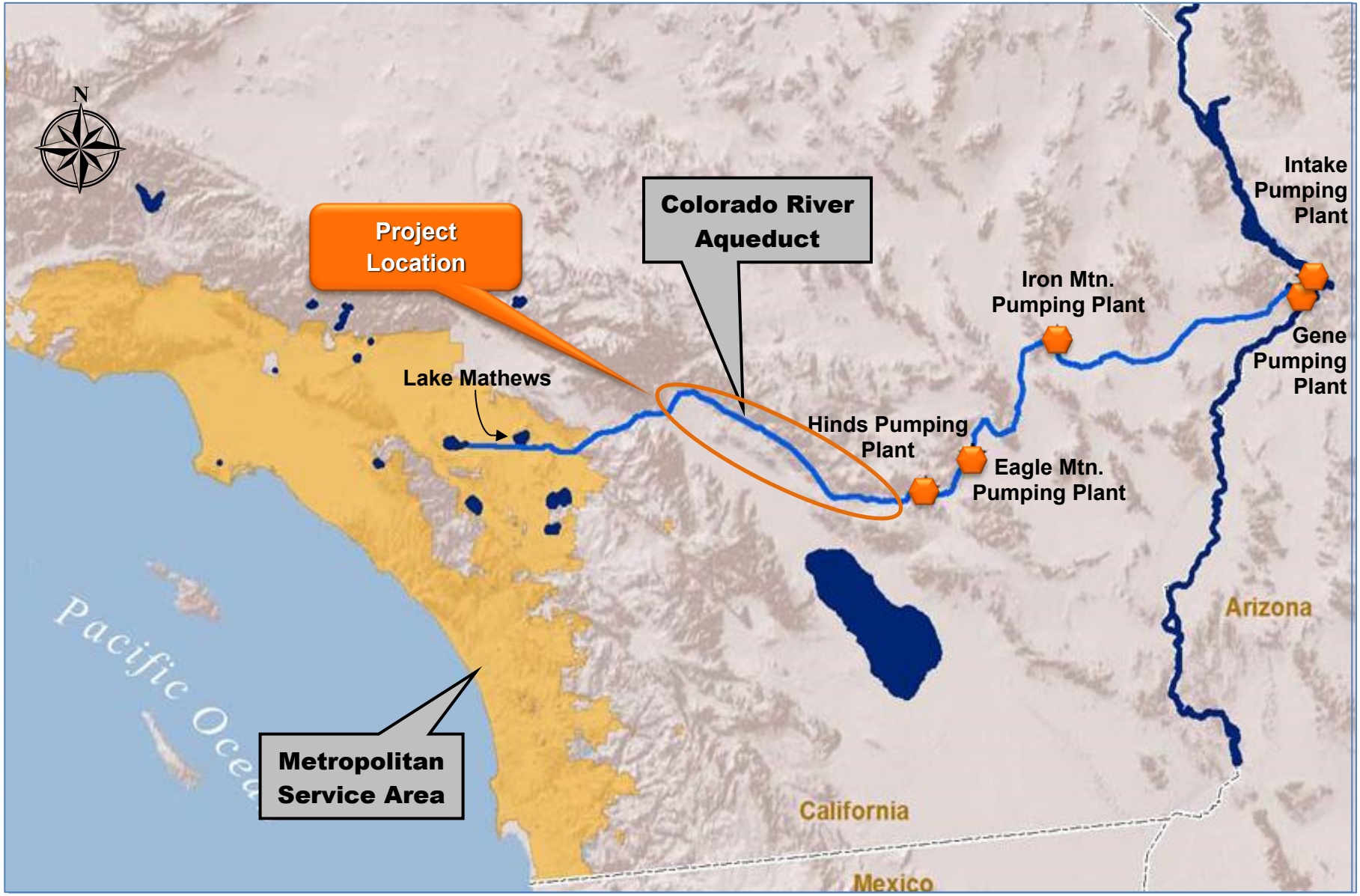
Subcontractors for Low Bidder

Specifications No. 1878
CRA Conduit Structural Protection

Low Bidder: Granite Construction Company

Subcontractor and Location	Service Category; Specialty
DRS Rebar, Inc. Corona, CA	Rebar
Hydrospout, Inc. Escondido, CA	Hydroseed
GeoX, Inc. Vista, CA	Retaining Walls
Cell-Crete Corporation Monrovia, CA	Lightweight Cellular Concrete
Miller Equipment Company, Inc.	Operated Equipment Rental
Crown Fence Company Santa Fe Springs, CA	Guardrail

Location Map



Engineering, Operations, & Technology Committee

CRA Conduit Structural Protection Project

Item 7-1

April 10, 2023

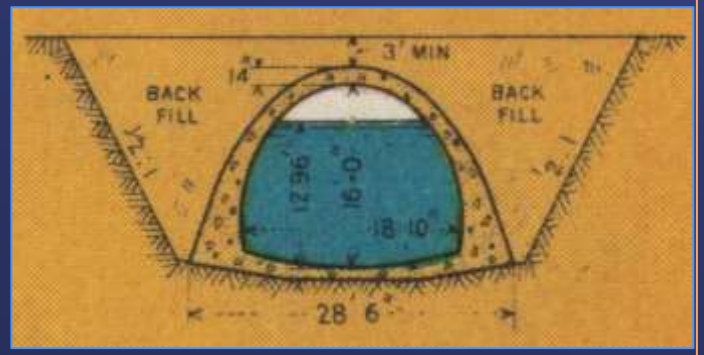
Colorado River Aqueduct Structural Protection

Current Action

- Award a $8,656,568 contract to Granite Construction Company to construct structural protection measures at 24 cut-and-cover conduit locations along the Colorado River Aqueduct (CRA)
- Authorize an agreement with Environmental Science Associates to perform biological surveys and environmental monitoring in an amount not to exceed $1,200,000
- Authorize an agreement with Deto, Inc. to purchase compensatory environmental mitigation credits in an amount not to exceed $325,000

Project Location

Background – Cut and Cover Conduits



Cut-and-Cover Conduit

Tunnel Cleaning Machine

- 55 miles of unreinforced cut-and-cover conduit along CRA
  - Constructed in 1930s as part of original aqueduct
  - Economical construction method
  - Not designed to support heavy vehicular loading
- Susceptible to damage from heavy vehicles
  - MWD maintenance activities require large equipment to cross over or placed in close proximity
  - Non-MWD vehicles potentially use access roads to cross the conduits with minimal soil cover
- Structural protection for H-20 loading required

Contractor - Scope of Work

- Construct reinforced concrete slabs, structural pads and retaining walls
- Re-align access roads
- Install new access covers at transition structures
- Perform grading and drainage improvements
- Install road signage indicating load restrictions

Typical Concrete Protective Slab

Transition Access Structure

Bid Results

Specifications No. 1878**

Bids Received	March 01, 2023
No. of Bidders	3
Lowest Responsible Bidder	Granite Construction Company
Low Bid	$8,656,568
Range of Other Bids	$9,966,000 to $14,650,000
Engineer's Estimate	$10,750,000
SBE Participation*	25.7%

* SBE (Small Business Enterprise) participation level set at 25%

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

Environmental Science Associates Agreement

- Prequalified under RFQ No. 1265
  - Selected based on firm's expertise with CEQA compliance
- Provides environmental monitoring support
- Scope of work
  - Perform pre and post construction biological surveys
  - Conduct construction monitoring and reporting
  - Monitor for permit compliance with jurisdictional agencies
- NTE amount: $1,200,000
- SBE 15%

Colorado River Aqueduct Structural Protection

Desert Tortoise

Colorado River Aqueduct
Structural Protection

Deto, Inc. Agreement

- Construction adversely affects 1.76 acres of environmentally protected habitats
- Purchase 5.35 acres of compensatory mitigation credits as required by jurisdictional agencies
- Approved by California Department of Fish and Wildlife (CDFW) for purchase of credits
- NTE amount: $325,000

Colorado River Aqueduct
Structural Protection

Soboba Band of Luiseño Indians Agreement

- All sites located within Soboba Band of Luiseño Indians ancestral tribal territory
- Scope of work
  - Tribal cultural resource monitoring
- Award under General Manager's Authority
- Not to exceed amount: $85,000

Colorado River Aqueduct Structural Protection

Metropolitan - Scope of Work

- Construction Management and Inspection
- Submittal review and preparation of record drawings
- Environmental monitoring
- Project management, project labor agreement administration, and project controls

Allocation of Funds

CRA Conduit Structural Protection

Metropolitan Labor	
Owners Costs (Proj. Mgmt., Contract Admin., Envir. Support)	$ 760,000
Construction Inspection & Support	1,150,000
Submittals Review, Tech. Support, Record Dwgs.	450,000
Professional/Technical Services	
Environmental Science Associates	1,200,000
Deto, Inc.	325,000
Soboba Band of Luiseño Indians	85,000
Construction Contract	
Granite Construction Company	8,656,568
Remaining Budget	673,432
Total	$ 13,300,000

Project Schedule

Board Options

- Option #1
  - Adopt CEQA determination that the proposed action was previously addressed in the Mitigated Negative Declaration and related CEQA actions, and
    a. Award a $8,656,568 contract to Granite Construction Company for construction of structural protection measures at 24 cut-and-cover conduit locations along the Colorado River Aqueduct;
    b. Authorize an agreement with Environmental Science Associates in an amount not to exceed $1,200,000 for biological surveys and environmental monitoring; and
    c. Authorize an agreement with Deto, Inc. in an amount not to exceed $325,000 for compensatory environmental mitigation credits.
- Option #2
  - Do not proceed with this project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

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

4/11/2023 Board Meeting

7-2

Subject

Award a $6,174,000 contract to West Valley Investment Group for seismic upgrades to the Foothill Hydroelectric Plant and Control Building; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

A key component of Metropolitan's seismic resiliency strategy includes seismic evaluation and upgrade of its facilities. Recent structural analyses of the Foothill Hydroelectric and Control Building (Foothill Control Building) that houses the pressure control structure (PCS) and the Hydroelectric Power Plant (HEP) concluded that the structure requires strengthening to withstand a major earthquake. This action awards a construction contract for seismic upgrades to the Foothill Control Building.

Details

Background

The Foothill Control Building is located on the Foothill Feeder, immediately downstream of the California Department of Water Resources' Castaic Lake. The Foothill Feeder delivers State Project Water from Castaic Lake to the Joseph Jensen Water Treatment Plant (Jensen plant). The Foothill Control Building is comprised of two facilities erected in two phases: the PCS portion of the building was constructed in 1975, and the adjacent HEP was constructed in 1981. The HEP includes two turbine/generators that can produce up to 9.1 megawatts of electricity. When the HEP is not operating, flow is diverted through the PCS to maintain continuous water deliveries to the Jensen plant. The Foothill Control Building is a 48-foot-long by 56-foot-wide with concrete masonry walls and a precast concrete roof, which is supported by exterior columns. The integrated structure features a 14-foot-high upper level and a basement level that extends 45 feet below grade.

The Foothill Control Building is located about 13 miles from the San Andreas Fault, which can generate an 8.1 magnitude earthquake. Metropolitan facilities like the Foothill Control Building have always been designed to meet codes that were in place at the time of their construction. However, structural evaluations conducted by staff under Metropolitan's seismic assessment program concluded that the building must be strengthened to withstand a significant earthquake and retain its functionality as an essential facility. This recommendation reflects current industry practices and building codes, which are periodically updated, and is consistent with Metropolitan's seismic resilience program.

In December 2014, Metropolitan's Board authorized design of seismic upgrades to the Foothill Control Building. Final design is now complete, and staff recommends proceeding with construction of structural upgrades at this time. The work associated with the structural upgrades will require relocation of some existing mechanical and electrical equipment, as well as minor architectural modifications near the work areas.

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 construction of the seismic upgrades to the Foothill Control Building, 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 Distribution System Reliability Program.

Foothill Hydroelectric Plant and Control Building Seismic Upgrade – Construction

The scope of the construction contract consists of removal and replacement of the roofing system; addition of encasements to enlarge and strengthen concrete columns above grade and below grade; reinforcing shallow foundations; temporary relocation of existing fire-water lines; and minor surficial site grading. Metropolitan force activities will include shutdown of the hydroelectric units, establishment of clearances, and return of the pipeline to service.

A total of $8.65 million has been budgeted for this work. In addition to the amount of the contract described below, other funds to be allocated include $126,000 for Metropolitan force activities and shutdown-related activities as described above; $712,000 for construction management and inspection; $439,000 for submittals review, technical support during construction, responding to requests for information, and preparation of record drawings; $483,000 for contract administration, environmental monitoring support, project controls, Project Labor Agreement (PLA) administration, and project management; and $716,000 for the remaining budget.

Attachment 1 provides the allocation of the required funds. The total estimated cost to upgrade the Foothill HEP's control building, including the amount allocated to date and funds allocated for the work described in this action, is $9.82 million.

Award of Construction Contract (West Valley Investment Group)

Specifications No. 1999 for seismic upgrades to the Foothill Control Building was advertised for bids on December 13, 2022. As shown in **Attachment 2**, five bids were received and opened on February 14, 2023. The low bid from West Valley Investment Group in the amount of $6,174,000 complies with the requirements of the specifications. The four other bids ranged between approximately $7.75 million and $8.73 million, while the engineer's estimate was $8.0 million. Staff investigated why the low bid was significantly lower than the four other bids and attributes the difference to reduced costs due to West Valley Investments Group's self-performance of all heavy civil and structural concrete work. For this contract, Metropolitan established a Small Business Enterprise (SBE) participation level of at least 25 percent of the bid amount. West Valley Investment Group is an SBE firm and thus achieves 100 percent participation. 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 $6,300,000, which includes the amount of the contract ($6,174,000) and Metropolitan force activities ($126,000). 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 11.3 percent of the total construction cost.

Alternatives Considered

During design, staff considered delaying the Foothill Control Building seismic upgrade to incorporate the scope of work for a second project at this facility, the Foothill HEP Control Systems upgrade. This project will replace electrical and control components at the HEP. Board award of this contract is currently planned for mid-2024. Completing all of the Foothill HEP rehabilitation work (seismic and control systems) under a single construction contract has the potential to reduce some project costs, such as contractor mobilization as well as construction contract administration. However, the scope of each contract is distinctly different, requiring contractors with different specialized areas of expertise. Due to these differences, it is expected that any potential cost savings of combining the two projects would be reduced. With the classification of the Foothill Control Building as an essential facility, staff recommends completing the required seismic upgrades at this time rather than postponing this work until the control system project design is completed. This approach will allow for efficient and timely execution of the overall infrastructure needs in addition to expediting critical portions of the upgrades.

Summary

This action awards a $6,174,000 contract to West Valley Investment Group for seismic upgrades to the control Foothill Control Building. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, **Attachment 3** for the listing of Subcontractors for Low Bidder, and **Attachment 4** for the Location Map.

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 8140: Competitive Procurement

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minutes Item 49977, dated December 9, 2014, the Board authorized the design of Foothill Hydroelectric Power Plant Seismic Upgrades.

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 involves operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use and no possibility of significantly impacting the physical environment. In addition, the proposed action includes the replacement and reconstruction of existing structures and facilities where the new structure will be located on the same site and as the structure replaced and will have the same purpose and capacity as the structure replaced. Accordingly, the proposed action qualifies under Class 1 and Class 2 Categorical Exemptions (Sections 15301 and 15302 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Award a $6,174,000 contract to West Valley Investment Group for seismic upgrades to the Foothill Hydroelectric Plant and Control Building.

Fiscal Impact: Expenditure of $8.65 million in capital funds. Approximately $7.5 million will be incurred in the current biennium and has been previously authorized. The remaining funds from this action are accounted for in the next biennial budget. The remaining capital expenditures will be funded from future CIP budgets following board approval of those budgets.

Business Analysis: This option will protect Metropolitan's assets and help maintain the reliability and safety of the plant.

Option #2

Do not proceed with the project at this time.

Fiscal Impact: None

Business Analysis: This option would forgo an opportunity to reduce the risk of damage from an earthquake to critical facilities within the distribution system.

Staff Recommendation

Option #1

3/23/2023

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

3/24/2023

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# ES12689724

Allocation of Funds for the Foothill Control Building Seismic Upgrade

	Current Board Action (April 2023)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt., contract admin., & envir.monitoring)	443,000
Submittals Review & Record Drwgs.	439,000
Construction Inspection & Support	712,000
Metropolitan Force Construction	126,000
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
PLA Administration	40,000
Right-of-Way	-
Equipment Use	-
Contracts	-
West Valley Investment Group	6,174,000
Remaining Budget	716,000
Total	**$ 8,650,000**

The total amount expended to date to upgrade the control building at the Foothill Hydroelectric Power Plant/ Pressure Control Structure is approximately $1.171 million. The total estimated cost to complete the construction including the amount appropriated to date and funds allocated for the work described in this action is $9.82 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on February 14, 2023, at 2:00 P.M.

Specifications No. 1999
Foothill Control Building Seismic Upgrade

The work includes the addition of steel components to the roof, roof-beam, and roof-column connecting elements; enlargement and strengthening of concrete columns above grade and below grade; shallow foundation retrofit; removal, temporary relocation, and reconstruction of the fire-water line; and minor surficial site grading.

Engineer's estimate: $8,000,000

Bidder and Location	Total	SBE $	SBE %	Met SBE[1]
West Valley Investment Group Tarzana, CA	**$6,174,000**	**$1,870,661**	**100%**	**Yes**
MMC, Inc. La Palma, CA	$7,754, 000	-	-	-
Woodcliff Corporation Los Angeles, CA	$7,891,000	-	-	-
PCN3, Inc. Los Alamitos, CA	$8,444,000	-	-	-
Nationwide Contracting Service, Inc. Fountain Valley, CA	$8,727,720	-	-	-

[1] Small Business Enterprise (SBE) participation level established at 25% for this contract.

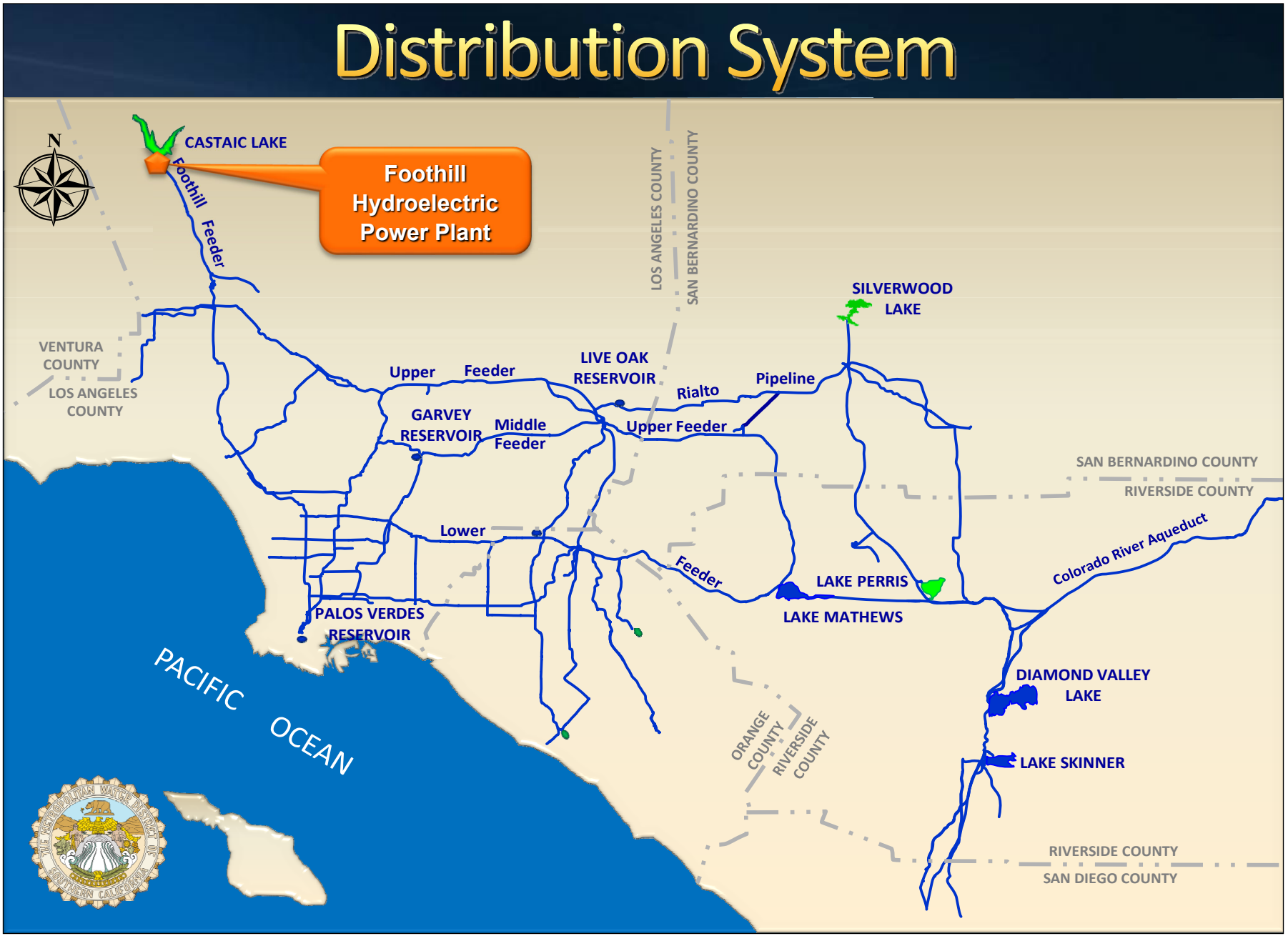
The Metropolitan Water District of Southern California

Subcontractors for Low Bidder

Specifications No. 1999
Foothill Control Building Seismic Upgrade

Low bidder: West Valley Investment Group

Subcontractor	Service Category; Specialty
Leed Electric, Inc. Santa Fe Springs, CA	Electrical
Kiss Enterprise, Inc., dba Golden State Roofing Carson, CA	Single Ply Roof
Calex Engineering Company Newhall, CA	Shoring and Excavation
Cell-Crete Corporation Monrovia, CA	Lightweight Insulating Concrete
Cosco Fire Protection, Inc. Brea, CA	Fire Hydrant Relocation/Installation
Karcher Environmental, Inc. Anaheim, CA	Asbestos Removal
Next Century Rebar San Bernardino, CA	Rebar Cage


Distribution System
N
CASTAIC LAKE
Foothill Feeder
Foothill Hydroelectric Power 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
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 Hydroelectric Plant and Control Building Seismic Upgrade

Item 7-2

April 10, 2023

Foothill Hydroelectric Plant and Control Building

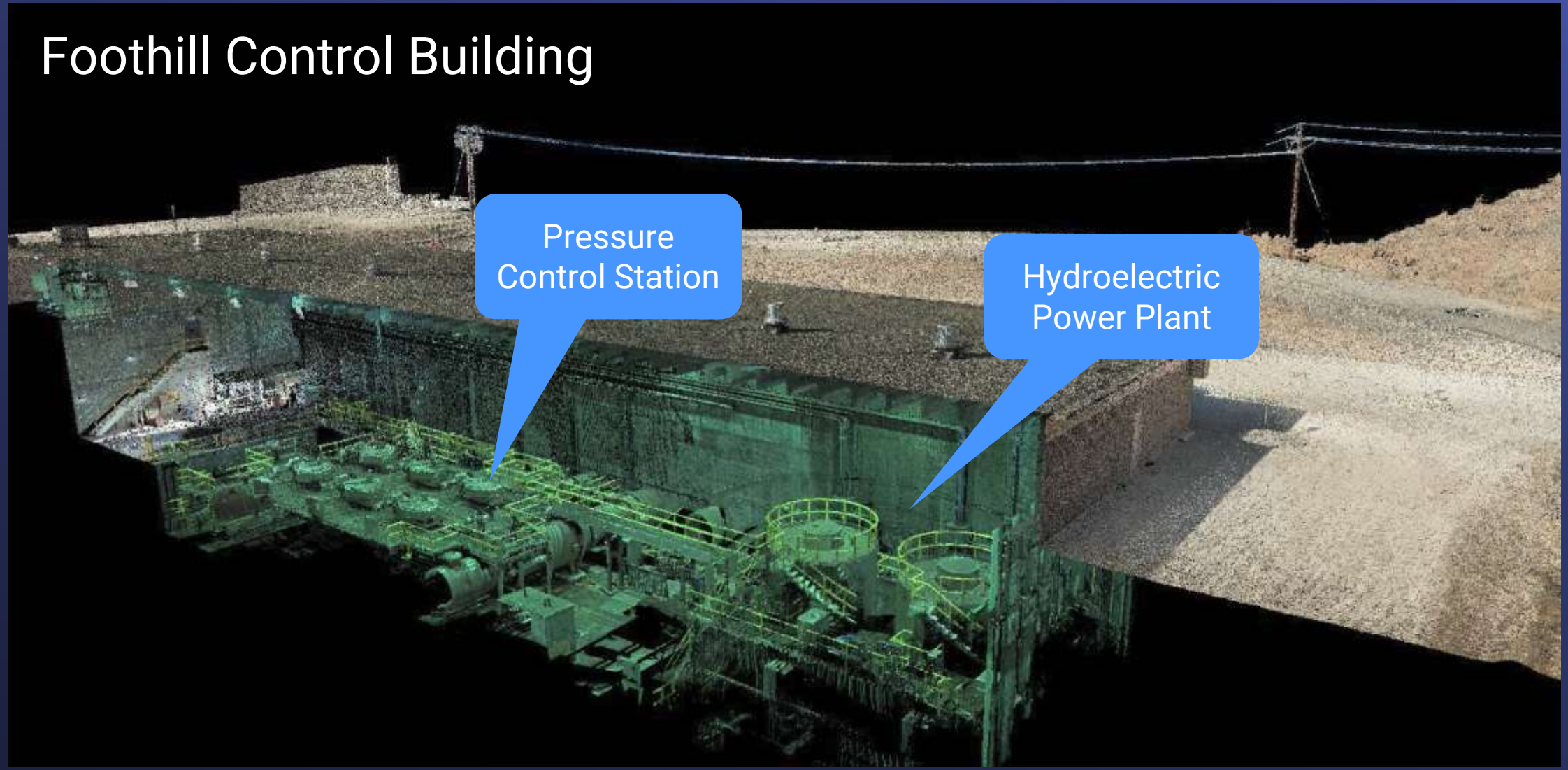
Seismic upgrade

Current Action

- Award a $6,174,000 contract to West Valley Investment Group for seismic upgrades to the Foothill Control Building

Distribution System

Background


Foothill Control Building
Pressure Control Station
Hydroelectric Power Plant

Foothill Hydroelectric Plant and Control Building

Seismic upgrade

Background

- Control Building identified as an essential facility to deliver water to Jensen Treatment Plant
- 13 miles from San Andreas Fault
- Seismic upgrades needed to withstand a significant earthquake
  - Strengthening of columns, beams, and structural connections

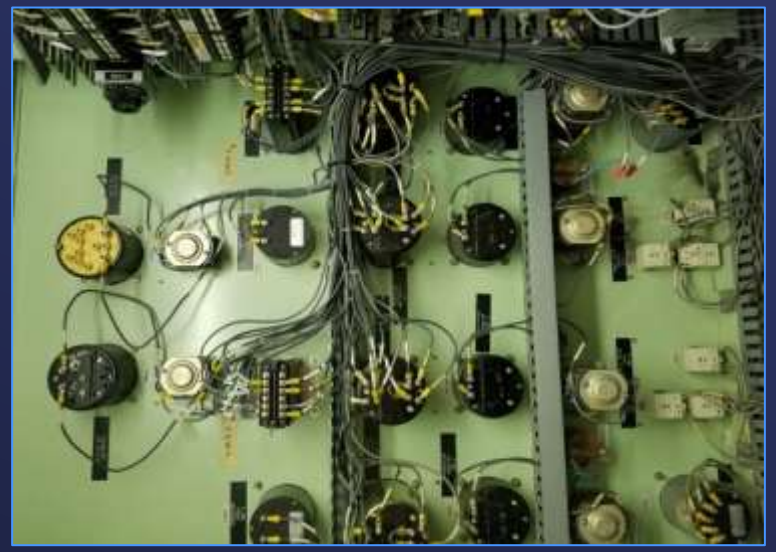
Exterior of Control Building

Examples of Areas to be Strengthened

Foothill Hydroelectric Plant and Control Building
Seismic upgrade

Alternatives Considered

- Single contract with two major components
  - Foothill HEP control system upgrade
  - Foothill control building seismic upgrade
- Two contracts - selected alternative
  - Expedites seismic upgrade of the facility
  - Focuses work with specialized contractors



Electrical & Control System Construction

Structural & Civil Construction

Foothill Hydroelectric Plant and Control Building

Seismic upgrade

Scope of Work – Contractor

- Perform seismic upgrades
  - Enlargement and strengthening of concrete columns
  - Provide additional steel connections between the roof and columns
  - Removal and replacement of electrical conduits and mechanical equipment as necessary

Foothill HEP Interior View

Foothill Hydroelectric Plant and Control Building

Seismic upgrade

Scope of Work – Metropolitan

- Clearance, shutdowns, and start-ups
- Construction management and inspection
- Technical support during construction
- Project management, project labor agreement administration, and project controls

Bid Results
Specifications No. 1999**

Bids Received	February 14, 2023
No. of Bidders	5
Lowest Responsible Bidder	West Valley Investment Group
Low Bid	$6,174,000
Range of Other Bids	$7,754,000 to $8,728,000
Engineer's Estimate	$8,000,000
SBE Participation*	100%

*SBE (Small Business Enterprise) participation level set at 25%

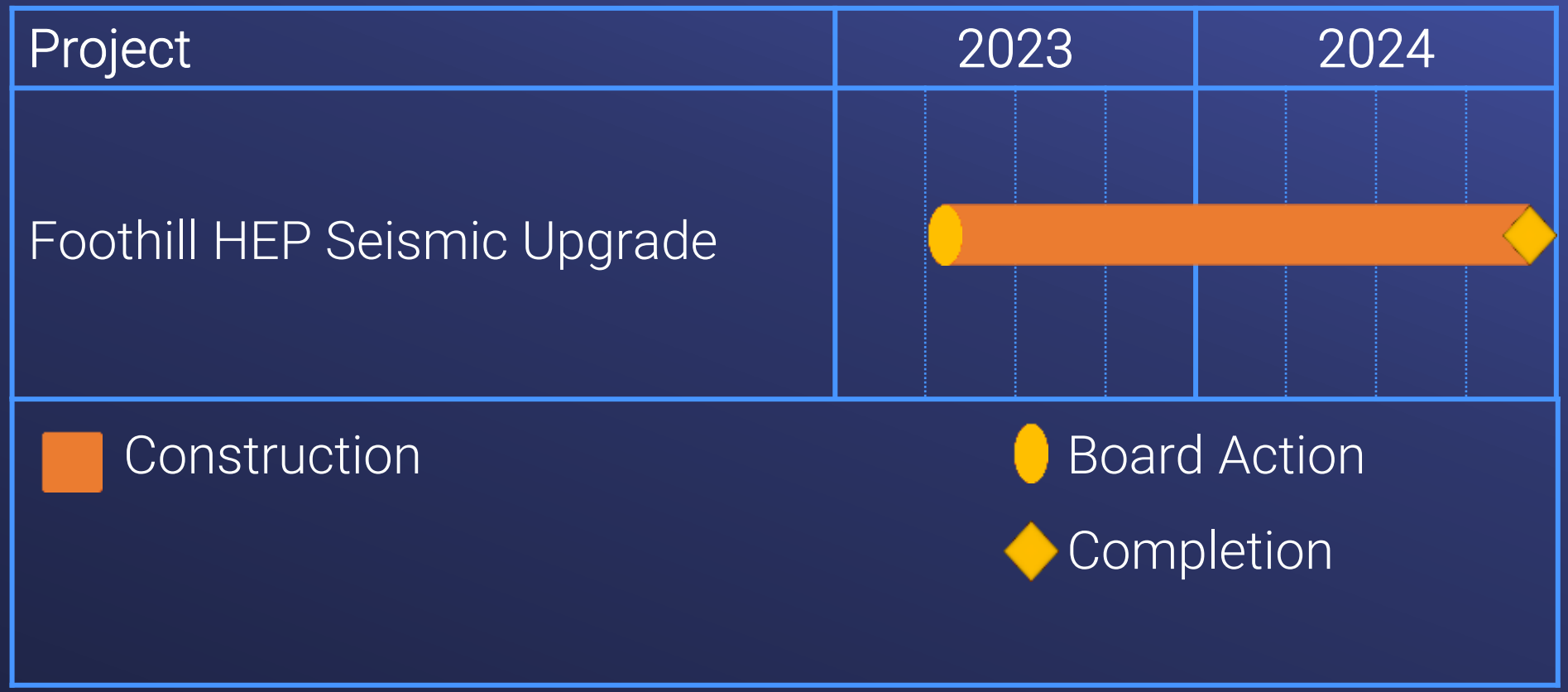
**This contract will be conducted under the terms of Metropolitan's project labor agreement

Allocation of Funds

Foothill Control Building Seismic Upgrade

Metropolitan Labor		
Owners Costs (Proj. Mgmt., Contract Admin., Envir. Support)	$	483,000
Construction Inspection & Support		712,000
Force Construction		126,000
Submittals Review, Tech. Support, Record Dwgs.		439,000
Contracts		
West Valley Investment Group		6,174,000
Remaining Budget		716,000
Total	$	8,650,000

Project Schedule



Board Options

- Option #1
  - Award a $6,174,000 contract to West Valley Investment Group for seismic upgrades to the Foothill Hydroelectric Plant and Control Building.
- 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

4/11/2023 Board Meeting

7-3

Subject

Authorize an agreement with Stantec Consulting Services, Inc. in an amount not to exceed $900,000 for a detailed seismic analysis of the Lake Skinner outlet tower; and award a $1,174,475 procurement contract to B&K Valves and Equipment, Inc. for the replacement of two valves at the Lake Skinner outlet tower; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The Lake Skinner outlet tower is the only means of releasing water from Lake Skinner to supply the Robert A. Skinner Water Treatment plant (Skinner plant) and San Diego Pipeline Nos. 3, 5, and 6. This action authorizes a professional services agreement to conduct a detailed seismic analysis of the Lake Skinner outlet tower to assess the performance of the tower in the event of a major earthquake and determine if a retrofit of the structure is warranted. This action also awards a procurement contract to replace two 42-inch diameter butterfly valves at the Lake Skinner outlet tower. A recent investigation identified damage to the valve actuators; fully operational valves are required to maintain compliance with California Division of Safety of Dams (DSOD) requirements.

Details

Background

Lake Skinner was built in the early 1970s and is part of the Skinner Branch System that delivers water to south Riverside County and San Diego County areas. The Lake Skinner outlet tower controls the outflows from Lake Skinner, which supplies untreated water to the Skinner plant and San Diego Pipeline Nos. 3, 5, and 6. The outlet tower is the only means of releasing water from the reservoir.

The outlet tower is a circular, free-standing, 28.5-foot diameter reinforced concrete structure, which is equipped with five tiers of 42-inch diameter valves. The top four tiers contain six valves each and feed the Skinner plant and the San Diego pipelines. The lowest tier, tier five, contains two valves, which are designed for dewatering the reservoir and are not intended for daily operation.

In response to a directive from DSOD following the Lake Oroville spillway incident in February 2017, Metropolitan submitted a work plan to conduct a comprehensive assessment of the Lake Skinner spillway and appurtenant dam structures. In December 2017, Metropolitan's Board authorized a preliminary seismic analysis of the outlet tower and conduit in conjunction with the voluntary spillway assessment as part of the effort to improve its infrastructure reliability. The spillway investigation confirmed the adequacy of the spillway and resulted in minor repairs of the concrete spillway; this work was completed in 2018 and met the DSOD's requirements. While the tower's original design and construction met then-current seismic criteria, the preliminary structural analysis showed high stresses at the lower portion of the tower that could result in potential damage following a large seismic event. Staff recommends conducting a detailed structural analysis of the outlet tower to better characterize tower performance under a major earthquake using current seismic evaluation tools. The results of this assessment will facilitate the decision-making process as to the extent and type of potential seismic upgrades, if any.

During the course of the preliminary outlet tower seismic investigation, staff identified hairline cracks on the valve actuator for the valves that are located at the bottom of the tower. These two valves are critical to ensure that Lake Skinner can be fully dewatered in the event of a potential dam safety issue. The actuators for the valves

in question were repaired to ensure the valves are operable; however, replacement of the valve and actuator is recommended to ensure the long-term reliable and repeatable operation. Since a reliable operation of the valves is required to meet DSOD requirements and the valves are long-lead items, staff expedited the preparation of procurement documents. Staff recommends award of the procurement of the two tier-five valves at the bottom of the tower to ensure continued compliance with DSOD requirements for dewatering the reservoir.

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 detailed seismic analysis and replacement of the valves, pending board award of the procurement 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. 15488). 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.

Project No. 1 - Lake Skinner Outlet Tower – Studies and Investigations

The planned scope of work for the investigation includes: (1) a detailed seismic evaluation of the tower including assessment of soil conditions, soil-structure interactions, ground motion, and structural analyses of the tower; and (2) identification of feasible retrofit approaches and preliminary cost estimates, if necessary.

A total of $1,290,000 is required for these activities. Allocated funds include $900,000 for seismic analysis and technical assessments by Stantec Consulting Services, Inc. under a new agreement, as described below, and $60,000 for an independent review under a new agreement, which will be awarded under the General Manager's contract authority. Allocated funds for Metropolitan staff activities include $180,000 for technical oversight and review of consultant's work; $89,000 for project management and project controls; and $61,000 for the remaining budget.

Engineering Services (Stantec Consulting Services, Inc.) – New Agreement

Stantec Consulting Services, Inc. is recommended to conduct a detailed seismic analysis for the Lake Skinner outlet tower. Stantec was qualified via Request for Qualification No. 1215 and selected based on the firm's experience with similar structures. Planned study activities include: (1) development of a finite-element model of the Skinner outlet tower, (2) development of analysis criteria, (3) seismic analysis of the tower, (4) development of performance acceptance criteria, and (5) development of conceptual strengthening options and costs, if necessary.

This action authorizes a new agreement with Stantec Consulting Services, Inc. for a not-to-exceed amount of $900,000 for engineering and technical services related to the detailed seismic analysis of the Lake Skinner outlet tower. A Small Business Enterprise participation level was not set for this agreement due to the unique nature of the seismic analysis.

Project No. 2 - Lake Skinner Outlet Tower Valve Replacement

The scope of the procurement contract includes furnishing two 42-inch diameter butterfly valves and actuators. Metropolitan forces will: (1) receive and off-load the new valves at the Skinner site; (2) remove the existing valves and install the new valves, and (3) shutdown, disinfect and return the tower to service.

A total of $2,170,000 is required to perform this work. In addition to the amount of the contract, the allocated funds include $208,000 for design services by Metropolitan staff; $126,000 for factory fabrication inspection and functional testing; $59,000 for submittals review, technical support, and responding to manufacturer requests for information; $271,000 for Metropolitan forces activities as described above; $98,000 for contract administration and project management; and $233,525 for the remaining budget.

Attachment 1 provides the allocation of required funds. The total estimated cost to replace the two valves on the Lake Skinner outlet tower, including the amount appropriated to date, and funds allocated for the work described in this action, is $2,370,000.

***Award of Procurement Contract (*B&K Valves and Equipment, Inc.)**

Request for Bids No. 411322 for furnishing two butterfly valves for the Lake Skinner outlet tower was advertised for bids on August 1, 2022. As shown in **Attachment 2**, three bids were received and opened on

October 29, 2022. The bid from Veteran Distribution and Supply was deemed to be non-responsive due to exceptions taken by the bidder. The bid from B&K Valves and Equipment, Inc., in the amount of $1,174,475, complies with the requirements of the specifications. The third bid was $1,875,892.79. This amount includes all sales and use taxes imposed by the State of California. The budgetary estimate for this material based on a survey of vendors ranged from $1 million to $1.25 million. As a procurement contract, there are no subcontracting opportunities.

This action awards a $1,174,475 procurement contract to B&K Valves and Equipment, Inc. to furnish two 42-inch valves and actuators to ensure continued compliance with DSOD requirements for the Lake Skinner outlet tower.

Alternatives Considered

Alternatives considered for completing the detailed seismic analysis included assessing the availability and capability of in-house Metropolitan staff to conduct 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.

In the case of this project, Metropolitan staff does not have the available resources nor the specialized software to perform the required detailed structural analysis. A consultant will be relied upon to provide specialized expertise in seismic modeling utilizing advanced structural programs to evaluate the anticipated performance of the tower following the maximum design earthquake.

For the replacement of the two valves, staff considered waiting until after the detailed seismic analysis is completed and combining the work with the larger project to seismically strengthen the tower. However, the analysis might find that an upgrade to the tower is not needed, and the valve replacement would have been unnecessarily delayed. Procurement of the valves at this time will ensure the tower's functionality and continued compliance with DSOD requirements.

Summary

This action authorizes a new agreement with Stantec Consulting Services, Inc., for a not-to-exceed amount of $900,000, for engineering and technical services related to the detailed seismic analysis of the Lake Skinner outlet tower. This action also awards a $1,174,475 procurement contract to B&K Valves and Equipment, Inc. to furnish two 42-inch diameter valves and actuators. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, and **Attachment 3** for the Location Map.

Project Milestones

February 2025 – Procure and install two valves at the Lake Skinner outlet tower

May 2024 – Complete Lake Skinner outlet tower seismic analysis

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 8140: Competitive Procurement

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

By Minute Item 51046, dated December 12, 2017, the Board Authorize comprehensive assessments of the spillways and dam structures at Lake Mathews and Lake Skinner

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. In particular, the proposed action consists of the funding, design, minor alterations, and replacement of existing public facilities with negligible or no expansion of use and no possibility of significantly impacting the physical environment. In addition, 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 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

a. Authorize an agreement with Stantec Consulting Services, Inc., for a not-to-exceed amount of $900,000, for detailed seismic analysis of the Lake Skinner outlet tower.
b. Award a $1,174,475 procurement contract to B&K Valves and Equipment, Inc. for the replacement of two valves at the Lake Skinner outlet tower.

Fiscal Impact: Expenditures of $3.46 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 the Lake Skinner outlet tower.

Option #2

Do not proceed with the projects at this time.
Fiscal Impact: None
Business Analysis: This option will forego an opportunity to improve the operational reliability of the Lake Skinner outlet tower, which may lead to costly urgent repairs.

Staff Recommendation

Option #1

3/21/2023
John V. Bednarski *Date*
Manager/Chief Engineer
Engineering Services

3/24/2023
Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Location Map

Ref# es12686783

Allocation of Funds for Lake Skinner Outlet Tower Seismic Upgrade

	Current Board Action (Apr. 2023)
Labor	
Studies & Investigations	$ 180,000
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	89,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Stantec Consulting Services, Inc.	900,000
Independent Review	60,000
Right-of-Way	-
Equipment Use	-
Contracts	-
Remaining Budget	61,000
Total	**$ 1,290,000**

The total amount expended to date to perfom the seismic analysis approximately $860,000. The project costs are anticipated to be determined in mid-2024, upon completion of the seismic analysis.

Allocation of Funds for Lake Skinner Outlet Tower Valve Replacement

	Current Board Action (Apr. 2023)
Labor	
Studies & Investigations	$ 40,000
Final Design	168,000
Owner Costs (Program mgmt., envir. monitoring)	98,000
Submittals Review & Record Drwgs.	59,000
Construction Inspection & Support	126,000
Metropolitan Force Construction	271,000
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	
B&K Valves and Equipment, Inc	1,174,475
Remaining Budget	233,525
Total	**$ 2,170,000**

The total amount expended to replace the tier five valves on the Lake Skinner Outlet Tower is approximately $200,000. The total estimated cost to complete the valve replacement including the amount appropriated to date and funds allocated for the work described in this action is $2,370,000.

The Metropolitan Water District of Southern California

Abstract of Bids Received on October 29, 2022, at 2:00 P.M.

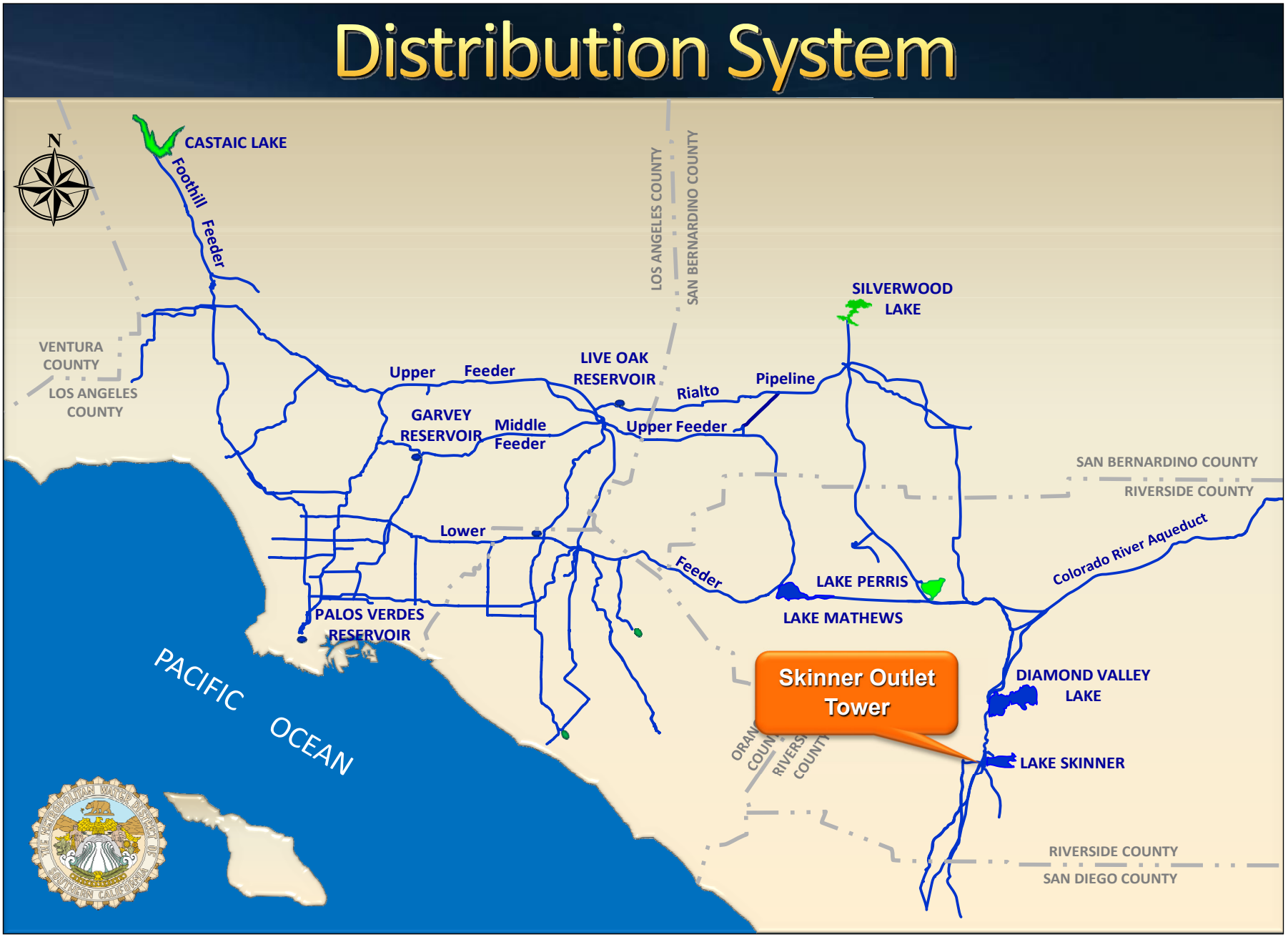
RFB-KK-411322
Furnishing two 42" Butterfly Valves and Actuators for the Lake Skinner Outlet Tower

The work includes fabrication of two 42-inch butterfly valves and actuators.

Engineer's estimate: $1 million to $1.25 million

Bidder and Location	Base Bid Total Price [1.2]
Veteran Distribution and Supply Ellenton, FL	$484,357.80[3]
B&K Valves and Equipment, Inc. Carlsbad, CA	**$1,174,475**
Cascade Consultants LLC Yorba Linda, CA	$1,875,892.79

[1] As a procurement contract, there are no subcontracting opportunities.
[2] Includes sales and use taxes of 7.75 percent imposed by the state of California
[3] Non-responsive bid


Distribution System
N
CASTAIC LAKE
Foothill Feeder
VENTURA COUNTY
LOS ANGELES COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
LIVE OAK RESERVOIR
Upper Feeder
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
Skinner Outlet Tower
DIAMOND VALLEY LAKE
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY

Engineering, Operations, & Technology Committee

Lake Skinner Outlet Tower Seismic Evaluation and Valves Replacement

Item 7-3

April 10, 2023

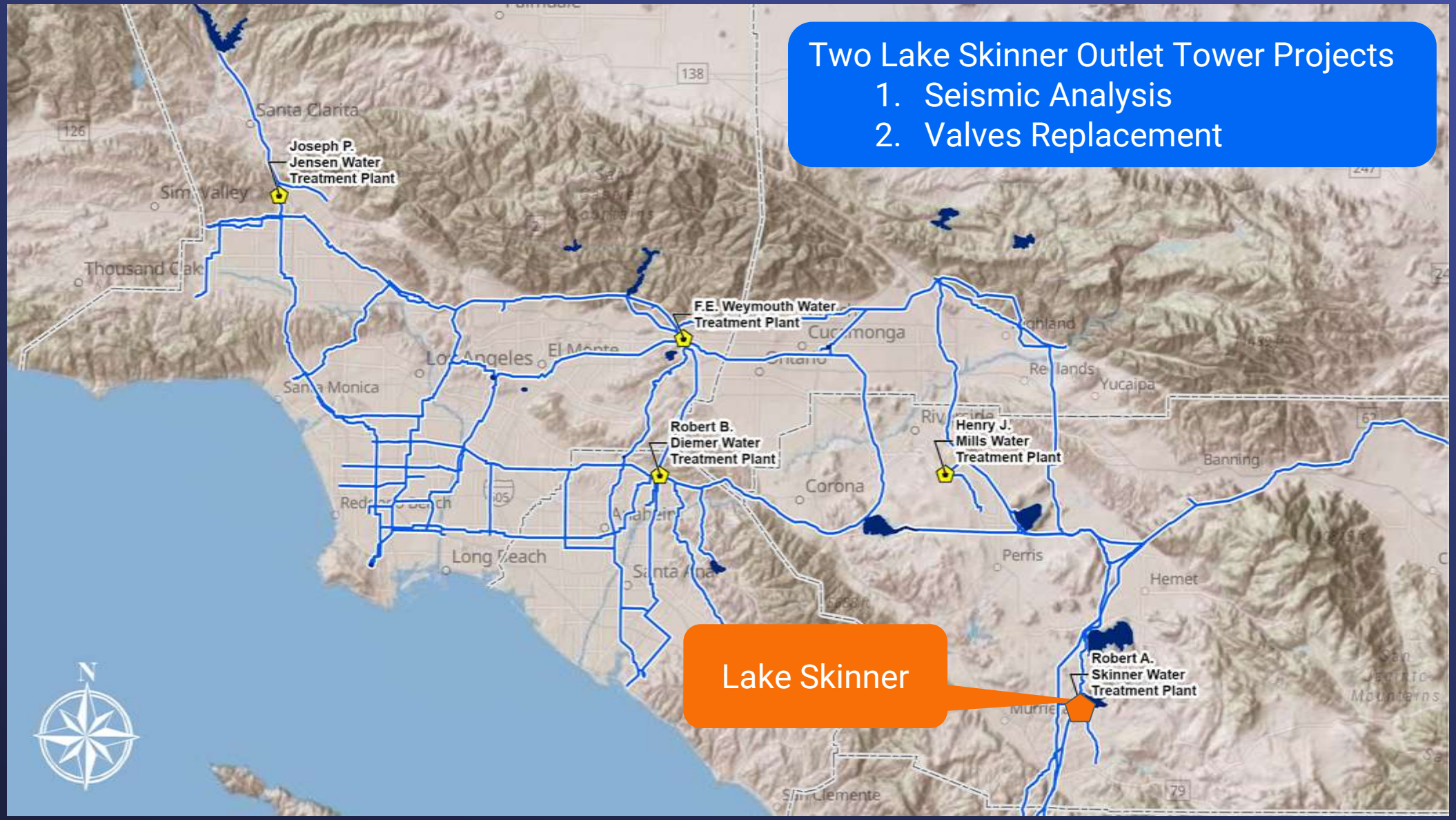
Lake Skinner Outlet Tower

Seismic Evaluation and Valve Replacement

Current Action

- Authorize an agreement with Stantec Consulting Services, Inc. in an amount not to exceed $900,000 for a detailed seismic analysis of the Lake Skinner outlet tower
- Award a $1,174,475 procurement contract to B&K Valves and Equipment, Inc. for the replacement of two valves at the Lake Skinner outlet tower

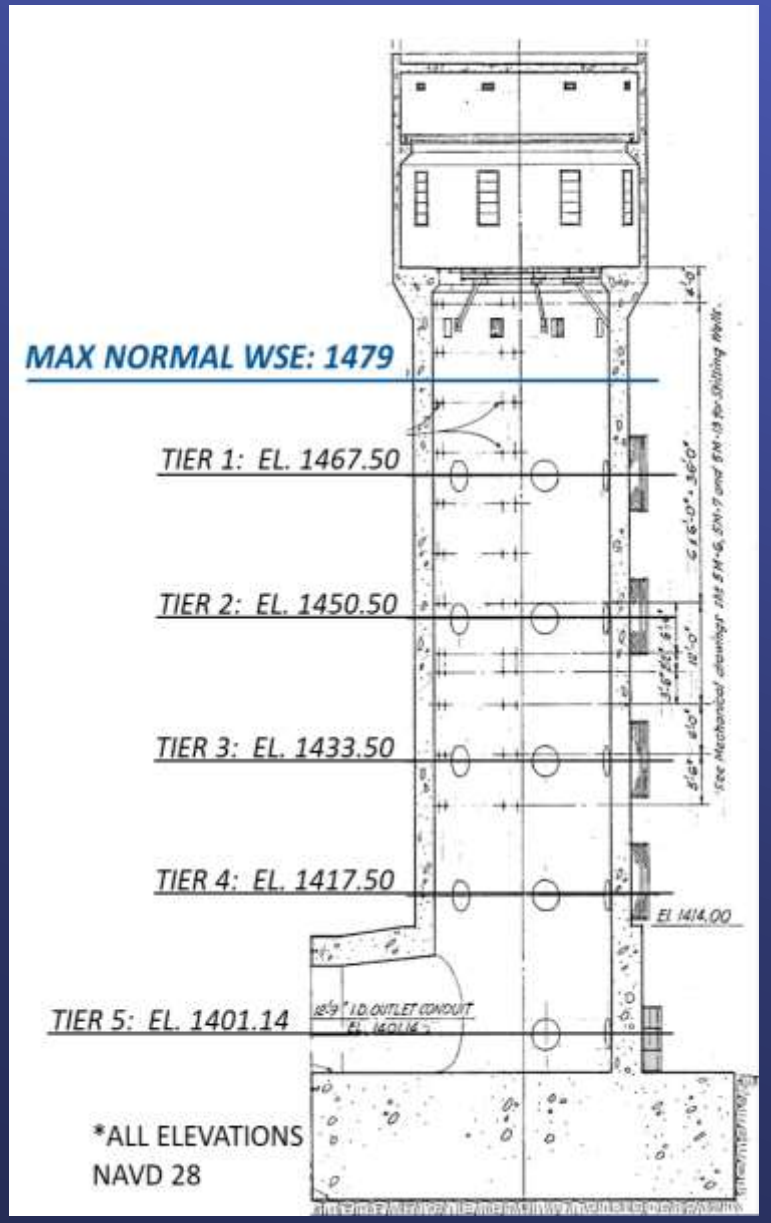
Distribution System



Lake Skinner Outlet Tower Seismic Evaluation and Valves Replacement

1. Background

- Lake Skinner
  - Capacity 43,800 AF
  - Receives Colorado River Aqueduct (CRA) and State Water Project (SWP) supplies
  - Supplies Skinner Plant and untreated water to San Diego County Water Authority (SDCWA)
- Outlet Tower
  - Constructed in 1973
  - Reinforced Concrete
  - Outlet valves:
    - 5 Tiers, 42” diameter
  - Only means of releasing water from lake



Skinner Tower Elevation

Lake Skinner Outlet Tower Seismic Evaluation

1. Previous Studies

- State-mandated spillway study
  - Minor improvements recommended
  - Submitted report to California Division of Safety of Dams (DSOD)
- Preliminary seismic analysis of outlet tower
  - In-house reconnaissance study
  - High stresses at lower tiers
  - Potential for damage from major earthquake

Lake Skinner Outlet Tower
Seismic Evaluation

1. Recommendation

- Conduct detailed seismic analysis of tower
  - Better define potential impact to tower from seismic event
  - Define impact to operations if tower is damaged
  - Define potential scope of work to mitigate seismic risk

Lake Skinner Outlet Tower
Seismic Evaluation

1. Alternatives Considered

- Rely on in-house staff
  - Metropolitan does not have resources and specialized software
- Selected alternative
  - Utilize consultant for specialized detailed seismic analysis

1. Stantec Consulting Services, Inc. – Agreement

Lake Skinner Outlet Tower
Seismic Evaluation

- Selected based on experience with similar structures via RFQ No. 1215
- Scope of Work
  - Development of structural model
  - Advanced seismic analysis of tower
  - Development of conceptual risk mitigation options and cost estimates
- Not to exceed amount: $900,000

Lake Skinner Outlet Tower Seismic Evaluation

1. Metropolitan Scope of Work

- Consultant review and technical oversight
- Project management and project controls

Lake Skinner (outlet tower lower right in photo)

1. Allocation of Funds

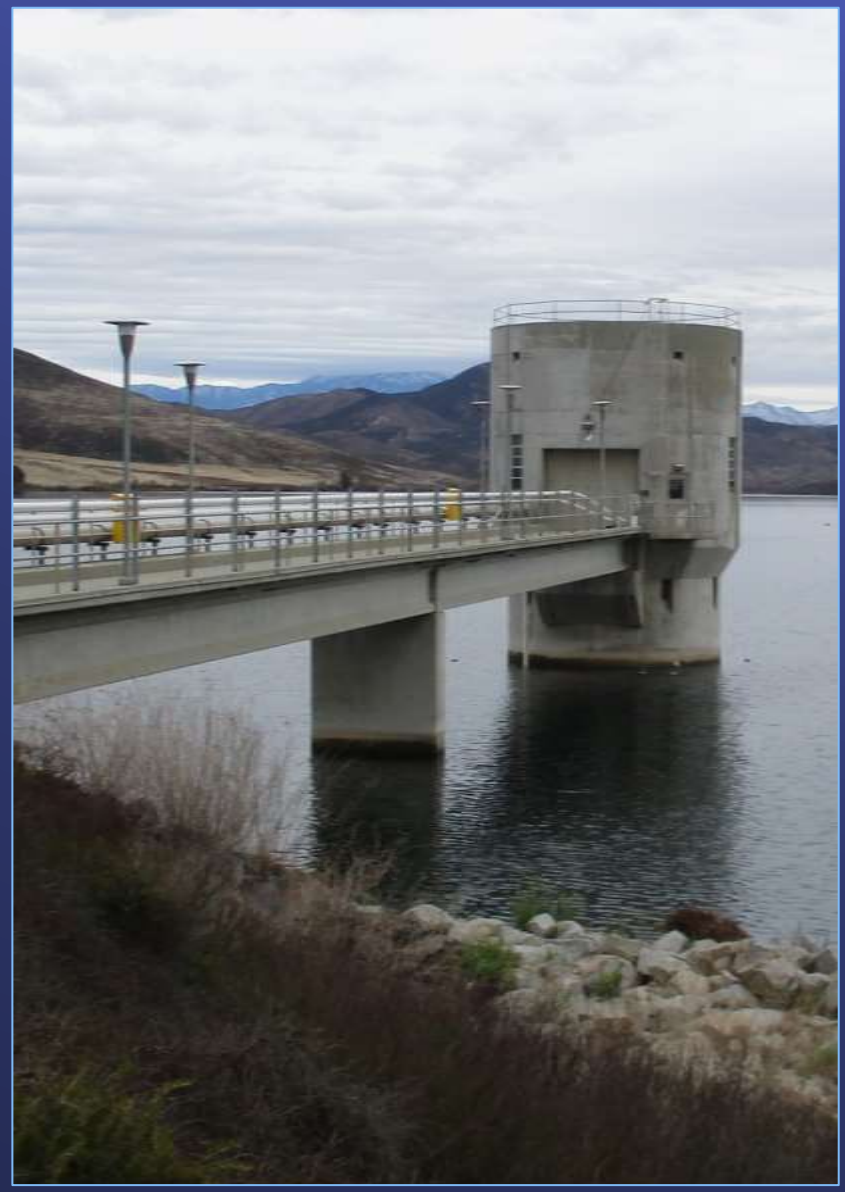
Lake Skinner Outlet Tower Seismic Analysis

Metropolitan Labor	
Studies & Investigations	$ 180,000
Owners Costs (Proj. Mgmt., Contract Admin., Envir. Support)	89,000
Professional/Technical Services	
Stantec Consulting Services, Inc.	900,000
Independent Reviewer	60,000
Remaining Budget	61,000
Total	$ 1,290,000

Lake Skinner Outlet Tower Valve Replacement

2. Background

- Tier 5 valves refurbishment
  - Low level outlet
- Hairline fractures found and repaired actuator of two valves
- Working valves necessary
  - For emergency dewatering
  - To comply with DSOD requirements
  - Replacement of two valves is recommended



Lake Skinner Outlet Tower

Lake Skinner Outlet Tower
Valve Replacement

2. Alternatives Considered

- Combine with potential seismic risk mitigation work
  - Defers valve replacement
- Selected alternative – purchase and install valves now
  - Maintains compliance with DSOD dewatering requirements

Lake Skinner Outlet Tower Valve Replacement

2. Scope of Work

- Contract
  - Furnish two butterfly valves and actuators
- Metropolitan
  - Fabrication Support
    - Submittal review
    - Inspection and testing
  - Design
    - Installation drawings
    - Procurement/construction technical support
  - Force Construction
    - Removal of existing valves and actuators
    - Installation of new valves and actuators
  - Project management and project controls

2. Bid Results
Specifications No. RFB-KK-411322

Bids Received	October 29, 2022
No. of Bidders	3
Lowest Responsible Bidder	B&K Valves and Equipment, Inc.
Low Bid	$1,174,475
Range of Other Bids	$484,358* to $1,875,893
Bid Survey Estimate	$1,000,000 to $1,250,000

*Low bid of $484,358 was non-responsive

NOTE: As a procurement contract, there are no subcontracting opportunities

2. Allocation of Funds

Lake Skinner Outlet Tower Valve Replacement

Metropolitan Labor	
Studies & Investigations	$ 40,000
Final Design	168,000
Owner Costs (Proj. Mgmt., Contract Admin., Envir. Support)	98,000
Construction Inspection & Support	126,000
Force Construction	271,000
Submittals Review, Tech. Support, Record Dwgs.	59,000
Contracts	
B&K Valves and Equipment, Inc.	1,174,475
Remaining Budget	233,525
Total	$ 2,170,000

Project Schedules

Board Options

- Option #1
  a. Authorize an agreement with Stantec Consulting Services, Inc., for a not-to-exceed amount of $900,000, for detailed seismic analysis of the Lake Skinner outlet tower.
  b. Award a $1,174,475 procurement contract to B&K Valves and Equipment, Inc. for the replacement of two valves at the Lake Skinner outlet tower.
- Option #2
  - Do not proceed with the projects at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

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

4/11/2023 Board Meeting

7-4

Subject

Authorize an increase of $475,000 to an agreement with Brown & Caldwell, for a new not-to-exceed amount of $715,000, to investigate potential modifications to Metropolitan's existing East-West conveyance and distribution system; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

A multi-year drought has resulted in consecutive years of low allocation on the State Water Project (SWP). The limited SWP supplies have significantly impacted member agencies that rely heavily on these supplies to meet service area demands. In August 2022, Metropolitan's Board approved a resolution affirming a call to action and committing to regional reliability for all member agencies. Shortly thereafter, staff began studying alternatives to increase the flexibility of Metropolitan's existing conveyance and distribution system to permit deliveries of alternative water supplies to the SWP-dependent member agencies within Metropolitan's system. Staff initiated a professional services agreement under the General Manager's authority to accelerate the commencement of work on this study. Significant progress has been made and detailed investigations are now required. This action authorizes an amendment to an existing professional services agreement to continue the investigation of potential modifications to Metropolitan's conveyance and distribution system to provide an equivalent level of reliability for all member agencies.

Details

Background

Metropolitan's distribution system was originally constructed in the 1940s to deliver treated Colorado River Aqueduct (CRA) supplies throughout the service area. The system was expanded in the 1970s to connect to the SWP. The distribution system was designed to take advantage of the region's topography and primarily utilizes gravity to move water through the system. Much of the service area benefits from access to both CRA and SWP sources of supply; however, certain portions of the system have limited or no access to CRA water and other stored supplies due to certain limitations inherent within the current system configuration.

Water years 2020 and 2021 were the driest consecutive years in California for statewide precipitation, resulting in a 20 percent and five percent allocation from the SWP, respectively. Water year 2022 saw the driest January and February on record, resulting in an unprecedented second consecutive five percent allocation. Accordingly, years 2020 to 2022 saw the lowest water deliveries in the history of the SWP. The low SWP allocations have resulted in a disproportionate impact on a select number of member agencies that are highly dependent on supplies from the SWP.

In November 2021, Metropolitan adopted a resolution declaring a regional drought emergency. In April 2022, the Board declared a water shortage emergency condition and adopted a framework for an emergency water conservation program to reduce non-essential water use and preserve available supply for the greatest public benefit in the SWP-dependent areas. In August 2022, the Board adopted a resolution confirming Metropolitan's call to action and commitment to regional reliability for all member agencies. With respect to the latter, the resolution noted that Metropolitan cannot provide member agencies in the SWP-dependent areas with full access to water supply and storage assets during severe droughts.

In response to the regional drought emergency, Metropolitan and member agencies began a series of workshops aimed at increasing the reliability of deliveries to member agencies within the SWP-dependent areas. Through the workshop process, an initial series of potential portfolios of actionable items was developed and presented to the Board in September 2022. The collaborative process resulted in a supply reliability portfolio which is divided into three categories: system flexibility projects for immediate implementation (near-term projects), system flexibility projects for further development, and supply and storage improvement projects for comprehensive study that require in-depth studies to verify feasibility, sustainability, and cost-effectiveness (long-term projects). One of the projects identified as critical to improving system flexibility is an east-west conveyance solution that will provide additional connectivity of the westside SWP-dependent area to CRA supplies and existing storage such as Diamond Valley Lake.

Based on the urgency expressed by the Board's actions, staff initiated an agreement with Brown & Caldwell under the General Manager's authority to immediately start investigations into potential east-west conveyance alternatives. The preliminary investigations, in collaboration with the member agencies, have identified potential modifications to the existing conveyance and distribution system. However, a more in-depth study is now needed to further develop the identified alternatives, verify their feasibility, develop an integrated solution, and recommend alternatives for further action. Staff recommends an amendment to the existing agreement with Brown & Caldwell to continue these efforts.

In accordance with provisions of the Governmental Accounting Standards Board, Metropolitan's work on feasibility studies not associated with a specific asset must be conducted with O&M funds instead of a capital appropriation. Funds for these planning activities for regional reliability are included in the O&M budget for fiscal years 2022/23 and 2023/24.

East-West Conveyance Facilities – Detailed Investigations

The east-west conveyance studies will develop and evaluate multiple options to improve the western SWP-dependent areas' ability to access water supplies from the CRA, Diamond Valley Lake, the Pure Water Southern California Program, and other regional sources. The east-west conveyance studies will build upon the near-term actions that are currently underway. Options for improved east-west conveyance may include expansion of the planned Sepulveda and Venice Pump Stations, expansion of the Greg Avenue Pump Station, construction of new east-west conveyance pipelines, improvements to existing pipelines, or a combination of these actions.

The detailed investigations will include in-depth studies to evaluate the feasibility and effectiveness of options identified in the preliminary investigation. Near-term activities will be conducted with a hybrid effort of consultant and Metropolitan staff as described below. Metropolitan staff will conduct hydraulic analyses, participate in analysis of project options, review consultant work, facilitate meetings between member agencies and the consultant, and perform overall project management. Over the course of the study's duration, staff will coordinate with member agencies through a series of workshops to ensure that study objectives remain aligned with overall expectations. Staff will present the Board with updates on the progress of the work and provide a recommended course of action at the end of the study.

A total of $800,000 is required for these activities. This work will be completed with O&M funds in accordance with Metropolitan's current business practices as described previously. Planned O&M expenditures include $475,000 for planning, analysis, concept development, and technical assessments by Brown & Caldwell under an existing agreement, as described below, and $325,000 for Metropolitan staff activities including hydraulic analyses, technical oversight and review of consultant's work, coordination with member agencies to establish project criteria, project management, and project controls.

Technical Investigations (Brown & Caldwell) –Agreement Amendment

Brown & Caldwell is currently performing the initial investigations into potential east-west conveyance facilities under an existing agreement that has been executed under the General Manager's authority. Brown & Caldwell was prequalified under Request for Qualifications (RFQ) No. 1305 and was selected to perform this work because of their expertise and familiarity with Metropolitan's system. The planned activities include conceptual level alternative development and evaluations; development of evaluation criteria; mitigation strategies for pressure and flow impacts to existing Metropolitan pipelines; facility siting investigations including right-of-way requirements;

coordination with local power providers; development of conceptual cost estimates; and preparation of workshops with member agencies to collaborate on project development. The estimated cost for these services is $475,000. For this agreement, no Small Business Enterprise participation level was established due to the urgent nature of the work.

This action authorizes an amendment of $475,000 to an existing agreement with Brown & Caldwell for a new not-to-exceed amount of $715,000 to provide detailed investigations into a potential east-west conveyance facility.

Alternatives Considered

Alternatives considered for addressing the detailed drought mitigation investigations included assessing the availability and capability of in-house Metropolitan staff to conduct 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) to utilize consultants when resource needs exceed available in-house staffing or require specialized technical expertise.

This strategy relies on the assumption that in-house engineering staff will handle the baseload of work on capital projects, while professional services agreements are selectively utilized to handle projects above this baseload or where specialized needs are required. Execution of the detailed investigation requires the support of external consultants given the sense of urgency stated in the Board's August 2022 call to action regarding regional reliability and Metropolitan staff's current workload. The recommended approach allows for the timely completion of the detailed drought mitigation investigations as well as the other projects in the Capital Investment Plan.

Summary

This action authorizes an amendment to an existing agreement for technical analysis of a potential east-west conveyance facility to increase regional reliability for all member agencies.

Project Milestone

December 2023 – Completion of detailed investigations

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 52581, dated November 9, 2021, the Board adopted a resolution which declared specified emergency conditions within the Metropolitan service area.

By Minute Item 52802, dated April 12, 2022, the Board declared a Water Shortage Emergency Condition, adopted an Emergency Water Conservation Program, and expressed support for the Governor's Executive Order N-7-22.

By Minute Item 52790, dated April 12, 2022, the Board approved the Biennial Budget for Fiscal Years 2022/23 and 2023/24.

By Minute Item 52946, dated August 16, 2022, the Board adopted a resolution affirming a call to action and committing to regional reliability for all member agencies.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is statutorily exempt under the provisions of CEQA and the State CEQA Guidelines because it involves only feasibility and planning studies for possible future actions that the agency has not approved (Public Resources Code 21102; Section 15262 of the State CEQA Guidelines). The proposed action is also categorically exempt 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

Authorize an amendment to an existing agreement with Brown & Caldwell, for a $475,000 increase to a new not-to-exceed amount of $715,000, to investigate potential modifications to Metropolitan's existing East-West conveyance and distribution system.

Fiscal Impact: Expenditure of $800,000 in O&M funds that have been previously authorized.
Business Analysis: This project will enhance regional reliability for all member agencies.

Option #2

Do not proceed with the project at this time.
Fiscal Impact: None
Business Analysis: This option would forgo an opportunity to improve regional reliability for all member agencies.

Staff Recommendation

Option #1

3/23/2023

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

3/24/2023

Adel Hagekhalil *Date*
General Manager

Ref# es12687872

Engineering, Operations, & Technology Committee

Study for Potential East-West Conveyance

Item 7-4

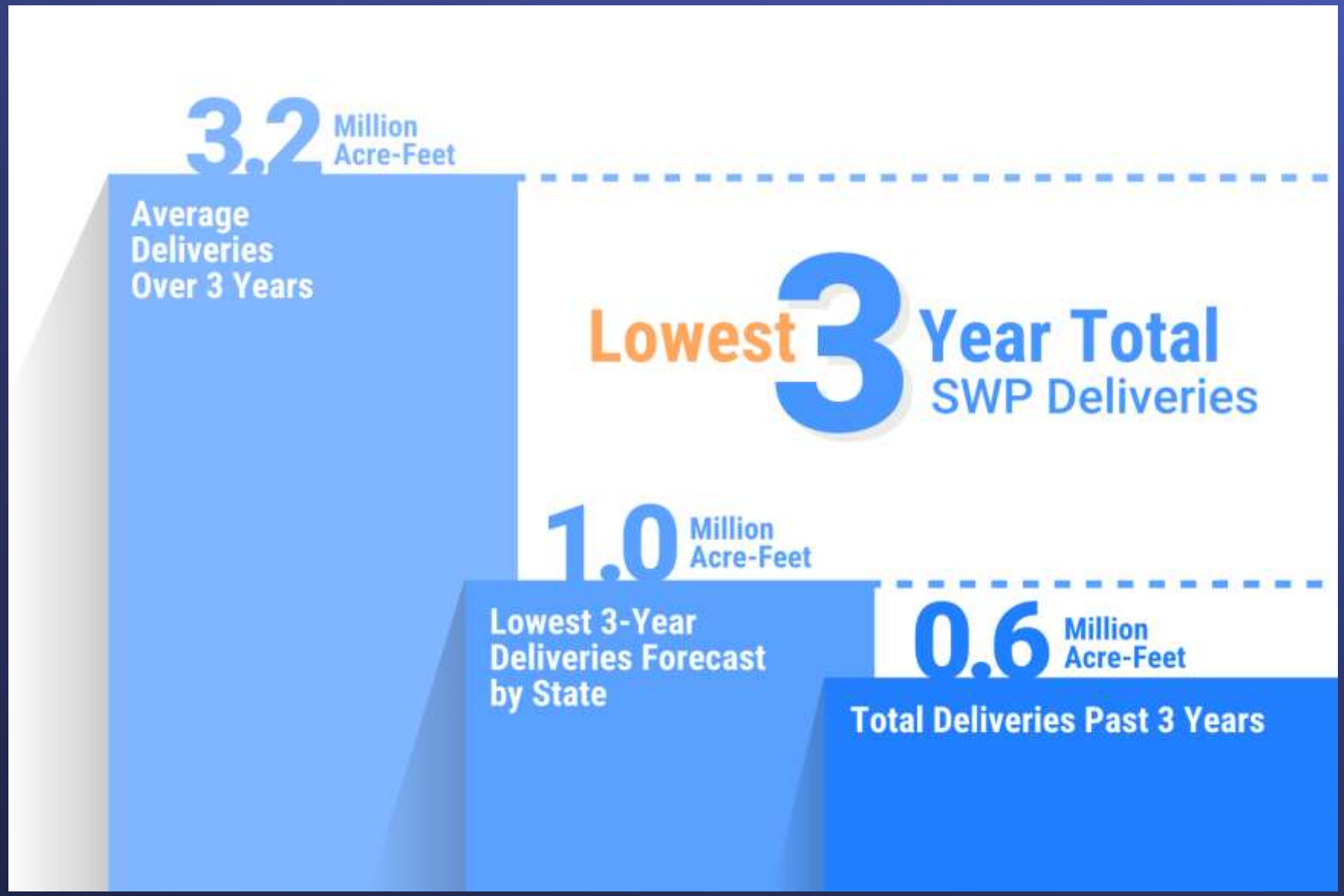
April 10, 2023

East-West Conveyance Study

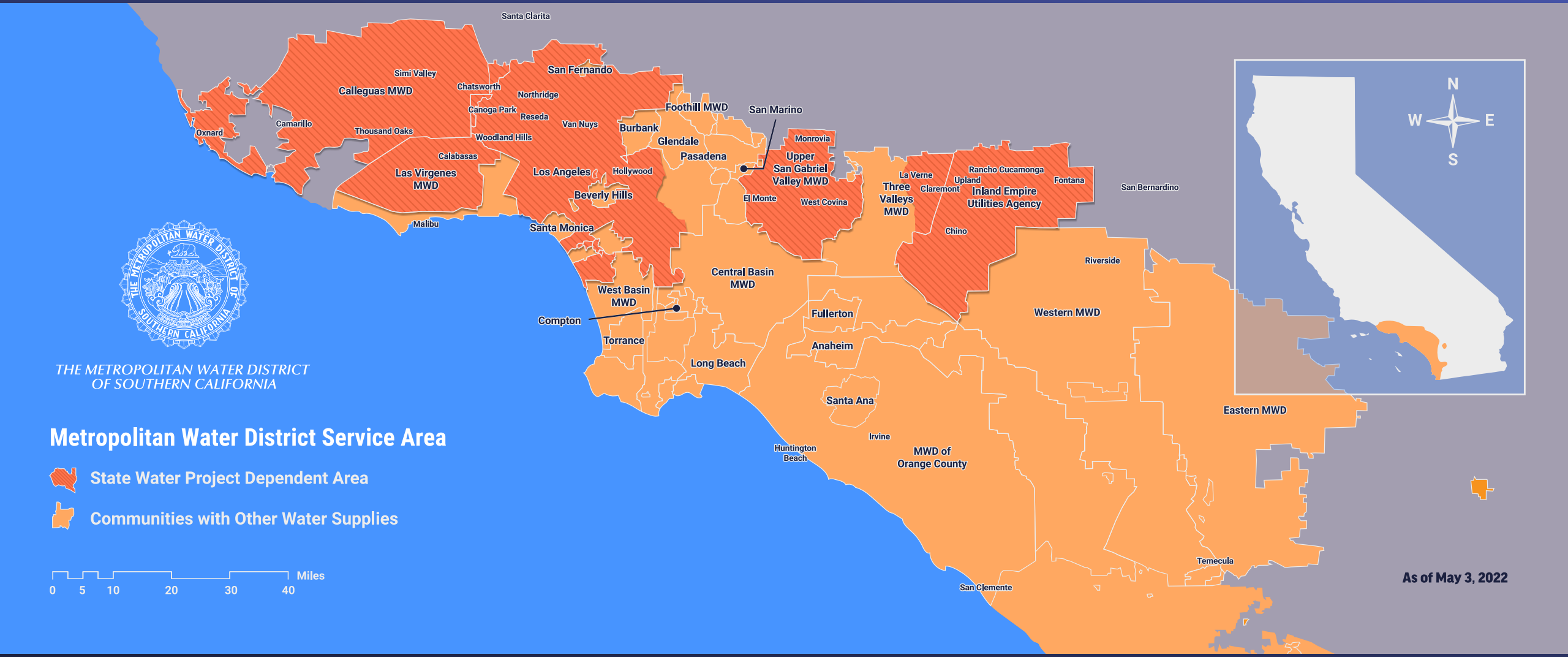
Current Action

- Authorize an amendment to an existing agreement with Brown & Caldwell, for a new not-to-exceed amount of $715,000, to investigate potential modifications to Metropolitan's existing East-West conveyance and distribution system

East-West Conveyance Study



Supply Constrained in 2022 for SWP Dependent Area



East-West Conveyance Study

Background

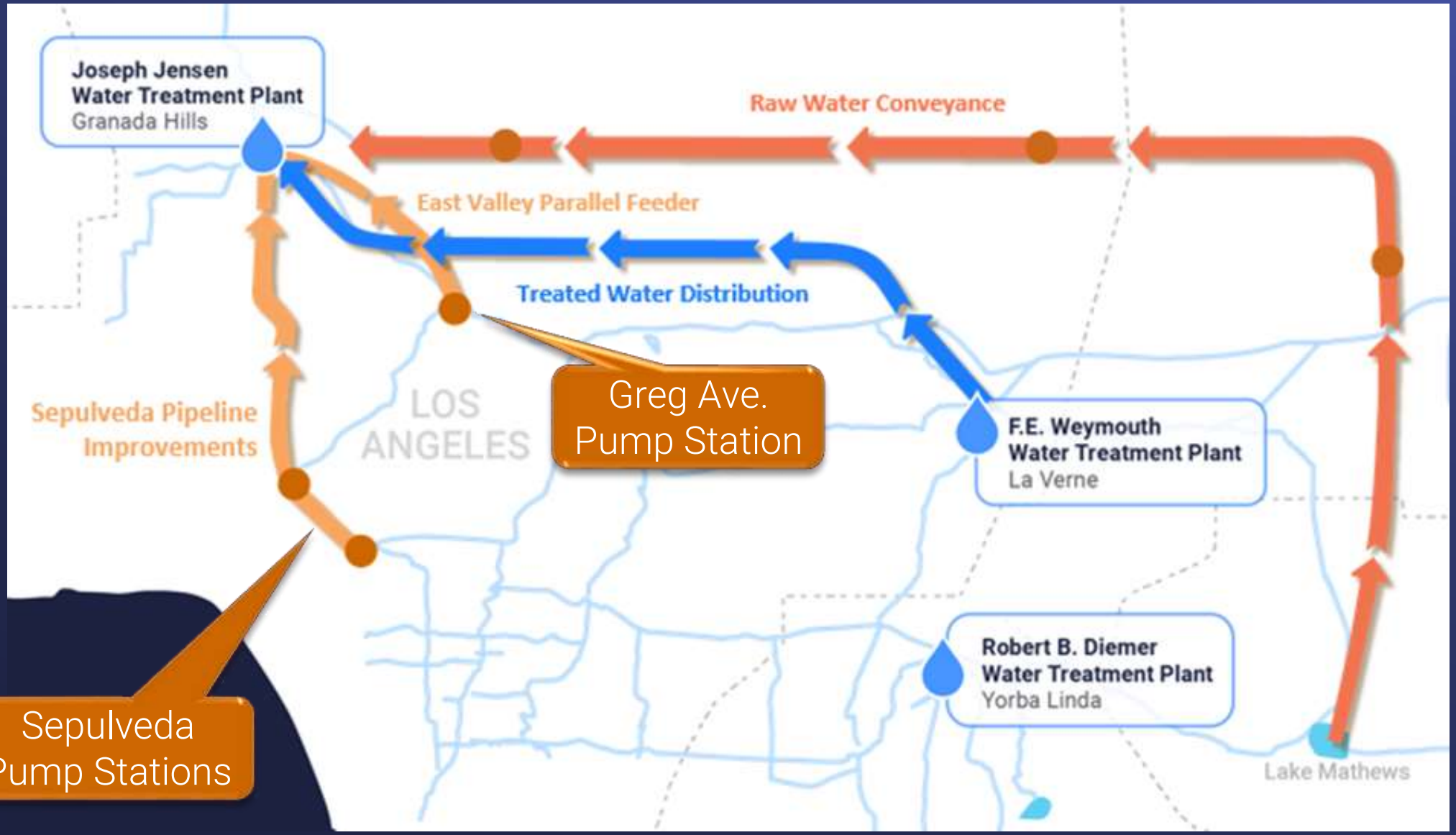
- Board Drought Actions:
  - Nov. 2021 –Resolution declaring a regional drought emergency
  - Apr. 2022 – Declared a water shortage emergency condition
  - Aug. 2022 – Resolution confirming Metropolitan's call to action and commitment to regional reliability for all member agencies

East-West Conveyance Study

Background

- Actions undertaken to date:
  - Collaborative member agency drought mitigations workshops
    - 7 sessions held over 10 months
    - Developed portfolios of actions to improve reliability
  - Board approval of projects for immediate implementation
  - Identified projects for further development
    - East-West conveyance

Distribution System & East-West Conveyance Options



East-West Conveyance Study

Alternatives Considered

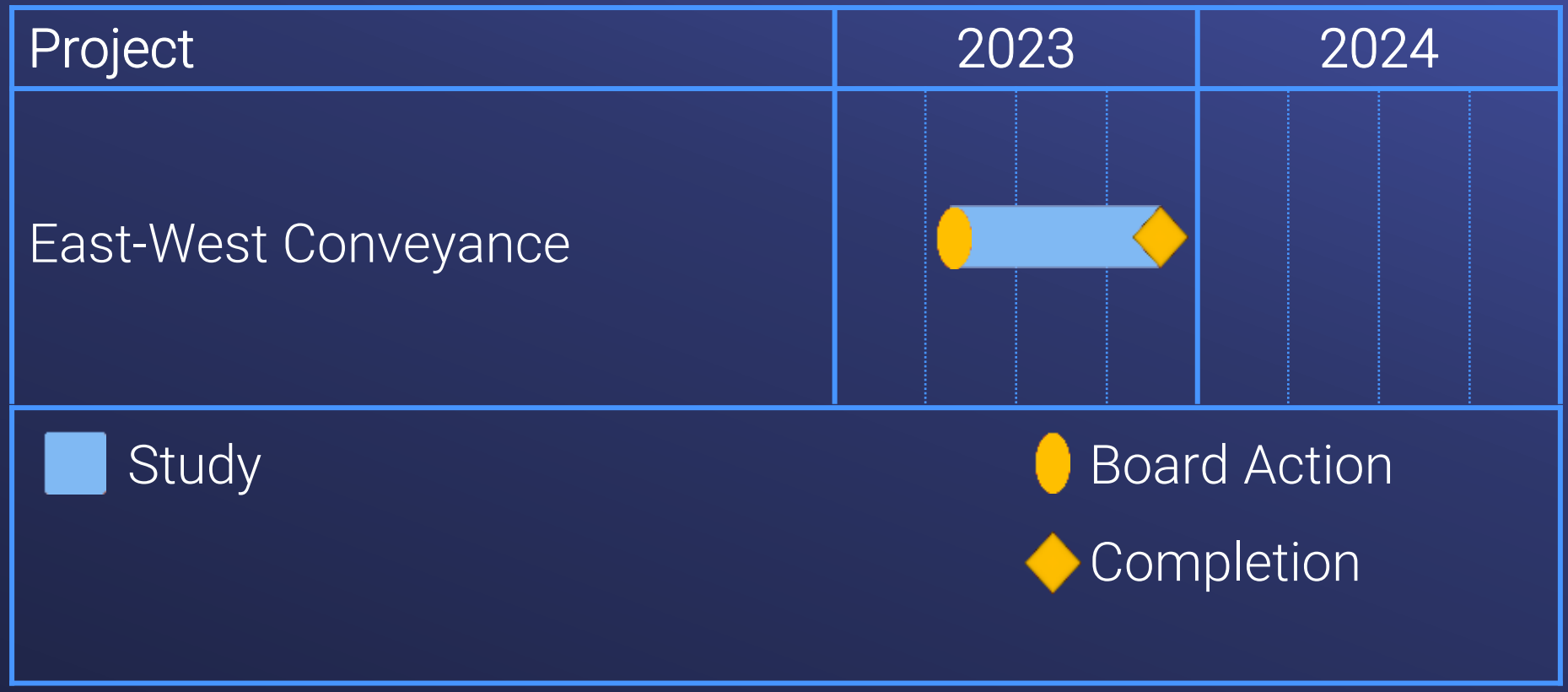
- Utilize in-house staff
  - In-house staff fully committed
- Selected alternative allows for timely completion of studies without disrupting other ongoing capital and O&M work
- Executed initial agreement under General Managers authority to expedite work
- Consultant has completed preliminary activities
- Amendment of agreement needed to perform more in-depth studies

East-West Conveyance Study

Brown & Caldwell – Agreement Amendment

- Existing agreement executed under General Manager's authority
- Prequalified under RFQ No. 1305
- Selected based on expertise and familiarity with Metropolitan's system
- Scope of work
  - Detailed investigations and feasibility studies for East-West conveyance
- Increase of $475,000
- New NTE amount: $715,000
- No Small Business Enterprise (SBE) participation level established

Project Schedule



Board Options

- Option #1
  - Authorize an amendment to an existing agreement with Brown & Caldwell, for a $475,000 increase to a new not-to-exceed amount of $715,000, to investigate potential modifications to Metropolitan's existing East-West conveyance and distribution system.
- 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

4/11/2023 Board Meeting

7-5

Subject

Authorize an increase of $5.4 million to an existing agreement with Arcadis U.S., Inc., for a new not-to-exceed total amount of $6.35 million, for engineering design services to rehabilitate Garvey Reservoir; the General Manager has determined that this proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The California Division of Drinking Water (DDW) requires that all reservoirs holding treated water be covered to protect them from contamination. The existing reservoir cover, liner, and supporting facilities at Garvey Reservoir have deteriorated and need rehabilitation to protect water quality and maintain reliable water deliveries. This action authorizes an amendment to an existing agreement to provide engineering services for final design of the Garvey Reservoir rehabilitation project.

Details

Background

Garvey Reservoir was constructed in 1954 as a component of the Middle Feeder system. The reservoir receives treated water from the F. E. Weymouth Water Treatment Plant and has a maximum storage volume of 1,600 acre-feet. The reservoir provides critical hydraulic flexibility to Metropolitan's distribution system by stabilizing flows within the Middle Feeder. The reservoir also ensures deliveries to member agency service connections when pipelines are shut down for maintenance.

To protect treated water from contamination, DDW requires that all finished water reservoirs be covered. Metropolitan is in compliance with this requirement and has installed floating reservoir covers at all its larger treated water storage facilities. Floating reservoir covers consist of a thin membrane material that floats on the reservoir's water surface. While floating reservoir covers are a cost-effective means of maintaining water quality, the cover material deteriorates over time. If tears develop in the cover material, the potable water supply is susceptible to contamination. Metropolitan has a proactive reservoir cover inspection and maintenance program that includes regular inspections, both above and below the cover, to identify signs of deterioration or damage. This program ensures that the floating covers and reservoirs remain in compliance with DDW requirements. Metropolitan's experience has shown that the typical useful life for a floating cover is between 20 and 25 years. The existing floating cover and bottom liner at Garvey Reservoir were installed in 1999 and are at the end of their useful life.

In addition to replacing the reservoir's liner and cover, the rehabilitation work at the reservoir will also include a seismic retrofit or replacement of the 86.5-feet-tall and 16-feet-wide outlet tower to ensure the functionality of the reservoir remains intact in the event of a major earthquake in the vicinity; upgrade of the reservoir's on-site 114-square-feet water quality laboratory building to provide adequate work space and improve seismic performance; replacement of five original junction structure valves that are deteriorating and which control reservoir flows; replacement of the aging standby generator to enhance operational reliability during a power outage; and replacement of approximately 1,000 linear feet of perimeter fence along Orange Avenue to provide additional site security.

In March 2021, Metropolitan's Board authorized an agreement for engineering services to conduct preliminary design activities to rehabilitate the reservoir facilities. The work was conducted as a hybrid effort of consultant and Metropolitan staff. Preliminary design is now complete, and staff recommends proceeding with final design. Staff will return to the Board in fall 2023 to certify the Environmental Impact Report prepared for the project.

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 action 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 Capital Investment Plan 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 Reservoir Cover Replacement Program.

Garvey Reservoir Rehabilitation – Final Design

Planned rehabilitation work includes replacement of the reservoir cover and liner; upgrades to the reservoir's rainwater collection, pumping, and subdrain systems; structural strengthening of the inlet/outlet tower; upgrade of the on-site water quality laboratory building; rehabilitation of the junction structure; and replacement of the existing standby generator and a portion of the security perimeter fence.

Final design phase activities include: (1) detailed structural analyses; (2) preparation of drawings and technical specifications; (3) development of a construction cost estimate; and (4) value engineering. These activities are planned to be conducted by both Metropolitan staff and Arcadis U.S., Inc., under an existing agreement described below. The scope of work for Arcadis includes final design for: (1) the replacement of the floating cover, reservoir liner, and subdrain system, (2) the inlet/outlet tower seismic rehabilitation, and (3) replacement of the standby generator at Garvey Reservoir. Metropolitan staff will perform final design for the remaining project elements, perform overall project management, and conduct technical reviews. It is anticipated that multiple construction contracts will be issued for the rehabilitation work to prioritize the most urgent work components.

A total of $8.9 million is required for this work. Allocated funds include $5.4 million for the final design activities by Arcadis described above. Allocated funds for Metropolitan staff activities include $1.9 million for structural, mechanical, and instrumentation design and technical oversight and review of consultant's work; $834,000 for shutdown planning, permitting, environmental support, and project management; and $326,000 for remaining budget. Other allocated funds include $440,000 for environmental documentation, value engineering, geotechnical investigations, and public outreach, which will be performed by specialty firms under contracts planned to be executed under the General Manager's Administrative Code authority.

As described above, final design will be performed by Arcadis U.S., Inc. and Metropolitan staff. Engineering Services' performance metric target range for final design with construction more than $3 million is 9 to 12 percent. For this project, the performance metric goal for final design is 8.6 percent of the total construction cost. The estimated cost of construction for the rehabilitation of Garvey Reservoir is anticipated to range from $85 million to $89 million.

Engineering Services (Arcadis U.S., Inc.) – Amendment to Agreement

Arcadis U.S., Inc. was selected through a competitive process via Request for Proposals No. 1255 based on the firm's experience with reservoir covers and specifically for their expertise in reservoir storage facilities. In March 2021, Metropolitan's Board authorized an agreement with Arcadis U.S., Inc. for a not-to-exceed amount of $950,000 to perform preliminary design for the rehabilitation of Garvey Reservoir. Arcadis has completed preliminary design activities and is now recommended to perform the final design scope of work discussed above under the agreement amendment.

This action authorizes an increase of $5.4 million to the existing agreement with Arcadis U.S., Inc for a new not-to-exceed total of $6.35 million to perform final design to rehabilitate Garvey Reservoir. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 25 percent. Arcadis has agreed to meet this level of participation. The planned subconsultants for this work are listed in **Attachment 2**.

Alternatives Considered

Upon completion of preliminary design for the rehabilitation of Garvey Reservoir facilities, staff reassessed the availability and capability of in-house Metropolitan staff to conduct final design, considering: (1) current work assignments for in-house staff to determine the potential availability of staff to conduct this work; and (2) specialized technical expertise needs. The current approach uses in-house staff for items normally encountered when working on capital improvement projects, while consultants are utilized for specialized design elements. This strategy has been successful as the reservoir covers and liners require specialized design, and the in-house engineering staff does not routinely work in these areas of design.

After assessing the current workload and expertise of in-house staff, and the relative priority of this project, staff recommends continuing the use of both a specialized consultant and in-house staff to perform final design for the rehabilitation of Garvey Reservoir.

Summary

This action authorizes an amendment to an agreement with Arcadis U.S., Inc., for a new not-to-exceed amount of $6.35 million, to provide engineering services to rehabilitate Garvey Reservoir. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the List of Subconsultants, and **Attachment 3** for the Location Map.

Project Milestone

November 2024 – Completion of final design to rehabilitate Garvey Reservoir

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 52301, dated March 9, 2021, the Board authorized an agreement with Arcadis U.S., Inc., for engineering services to rehabilitate Garvey Reservoir.

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 provides for data collection, design, and technical support with no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 6 (Section 15306) of the State CEQA Guidelines.

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an increase of $5.4 million to an existing agreement with Arcadis U.S., Inc., for a new not-to exceed total amount of $6.35 million, for engineering design services to rehabilitate Garvey Reservoir.

Fiscal Impact: $8.9 million in capital funds. Approximately $7.2 million will be incurred in the current biennium and have been previously authorized. The remaining capital expenditures will be funded from future CIP budgets following board approval of those budgets.

Business Analysis: This action will sustain reliable operation of Garvey Reservoir within Metropolitan's distribution system.

Option #2

Do not proceed with the agreement increase at this time.

Fiscal Impact: None

Business Analysis: With this option, staff would continue to assess potential initiatives to minimize the risk of disruption to operations within the distribution system while an agreement for the required specialized services is authorized to proceed.

Staff Recommendation

Option #1

3/30/2023

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

4/4/2023

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Listing of Subconsultants

Attachment 3 – Location Map

Ref# es12694216

Allocation of Funds for Garvey Reservoir Rehabilitation

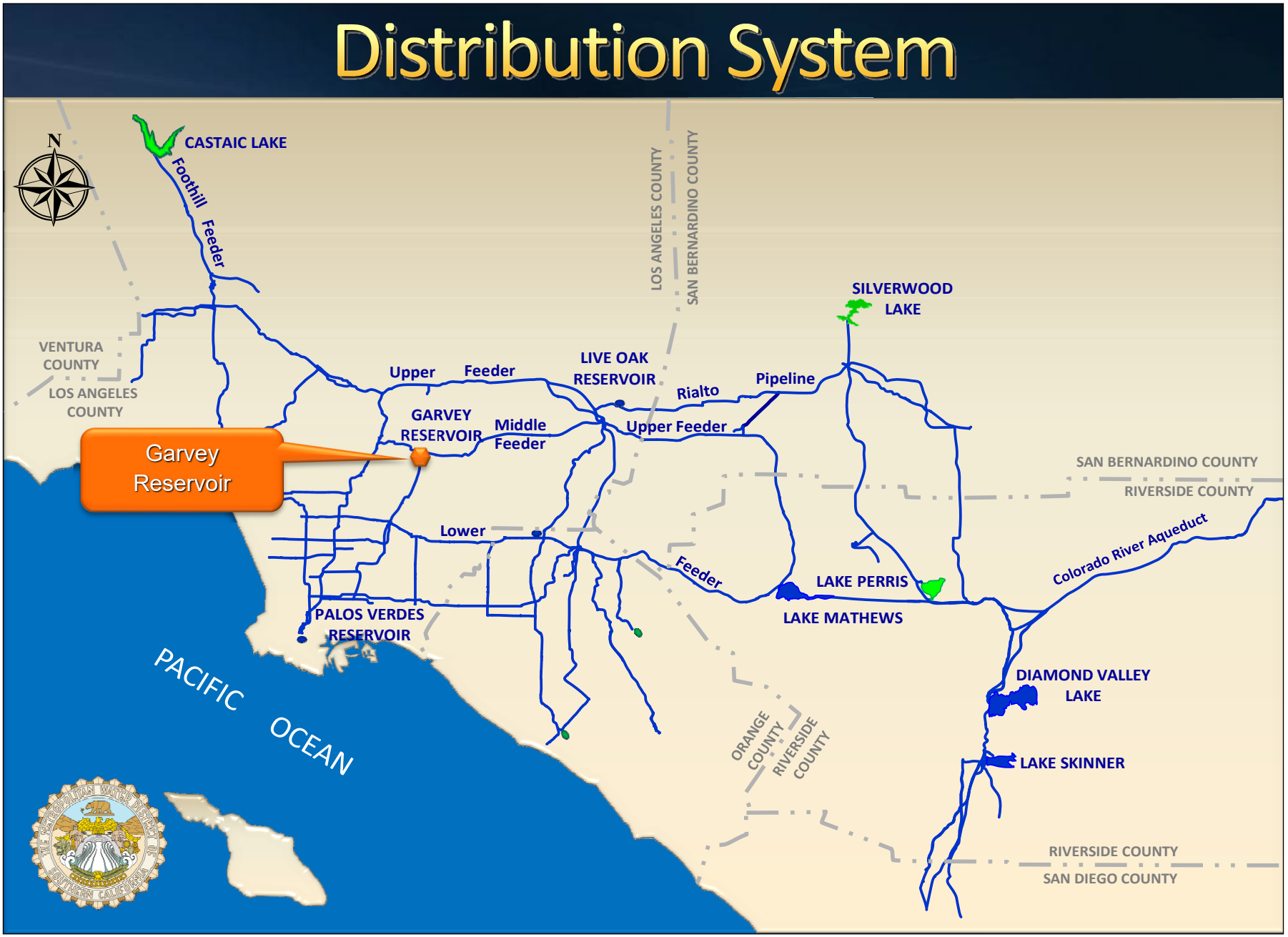
	Current Board Action (Apr. 2023)
Labor	
Studies & Investigations	$ -
Final Design	1,900,000
Owner Costs (Program mgmt., envir. planning)	834,000
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	
Arcadis U.S., Inc.	5,400,000
Value Engineering	100,000
Geotechnical Investigations	190,000
Environmental Documentation	100,000
Public Outreach	50,000
Contracts	-
Remaining Budget	326,000
Total	**$ 8,900,000**

The total amount expended to rehabilitate Garvey Reservoir is approximately $3.25 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 $98.2 million to $102.5 million.

The Metropolitan Water District of Southern California

Subconsultants for Agreement with Arcadis U.S., Inc.
Garvey Reservoir Rehabilitation

Subconsultant and Location	Service Category; Specialty
Hilts Consulting Group, Inc. Yorba Linda, CA	Structural Design; Reservoir Cover and Liner Design
Paul Hansen Engineering Rancho Palos Verdes, CA	Cost estimating
AirX Utility Surveyor, Inc Ontario CA	Utility Locating and Potholing Services
WestLAND Group, Inc Ontario, CA	Utility Mapping
HMC Architects Los Angeles, CA	Architectural Design
SC SOLUTIONS Sunnyvale, CA	Seismic Analysis


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
Garvey Reservoir
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

Garvey Reservoir Rehabilitation

Item 7-5

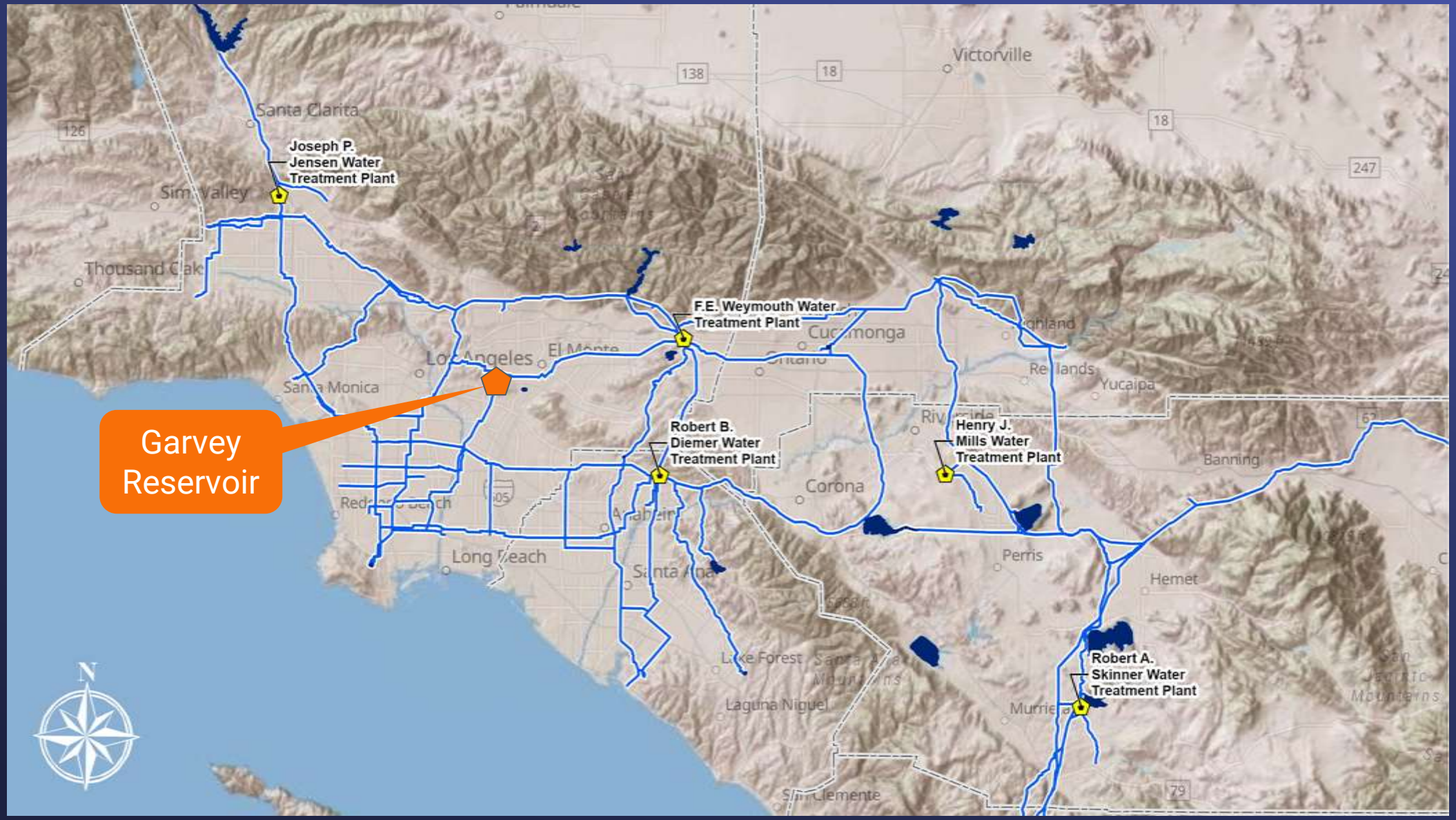
April 10, 2023

Garvey Reservoir Rehabilitation

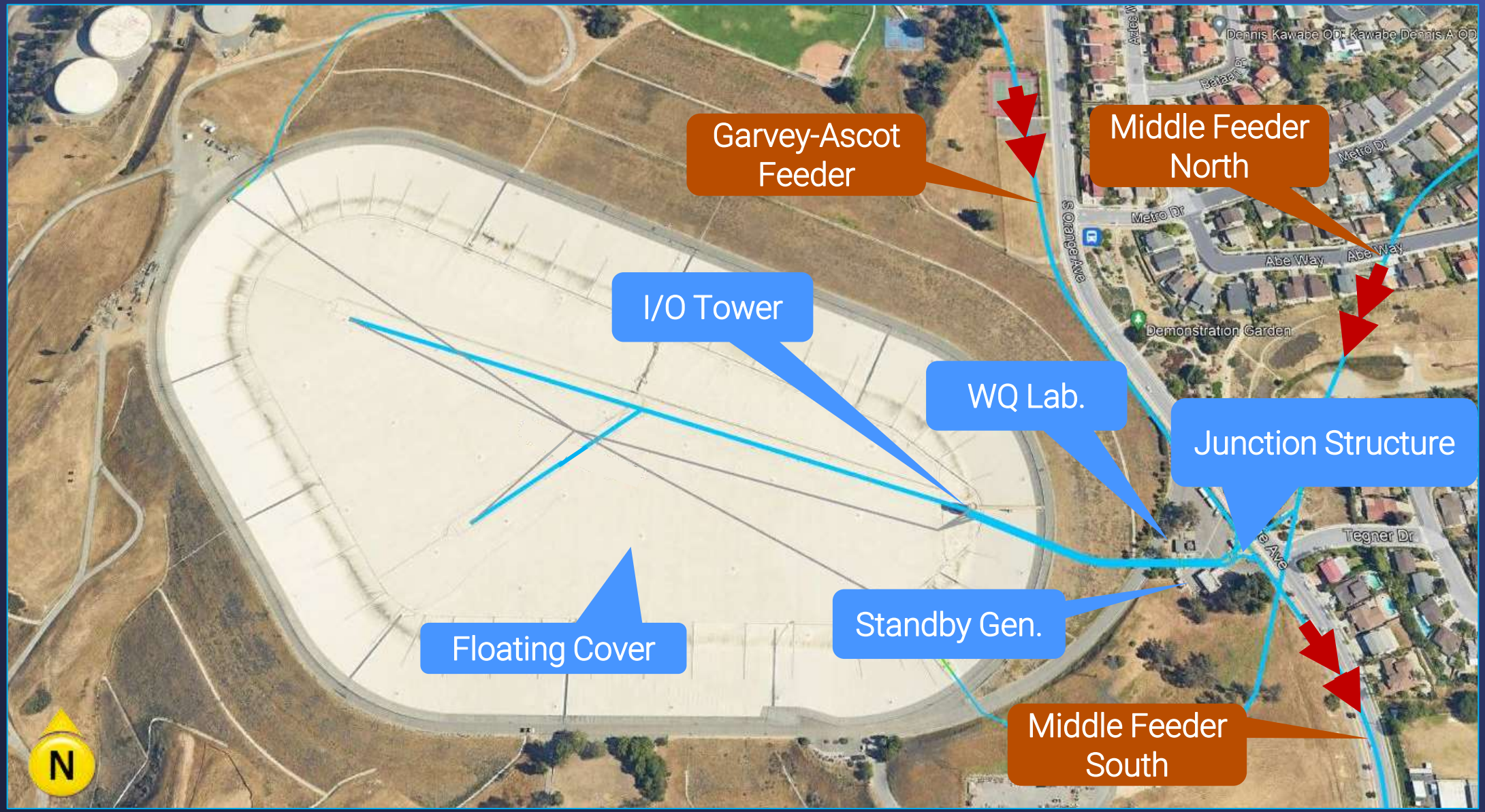
Current Action

- Authorize an increase of $5.4 million to an existing agreement with Arcadis U.S., Inc., for a new not-to-exceed total amount of $6.35 million, for engineering design services to rehabilitate Garvey Reservoir facilities

Distribution System



Garvey Reservoir – Vicinity Map



Garvey Reservoir Rehabilitation

Background

- Reservoir constructed in 1954
- Cover and liner installed in 1999
  - At end of service life
- Need for structural strengthening of outlet tower and water quality building identified
- Stand-by generator and junction structure valves at end of service life

Cover Leakage

Standby Generator

Garvey Reservoir Rehabilitation

Project Scope

- Reservoir rehabilitation
  - Replace floating cover and liner
  - Strengthen outlet tower
  - Modify inlet pipe to improve mixing
- Water quality lab rehabilitation
- Replace standby generator, junction structure valves, and perimeter fence

Outlet Tower

Water Quality Lab

Garvey Reservoir Rehabilitation

Alternatives Considered

- Metropolitan staff to complete all design activities
  - Resource needs exceed staff availability
- Selected alternative
  - Staff and consultant work as a team
    - Maximize use of in-house staff to develop and reinforce areas of core competencies
    - Use consultant for specialized technical design or as-needed for discrete project elements

Arcadis U.S., Inc. – Agreement

Garvey Reservoir Rehabilitation

- Competitively selected under RFP 1255
- Scope of work for final design of floating cover, liner, outlet tower, standby generator, and water quality lab includes:
  - Preparation of drawings and technical specifications
  - Construction cost estimates
  - Value engineering
- Not to exceed amount: $6.35 M
- Small Business Enterprise (SBE) participation level: 25%

Garvey Reservoir Rehabilitation

Metropolitan Scope of Work

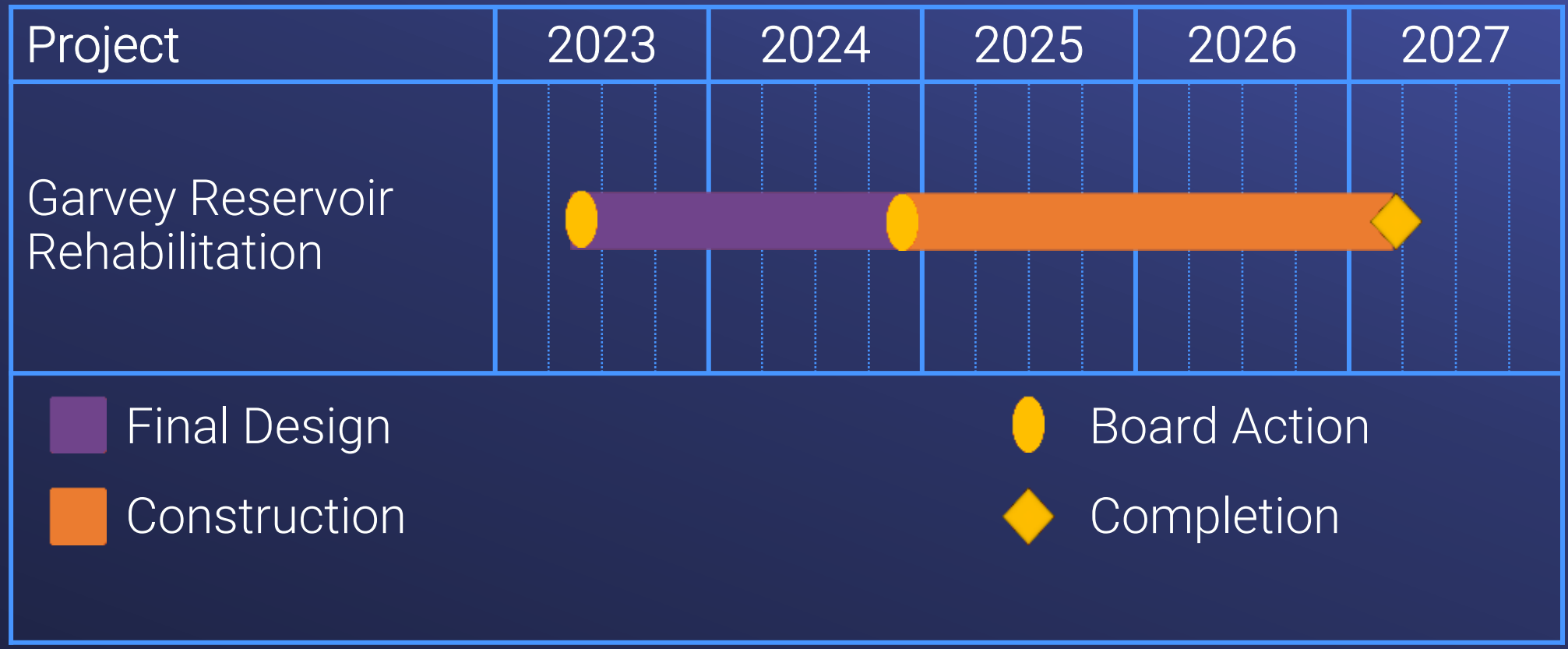
- Prepare final design for
  - Procurement of valves
  - Perimeter fence
- Review consultant work
- Support environmental consultant
- Plan necessary shutdowns
- Conduct value engineering and public outreach
- Obtain necessary permits
- Perform project management

Allocation of Funds

Garvey Reservoir Rehabilitation

Metropolitan Labor	
Final Design	$ 1,900,000
Owners Costs (Proj. Mgmt., Contract Admin., Envir. Support)	834,000
Professional/Technical Services	
Arcadis U.S., Inc.	5,400,000
Other Costs (Value Eng., Geotech. Inv., Pub. outreach, Envir. Doc.)	440,000
Remaining Budget	326,000
Total	$ 8,900,000

Project Schedule



Board Options

- Option #1
  - Authorize an increase of $5.4 million to an existing agreement with Arcadis U.S., Inc., for a new not-to exceed total amount of $6.35 million, for engineering design services to rehabilitate Garvey Reservoir.
- Option #2
  - Do not proceed with the agreement increase at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

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

4/11/2023 Board Meeting

7-6

Subject

Authorize an agreement with Canary Systems California, LLC, for an amount not to exceed $1.95 million to upgrade the data acquisition systems at Diamond Valley Lake and Garvey Reservoir; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The data acquisition systems at Diamond Valley Lake (DVL) and Garvey Reservoir automatically collect data from instrumentation in and around the dams. This data is collected and monitored to prepare mandatory reports for submission to the California Division of Safety of Dams (DSOD), and to provide early indication of any potential problems with the dam embankments or foundations. The current complement of instruments, monitoring equipment, and data acquisition software and hardware was installed in the late 1990s at DVL and in 2011 at Garvey Reservoir and is reaching the end of its service life. New data acquisition systems are needed to maintain Metropolitan's ability to continuously monitor dam performance and to comply with the dams' operating permits. This action authorizes an agreement to upgrade the automated data acquisition systems at DVL and Garvey Reservoir.

Details

Background

DVL is Southern California's largest surface water reservoir, with a maximum storage capacity of 810,000 acre-feet. The facility 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 began operation in 2000 and is located south of the city of Hemet in Riverside County. Garvey Reservoir was constructed in 1954 as a component of the Middle Feeder system. The reservoir receives treated water from the F. E. Weymouth Water Treatment Plant and has a maximum storage volume of 1,600 acre-feet. The reservoir provides critical hydraulic flexibility to Metropolitan's distribution system by stabilizing flows within the Middle Feeder. Garvey Reservoir also ensures deliveries to member agency service connections when pipelines are shut down for maintenance.

Extensive dam monitoring systems were installed at DVL and Garvey Reservoir to provide early warning signs of potential dam distress and to monitor the real-time performance of the embankments and foundations. The dam monitoring systems typically use data acquisition systems to automatically read, store, and transmit measurements from piezometers, settlement sensors, seepage weirs, inclinometers, extensometers, anchor load cells, and strong motion accelerographs. The data is then transmitted through Metropolitan's wide area network to the Headquarters Building at Union Station and to the Operations Control Center at Eagle Rock, where it enables continuous monitoring of dam performance, detection of potential conditions requiring a prompt response, and compilation of regulatory reports required by DSOD.

At DVL, approximately 300 instruments, including seepage weirs, accelerographs, piezometers, and anchor load cells installed in the inlet/ outlet tower, are relied upon to collect key data and relay that information to Metropolitan's monitoring systems. For Garvey Reservoir, approximately 50 instruments, including piezometers, underdrain flow transducers, and liner drain flowmeters, collect key data and relay that information for monitoring purposes. Over the last decade, hardware and power components of these systems have been deteriorating with an increasing frequency of failures at both facilities, resulting in incomplete or inaccurate data

sets, which require extensive manual corrections. Repair of the system components has become increasingly difficult as the units are no longer manufactured, and spare parts are no longer readily available to reliably record instrumentation data at both reservoirs. The original electronic hardware, including radios, motherboards, and power regulators, is also showing signs of deterioration.

Staff recently completed Request for Qualifications (RFQ) No. 1318 to establish a pool of qualified candidates to replace the automated data acquisition system at Garvey Reservoir and DVL. Staff recommends authorizing a professional service agreement based on the results of this RFQ to replace the automated data acquisition systems at both reservoirs.

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.

Automated Data Acquisition System Upgrades at DVL and Garvey Reservoir – Procurement and Installation

Planned upgrades include replacement of the existing remote monitoring units, piezometer, seepage weir sensors, radio equipment, power systems, and communications components. The upgraded system will utilize a cloud solution that will host the software for storing and post-processing of the data as well as providing a dashboard for real-time data reporting and continuous monitoring. The upgraded system will include the ability to alert staff if any instrumentation measurements that exceed pre-defined thresholds.

The scope of work for the implementation of automated data acquisition system upgrades consists of field evaluations, system design, instrumentation, and automatic data acquisition equipment replacement, as well as data management storage and preparation of dashboard reports. This work is planned to be conducted by a consultant and Metropolitan staff. Canary Systems California, LLC (Canary Systems) will design the new and upgraded system; provide the new instrumentation and automatic data acquisition equipment; and program and commission the new system. Metropolitan staff will remove the obsolete system components and perform construction work, including grading, excavation, and installing equipment. Metropolitan staff will also provide geotechnical support, perform related structural and electrical design, conduct overall project management, and perform technical reviews.

A total of $3.48 million is required to complete this work. Allocated funds include $1.95 million for design, procurement, and installation activities by Canary Systems, as described above. Allocated funds for Metropolitan staff include $500,000 for Metropolitan force construction as described above; $392,000 for design activities and technical oversight of consultant's work; $107,000 for submittals review, response to technical requests for information, and preparation of record drawings; $275,000 for environmental support, agreement administration, and project management; and $256,000 for remaining budget. **Attachment 1** provides the allocation of the required funds. The total estimated cost to upgrade the dam monitoring systems at DVL and Garvey Reservoir, including the amount allocated to date and funds allocated for the work described in this action, is $5.88 million.

Engineering Services (Canary Systems California, LLC) – New Agreement

Canary Systems California, LLC is recommended to provide engineering services to complete design, equipment procurement, programming, and commissioning of the upgraded dam monitoring systems and data management for DVL and Garvey Reservoir. Canary Systems was prequalified under RFQ No. 1318, which established a prequalified list of firms to provide engineering services for dam monitoring systems. Staff received responses to the RFQ from six firms. Staff evaluated each firm based on its qualifications and staffing plan, costs, record of past performance, references, technical approach and methodology, guarantee of support and spare parts, environmental sensitivity, and project schedule. Canary Systems was selected to provide the needed services based on the evaluation of the above-listed criteria set forth in the RFQ.

The planned activities for Canary Systems at each site include: (1) field evaluations at DVL and Garvey Reservoir; (2) conducting workshops with Metropolitan staff to assess the existing monitoring systems, computer

database, and historical data migrations; (3) development of design criteria, data flow diagrams, and deployment requirements for the proposed system; (4) furnishing the required hardware for the proposed system; (5) system, programming, commissioning, and testing; and (6) real-time data management and dashboarding.

This action authorizes an agreement with Canary Systems for a not-to-exceed amount of $1.95 million to upgrade the automated data acquisition systems at DVL and Garvey Reservoir. For this agreement, Metropolitan has established a Small Business Enterprise (SBE) participation level of at least 25 percent. Canary Systems California, LLC is an SBE firm and thus achieves 100 percent participation. There are no planned sub-consultants for this work.

Alternatives Considered

Alternatives considered for upgrading Metropolitan's dam monitoring systems included using a traditional design-bid-build procurement strategy wherein prescriptive specifications for equipment and software would be developed by staff for advertisement for competitive bidding. With this approach, Metropolitan is responsible for coordination between the designer, specialized equipment supplier, and the contractor.

The selected option of authorizing an agreement for the design, procurement, and integration of dam monitoring systems at DVL and Garvey Reservoir allows Metropolitan to select an industry expert to perform a specialized, project-based service, minimizes the risk of potential compatibility issues between system data acquisition and software required for post-processing and reporting of the data, and offers a competitively bid best value for Metropolitan. Further, Metropolitan forces can effectively execute the construction work associated with installation.

Summary

This action authorizes a new agreement with Canary Systems California, LLC for a not-to-exceed amount of $1.95 million for design, procurement, programming, commissioning, and data management to upgrade the instrumentation and automated data acquisition systems at DVL and Garvey Reservoir. See **Attachment 1** for the Allocation of Funds, and **Attachment 2** for the Location Map.

Project Milestone

June 2024 – Complete implementation of dam monitoring system upgrades at DVL and Garvey Reservoir

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 50527, dated July 12, 2022, the Board authorize design and installation of Stage 1 upgrades to the dam monitoring system at Diamond Valley Lake.

By Minute Item 50943, dated September 12, 2017, the Board authorized upgrades to the geodetic deformation monitoring system at Diamond Valley Lake.

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 Diamond Valley Lake project was previously determined to be categorically exempt under the provisions of CEQA and State CEQA Guidelines. The Board found this project to be categorically exempt under Class 1, Section 15301; Class 2, Section 15302; and Class 3, Section and 15303 of the State CEQA Guidelines on July 12, 2016. A Notice of Exemption (NOE) was filed on the project at that time, and the statute of limitations has ended. With the current Board action, there is no substantial change proposed to the project since the original NOE was filed. Hence, the previous environmental documentation in conjunction with the project fully complies

with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act with regard to the proposed action.

The Garvey Reservoir project is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves funding of minor modifications, reconstructions, or replacements, along with the construction and location of limited numbers of new, small facilities or structures facilities involving negligible or no expansion of use and no possibility of significantly impacting the physical environment. The proposed action may involve minor modifications in the condition of land, water, and/or vegetation, which does not involve removal of healthy, mature, scenic trees. In addition, 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 action qualifies for Class 1, Class 2, Class 3, Class 4, and Class 6 Categorical Exemptions (Sections 15301, 15302, 15303, 15304, and 15306 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an agreement with Canary Systems California, LLC, for an amount not to exceed $1.95 million to upgrade the data acquisition systems at Diamond Valley Lake and Garvey Reservoir.

Fiscal Impact: Expenditure of $3.48 million in capital funds. All costs will be incurred in the current biennium and have been previously appropriated.
Business Analysis: This option will enhance the reliability and safety of DVL and Garvey Reservoir and will maintain the capability to continuously monitor dam performance in compliance with DSOD reporting requirements.

Option #2

Do not proceed with the project at this time.
Fiscal Impact: None
Business Analysis: This option would forego an opportunity to protect Metropolitan's assets and enhance the capability to monitor the performance of dams at DVL and Garvey Reservoir.

Staff Recommendation

Option #1

3/23/2023

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

3/24/2023

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Budgeted Funds

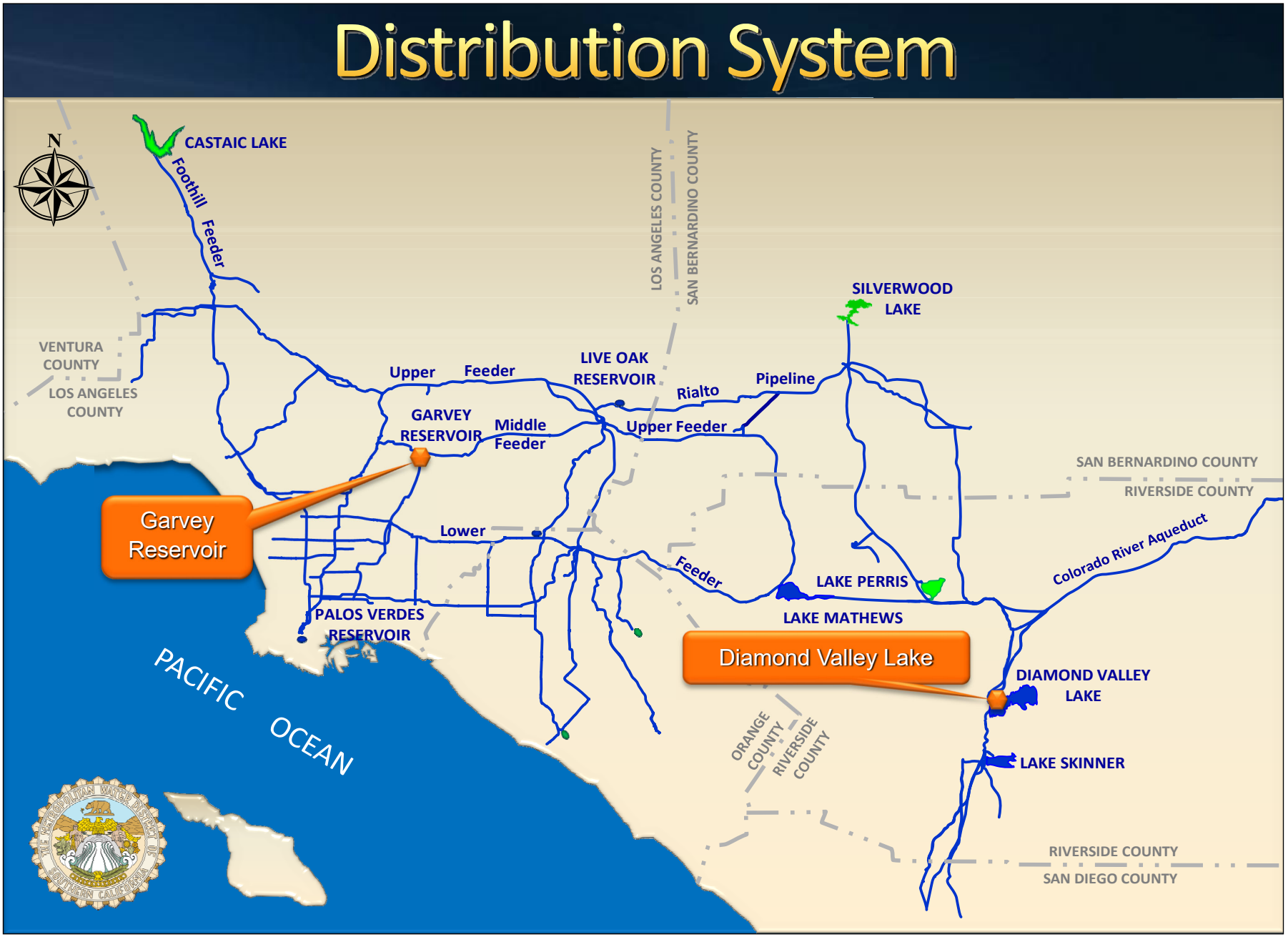
Attachment 2 – Location Map

Ref# es12686952

Allocation of Funds for DVL and Garvey Reservoir Dam Acquisition System Upgrades

	Current Board Action (Apr. 2023)
Labor	
Studies & Investigations	$ -
Final Design	392,000
Owner Costs (Program mgmt., Agreement Admin.)	275,000
Submitals Review & Record Drwgs.	107,000
Construction Inspection & Support	-
Metropolitan Force Construction	500,000
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Canary Systems California, LLC	1,950,000
Right-of-Way	-
Equipment Use	-
Contracts	-
Remaining Budget	256,000
Total	**$ 3,480,000**

The total amount expended to date for the dam monitoring system upgrades at Diamond Valley Lake and Garvey Reservoir is approximately $2.4 million. The total estimated cost to complete this project, including the amount appropriated to date and funds allocated for the work described in this action, is $5.88 million.


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
Garvey Reservoir
Lower Feeder
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
Diamond Valley Lake
DIAMOND VALLEY LAKE
PACIFIC OCEAN
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY

Engineering, Operations, & Technology Committee

Diamond Valley Lake and Garvey Reservoir Data Acquisition Systems Upgrades

Item 7-6

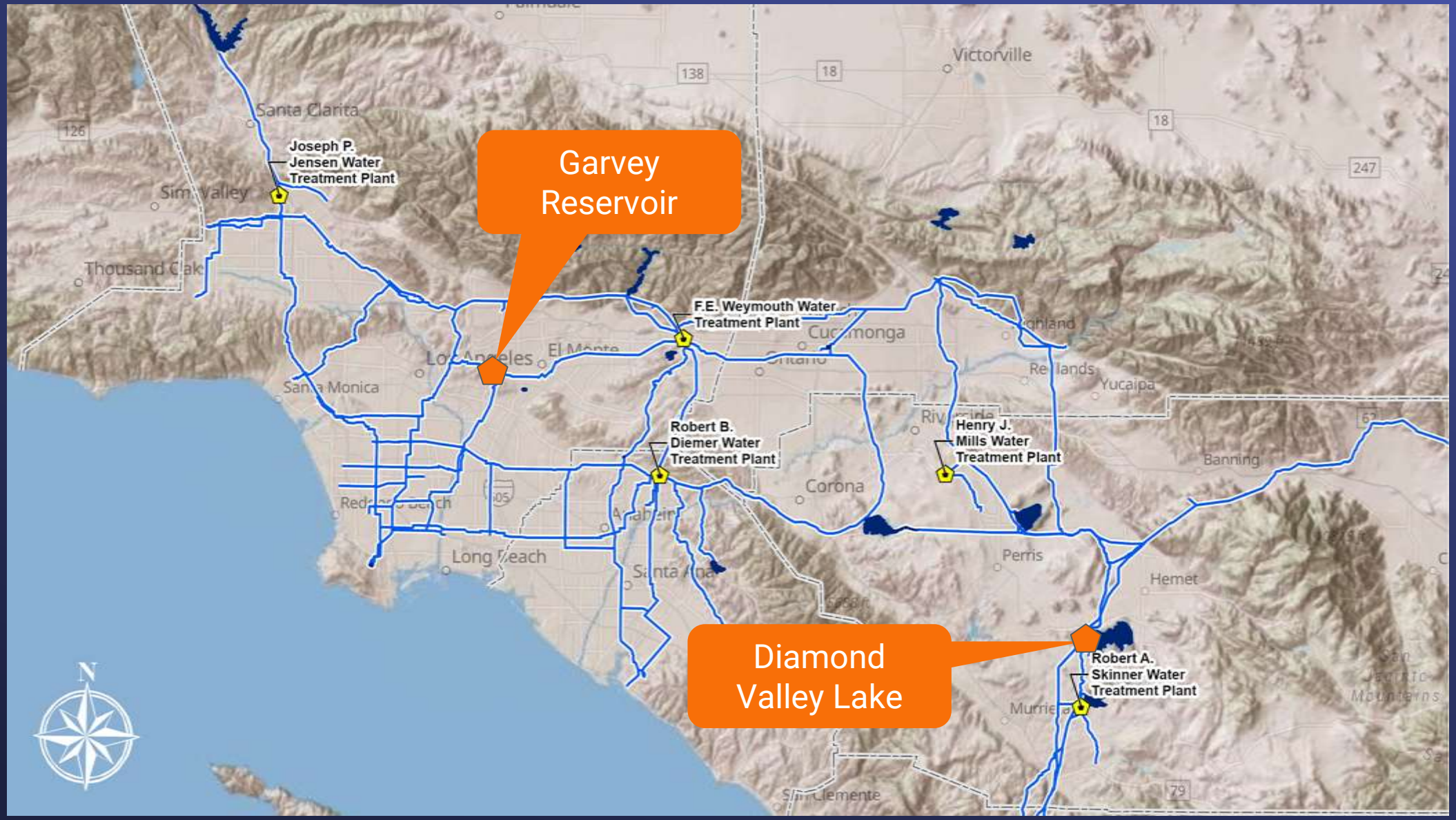
April 10, 2023

Automated Data Acquisition System Upgrades
Diamond Valley Lake and Garvey Reservoir

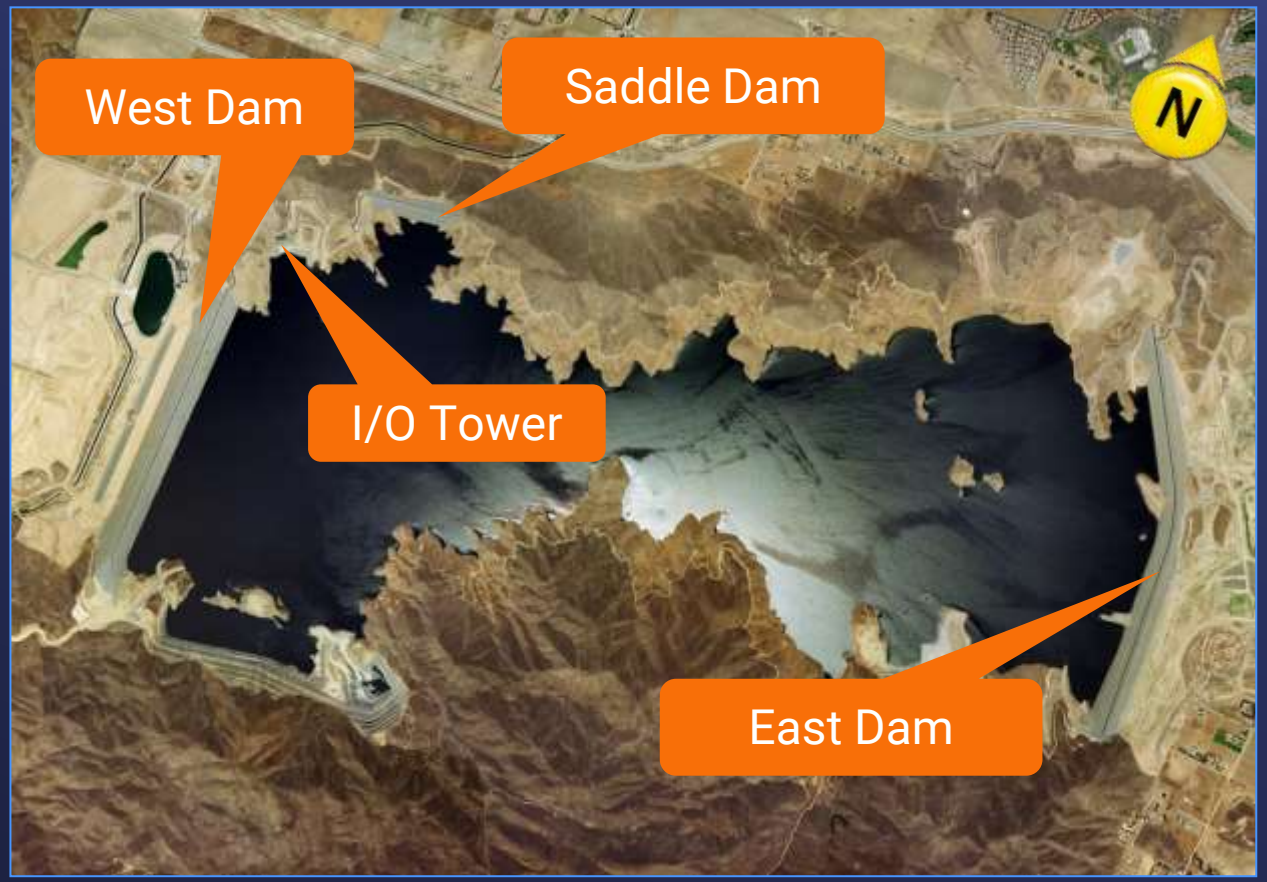
Current Action

- Authorize an agreement with Canary Systems California, LLC, for an amount not to exceed $1.95 million to upgrade the data acquisition systems at Diamond Valley Lake and Garvey Reservoir

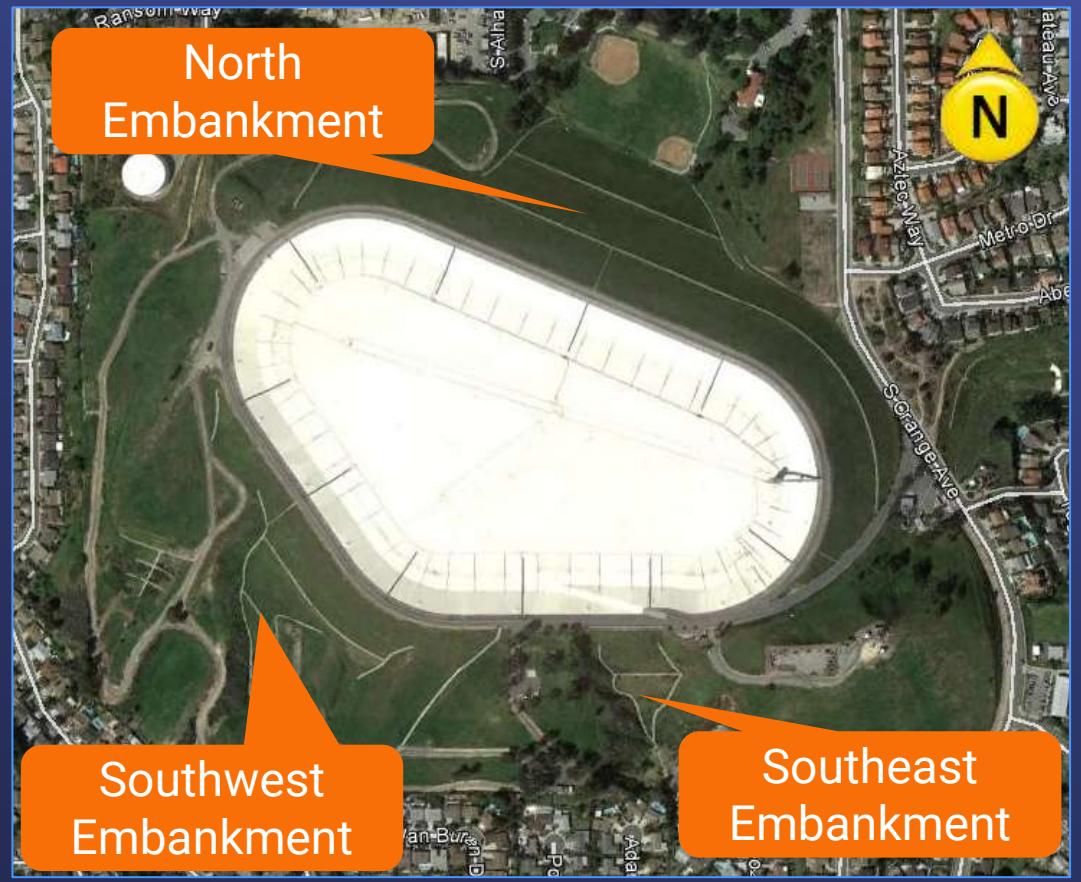
Distribution System



Background – Diamond Valley Lake

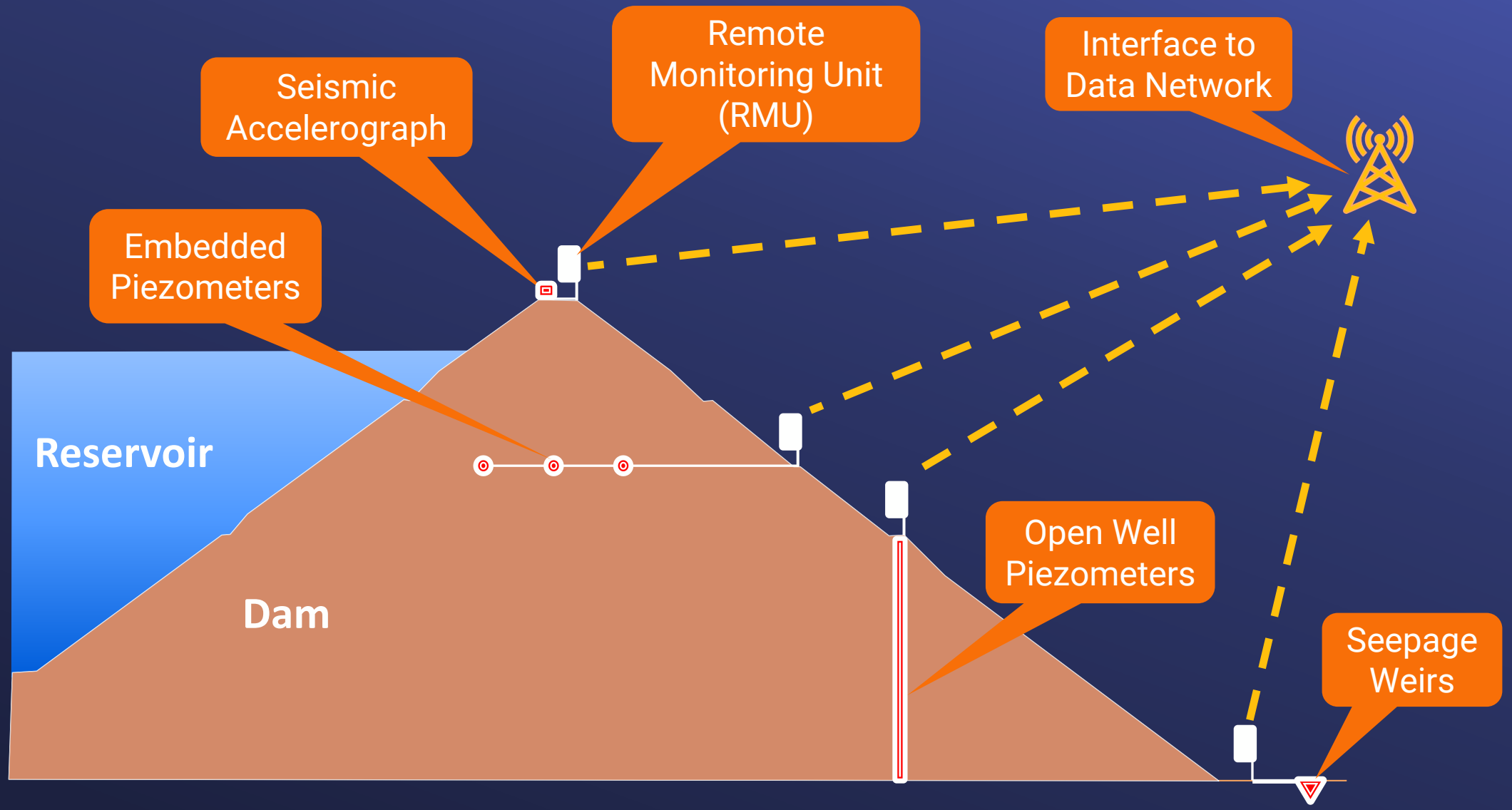


Diamond Valley Lake



Garvey Reservoir

Background – Automated Data Acquisition System



Diamond Valley Lake and Garvey Reservoir
Data Acquisition System Upgrades

Background

- Data from dam safety instrumentation:
  - Necessary to monitor dam performance
  - Included in mandatory California Division of Safety of Dams (DSOD) reports
- Systems are reaching the end of their service life:
  - Hardware parts are obsolete
  - Software is no longer supported

DVL Typical RMU

Garvey Typical RMU

Diamond Valley Lake and Garvey Reservoir
Data Acquisition System Upgrades

Alternatives Considered

- Traditional design-bid-build
  - Requires significant coordination
  - Potential for hardware/software compatibility issues
- Selected alternative
  - Utilize industry expert to design system and provide hardware and software
  - Utilize Metropolitan forces for installation of new equipment

Diamond Valley Lake and Garvey Reservoir
Data Acquisition System Upgrades

Canary Systems – New Agreement

- Selected under RFQ 1318
- Scope of Work:
  - Field evaluations and design workshops
  - Development of design criteria
  - Furnishing new system hardware
  - System programming, commissioning and testing
  - Real-time data management and dashboarding
- Not to exceed amount: $1,950,000
- Small Business Enterprise (SBE) participation level: 100%

Diamond Valley Lake and Garvey Reservoir Data Acquisition System Upgrades

Metropolitan Scope of Work

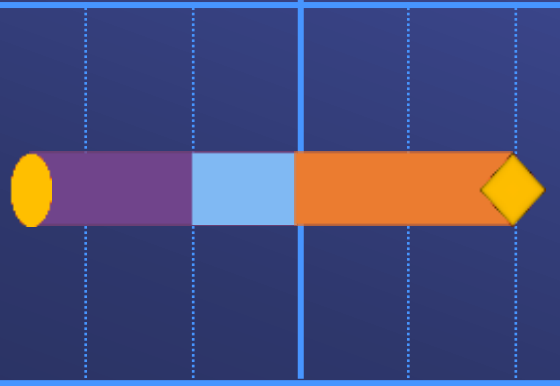
- Geotechnical, structural, and electrical design support
- Technical reviews
- Removal of old equipment
- Installation of new equipment
- Acceptance testing
- Project management

Allocation of Funds

Automated Data Acquisition System Upgrades at DVL and Garvey Reservoir

Metropolitan Labor	
Final Design	$ 392,000
Owners Costs (Proj. Mgmt., Contract Admin., Envir. Support)	275,000
Force Construction	500,000
Submittals Review, Tech. Support, Record Dwgs.	107,000
Professional/Technical Services	
Canary Systems California, LLC	1,950,000
Remaining Budget	256,000
Total	$ 3,480,000

Project Schedule

Project	2023	2024
Automated Data Acquisition System Upgrades at DVL and Garvey Reservoir		

Final Design
Procurement
Construction
Board Action
Completion

Board Options

- Option #1
  - Authorize an agreement with Canary Systems California, LLC, for an amount not to exceed $1.95 million to upgrade the data acquisition systems at Diamond Valley Lake and Garvey Reservoir.
- Option #2
  - Do not proceed with the project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA

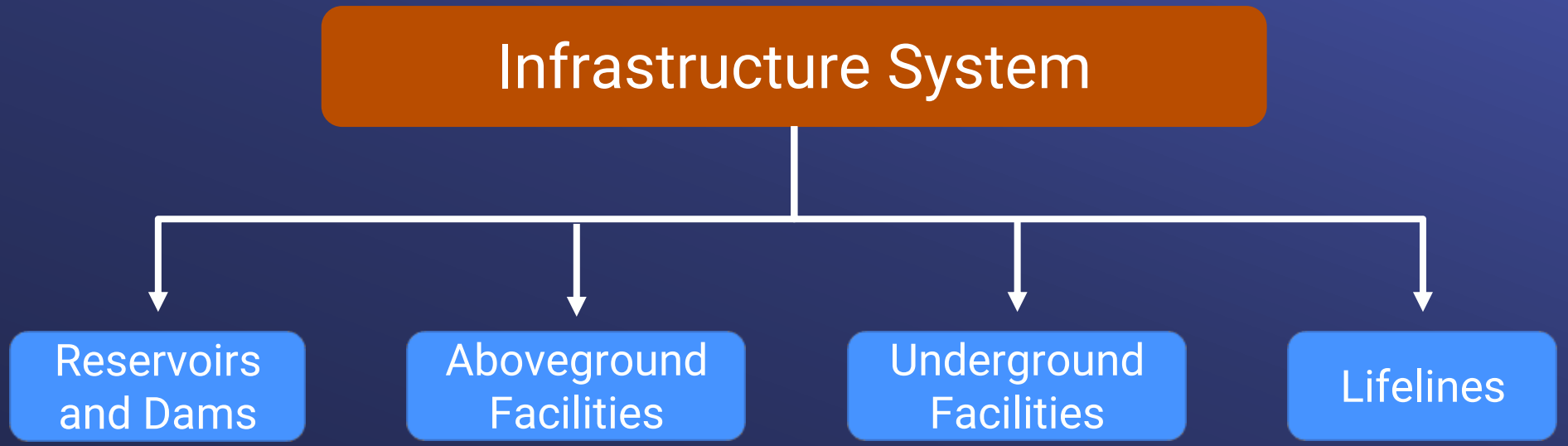
Engineering, Operations, & Technology Committee

Annual Seismic Resilience Update

Item 7a

April 10, 2023

Main Components of Metropolitan's Infrastructure System

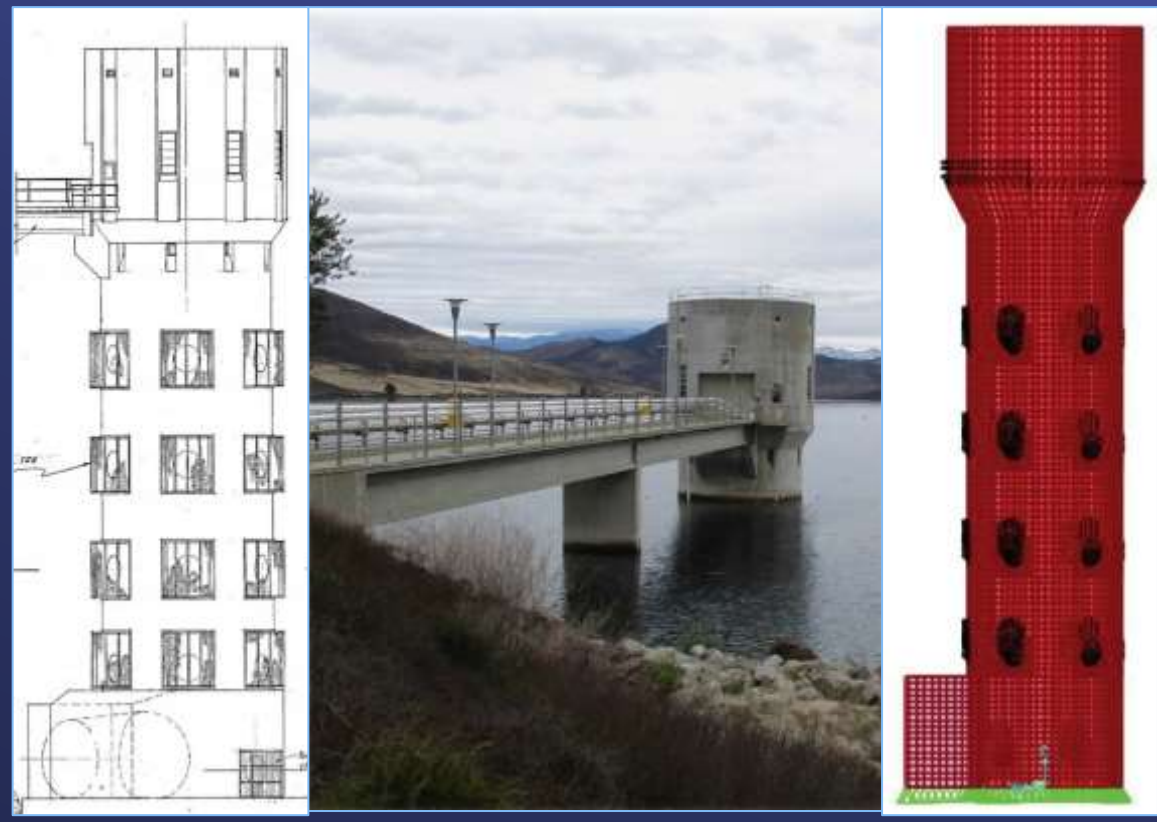


Each category is assessed by Metropolitan to understand and ensure its satisfactory performance and resilience under seismic events

Status Update

1. Dams and Reservoirs

- Lake Skinner Outlet Tower Seismic Evaluation
  - Preliminary analysis completed
  - Conducting advanced analysis
  - Replacing bottom-tier valves
- Weymouth Finish Water Reservoir
  - Seismic evaluation completed
  - Satisfactory seismic performance
- Garvey Reservoir Outlet Tower
  - Preliminary analysis completed
  - Tower strengthening as part of overall site improvements project
- Diemer Washwater Reclamation Plant No. 2
  - Preferred retrofit scheme identified

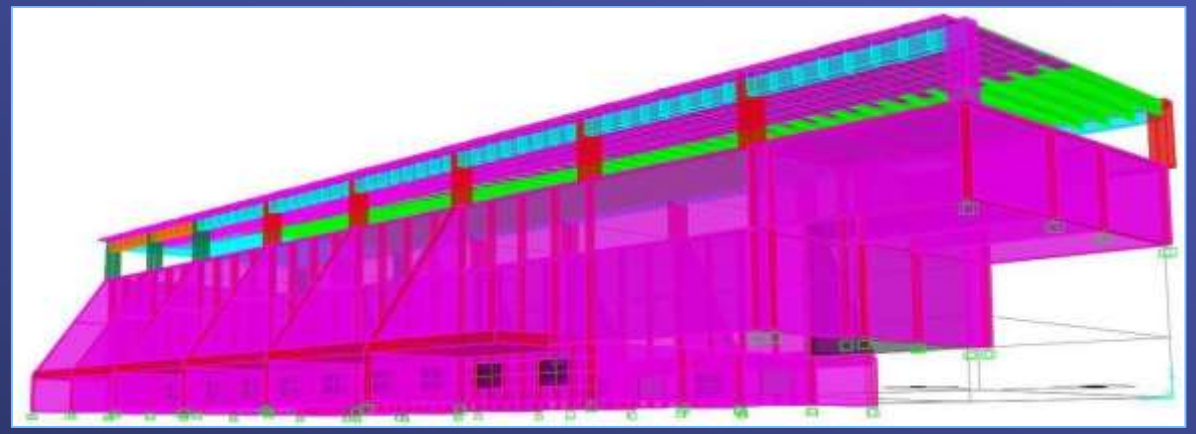


Lake Skinner Outlet Tower

Status Update

2. Aboveground Facilities

- Retrofit construction completed
  - Diemer West Filter Basin and Filter Building
  - LA Headquarters Building
    - Retrofit work completed
    - Fully ductile concrete building
    - Continuing functional and security improvements
- Projects in design and construction phases
  - Foothill Control Building
  - La Verne Water Quality Lab (WQL)
  - Weymouth Admin/Control Bldg.
- Rapid evaluation of post-1990 structures
  - Total structures identified: 28
  - 17 completed (12 O.K, 4 require detailed evaluation, 1 retrofitted)



Foothill Control Building - 3D Structural Model

Foothill Control Building

Status Update

3. Lifelines

- Casa Loma Siphon No. 1 in construction (95% completion)
  - Final tie-in completed in February
- DVL to Rialto Flexibility Improvement
  - Wadsworth Bypass Line is in construction
  - Remaining three contracts will be awarded in summer 2023
- 2nd Lower Feeder Reach 9
  - Fault crossing mitigation in preliminary design
- Eagle Lift and Eagle West Siphons Seismic Evaluation
  - Rapid eval. completed (detailed eval. recommended)
- Tasks deferred to 2023 due to limited resource
  - Updating tunnel risk assessment
  - Updating pipeline vulnerability assessment

Casa Loma Siphon No. 1 – Excavation (2022)

Casa Loma Siphon No.1 – ERDIP Joint Assembly

Status Update

4. Underground Structures

- 6300 underground structures in inventory
  - Meter structures
  - Valve structures
  - Access structures
  - Bifurcation structures
- Inspected 195 meter structures to assess existing condition
- Tasks deferred to 2023/2024 due to limited resource
  - Conduct initial screening of high-risk structures
  - Developing mitigation measures for high-risk structures identified as seismically deficient

Meter Structure

Access Structure

Status Update

Agency Partnerships

- Seismic Resilience Water Supply Task Force
  - Improve regional resilience through collaboration between three main imported-water agencies
- Conducted Task Force meeting in November 2022
  - Exchanged knowledge by sharing recent seismic resilience efforts
  - Collaborated on emergency response structure and exercise
- Future collaborations
  - Conducting joint emergency response exercise
- Updating emergency response plan

Colorado River Aqueduct

California Aqueduct

Los Angeles Aqueduct

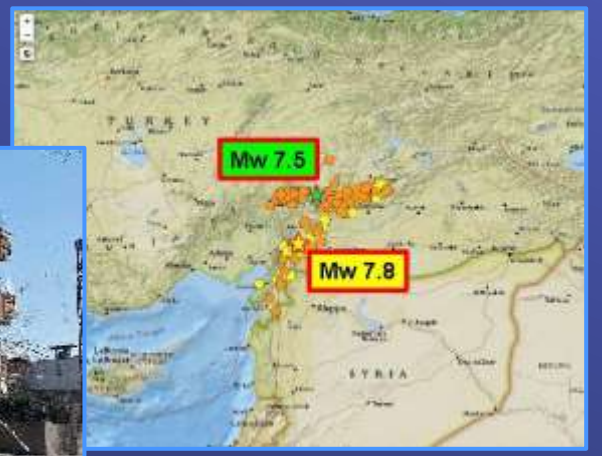
12th US-Japan-Taiwan Water System Seismic Conference

- Biennial events with regional water agencies and industry experts
  - January 30 to February 1, 2023
  - Held in Kumamoto, Japan
  - Kumamoto City experienced widespread damage in 2016 (two major earthquakes within 28 hours)
- Metropolitan participation
  - One of keynote speeches on seismic resilience strategies
  - Knowledge sharing on application of earthquake-resistant pipes (Casa Loma Siphon No. 1)

Kumamoto Castle: Damage in 2016 earthquake

February 2023 Turkey Earthquakes

- Two major earthquakes within 9 hours
  - Mw 7.8 and Mw 7.5
  - Approximately 50 miles between two epicenters
- Widespread damage to infrastructure
  - Dams
  - Transportation
  - Buildings
  - Lifelines
- Severe casualties due to collapsed buildings
  - Non-ductile concrete buildings
  - Under enforcement of building standards



Credit: USGS & Taiwan NCREE

Ductility in Concrete Buildings

- A ductile building may experience localized damage but would prevent catastrophic collapse
- Effective measures to improve ductility in concrete buildings
  - Confine concrete cores
  - Minimize damage at primary load-bearing members (columns/foundations)
  - Detail local members (beams/walls) to allow post-yield energy dissipation
  - Build in redundancy

Example of Non-ductile Building

Example of Column Failure

Example of Ductile Beam – HQ Building

Metropolitan's Concrete Buildings

- In compliance with seismic standards at the time of construction
- All non-ductile concrete buildings are being addressed
  - Mostly pre-1970 construction
  - Critical facilities have been retrofitted
    - CRA Pump Stations
    - LA Headquarters Building
    - Weymouth Filter Buildings
    - Diemer Filter Buildings
    - Diemer Admin Building
- Other facilities are being designed or in construction
  - Weymouth Admin/Control Building
  - La Verne Central Storage Building

Diemer Admin Building Seismic Upgrade


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA

Engineering, Operations, & Technology Committee

Jensen Operating Capacity Analysis

Item 7b

April 10, 2023

Jensen Water Treatment Plant

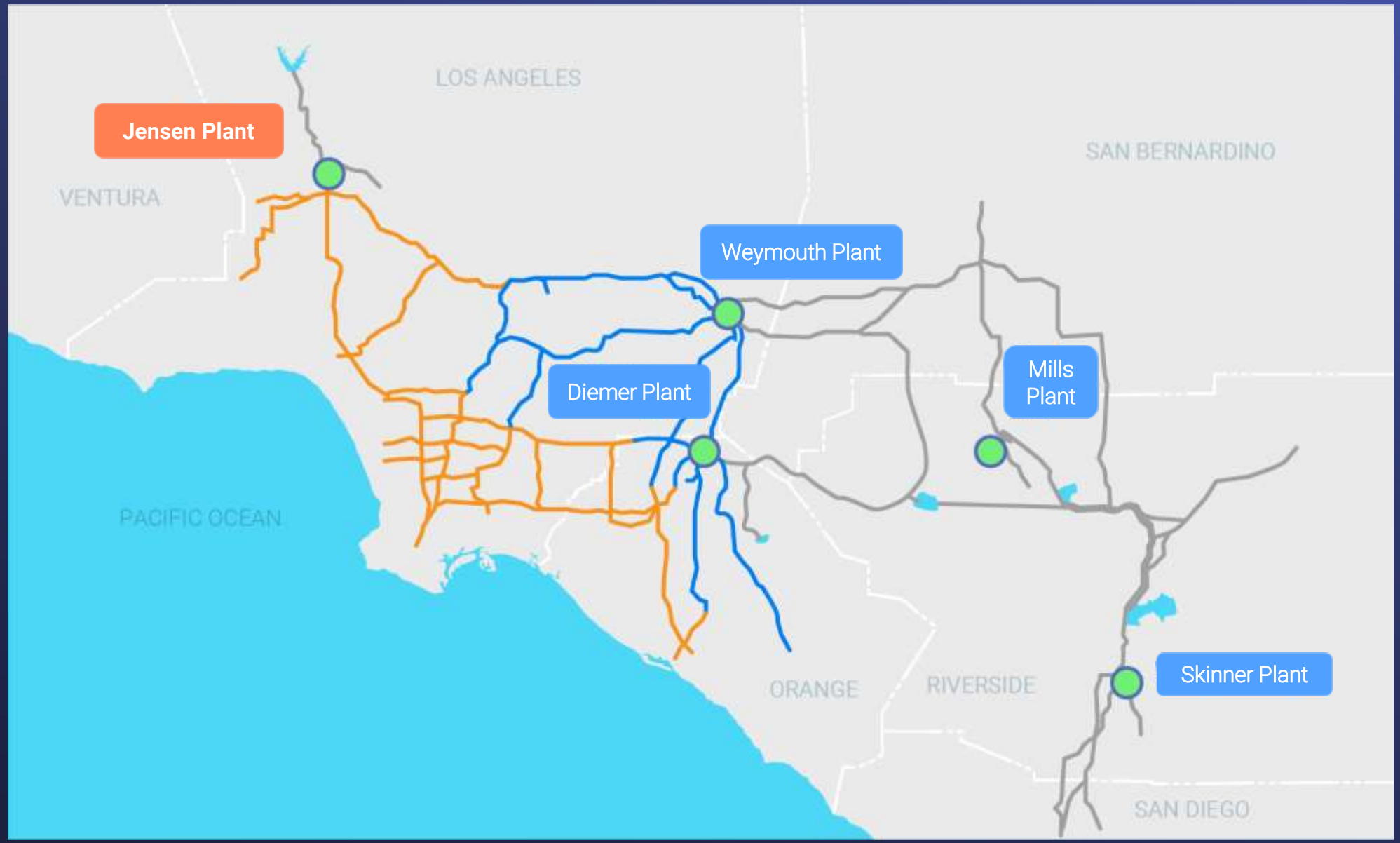
Jensen WTP Operating Capacity Study

Background

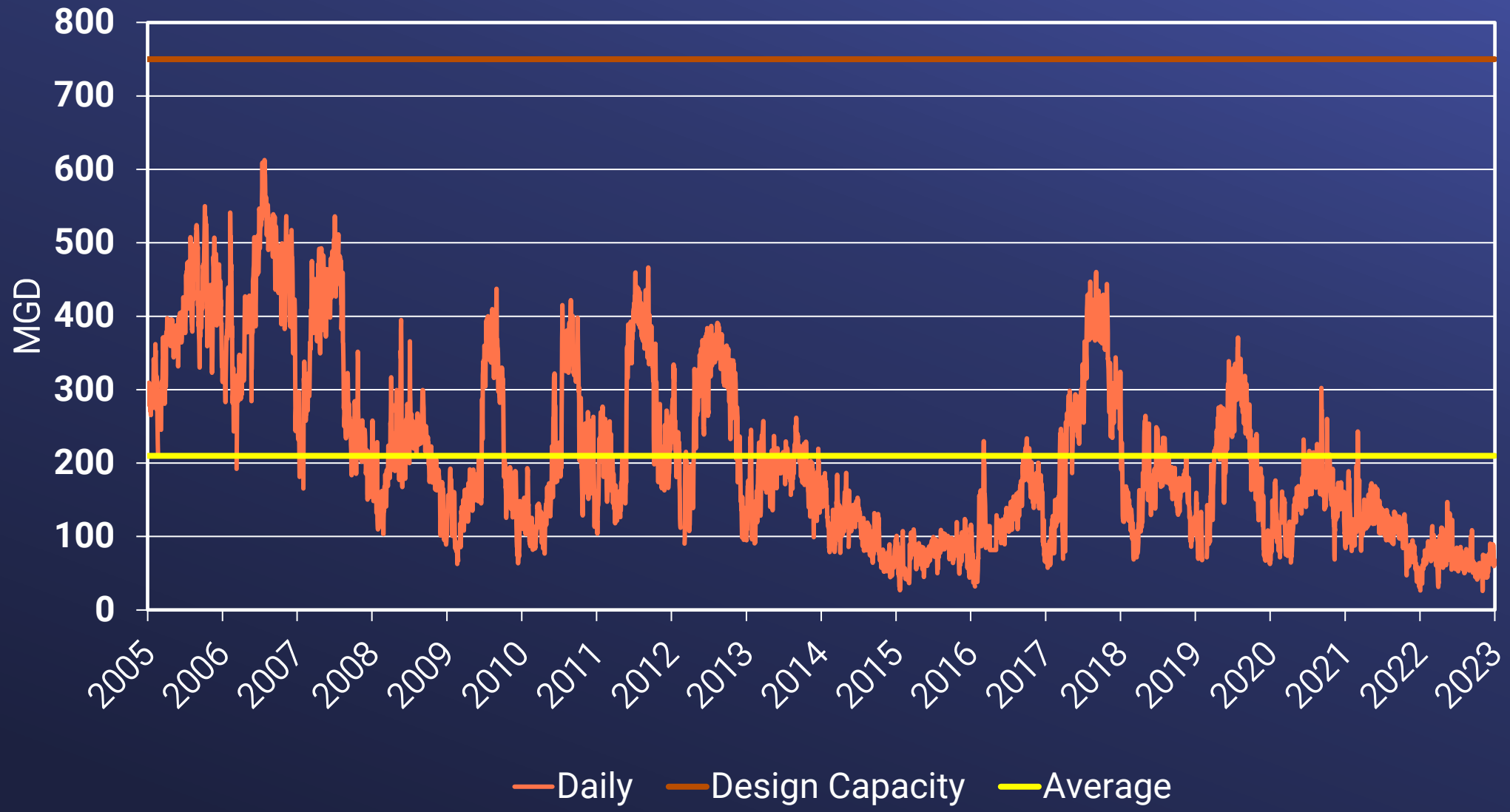
- Board policy to decommission unneeded treatment infrastructure and minimize future O&M & capital expenditures (April 2017)
- Capacity reduced at Mills Plant (late 1990s) and Skinner Plant (2017)
- Jensen Plant has experienced reduced flows and treatment capacity exists above peak demands
- Reduction in flow results from:
  - Conservation
  - Availability of State Water Project supplies

Jensen WTP – Service Area Minimized

Jensen WTP – Service Area Maximized

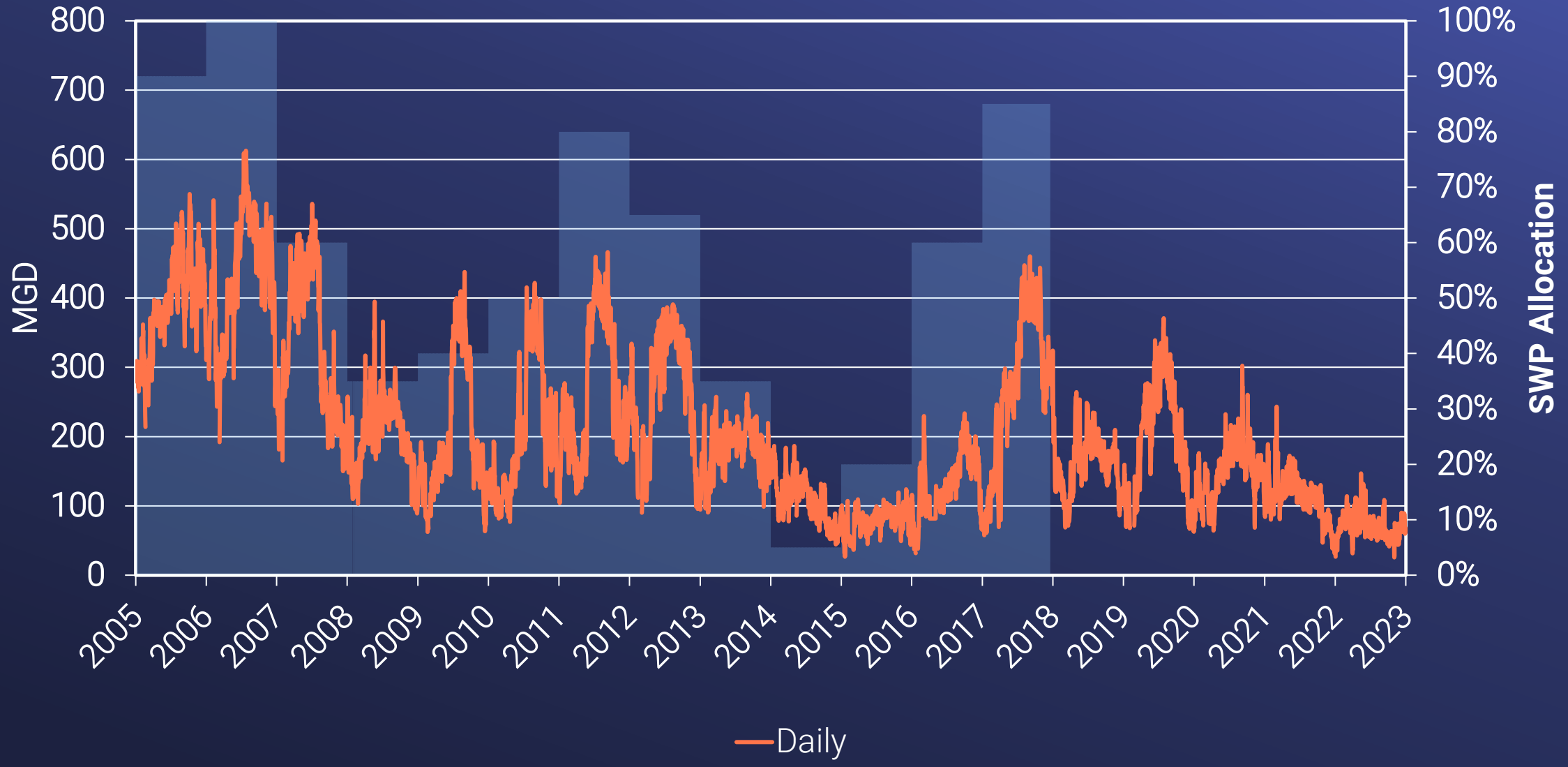


Historical Jensen Daily Flows (MGD)



Historical Jensen Daily Flows (MGD)

In Relation to SWP Allocation



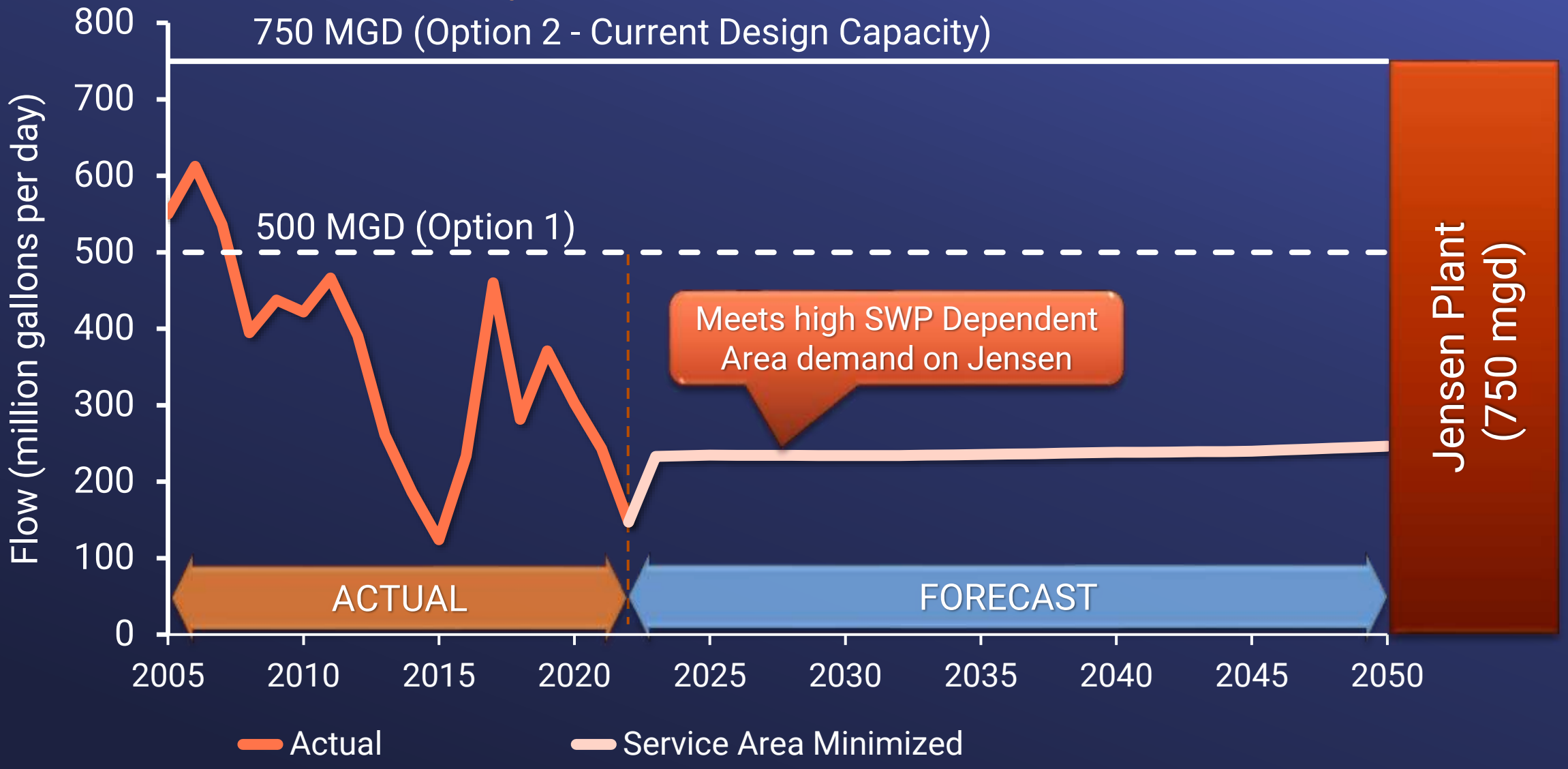
Two Options Under Consideration

Jensen WTP Operating Capacity Study

- Option 1
  - Reduce capacity to 500 MGD
- Option 2
  - Keep current rated capacity at 750 MGD

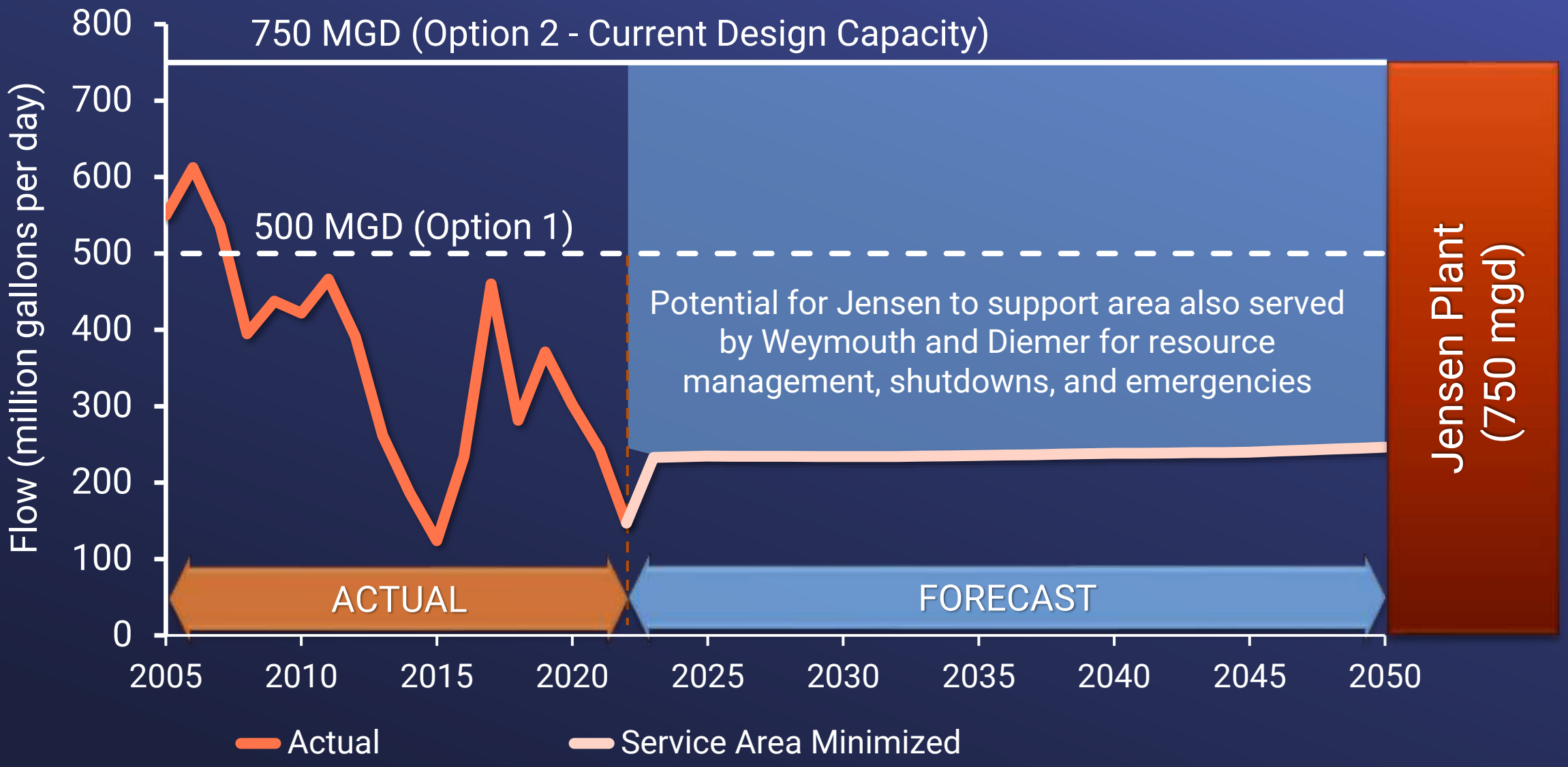
Jensen Plant Flow Forecast

(Based on Maximum Daily Plant Flows)



Jensen Plant Flow Forecast

(Based on Maximum Daily Plant Flows)



Design Capacity can be Exceeded on a Case-by-Case Basis

Jensen WTP Short-term Maximum Flows

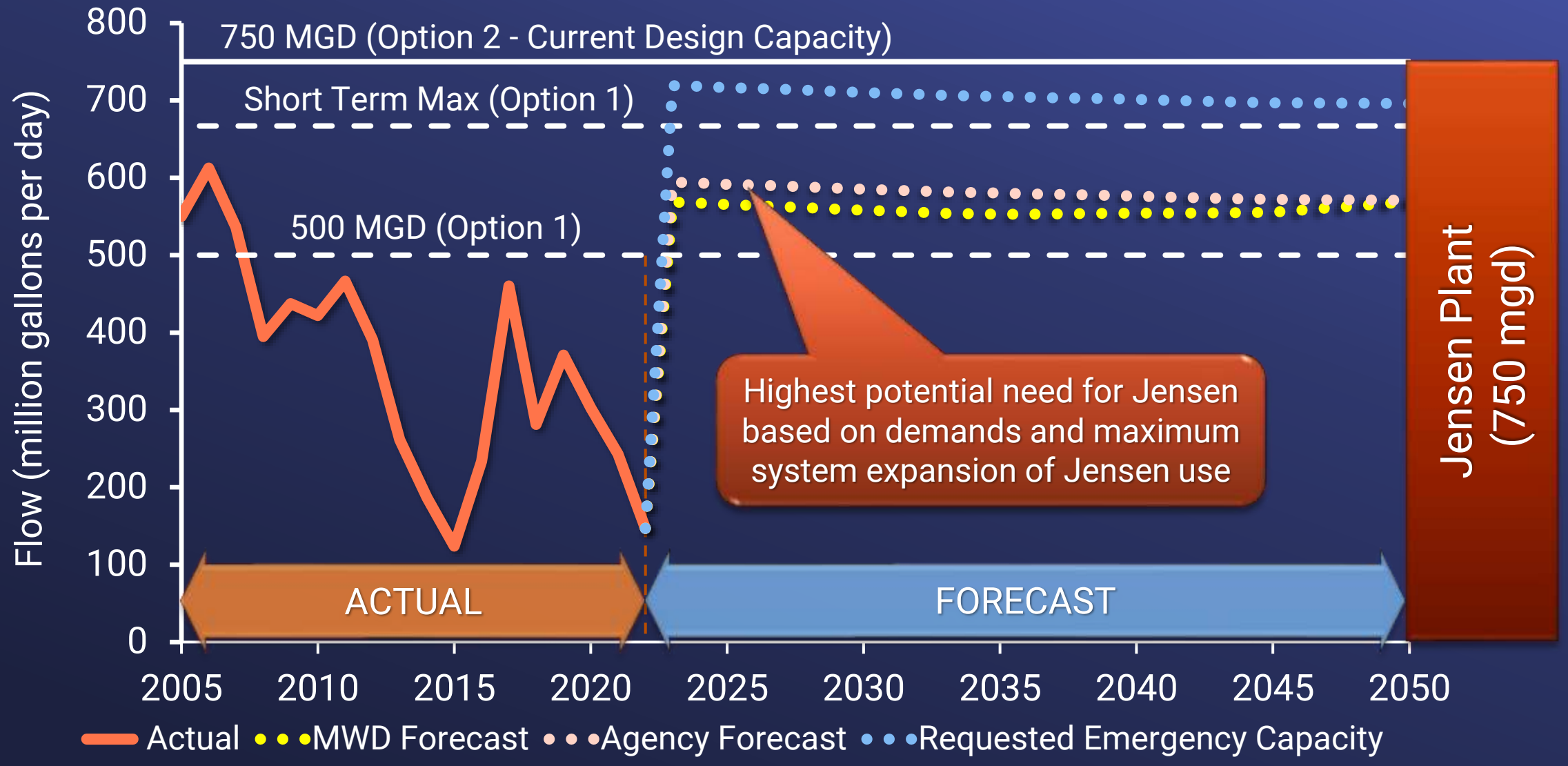
Capacity (MGD)	Option 1	Option 2
Design	500	750
Short-Term Maximum *	667	1,000

*Coordinated with DDW

- Sedimentation basins limit max. hydraulic capacity
- Less mechanical redundancy
- Requirements when operating above design
  - Favorable water quality
  - Additional monitoring
  - Slow, incremental flow changes
  - DDW notification

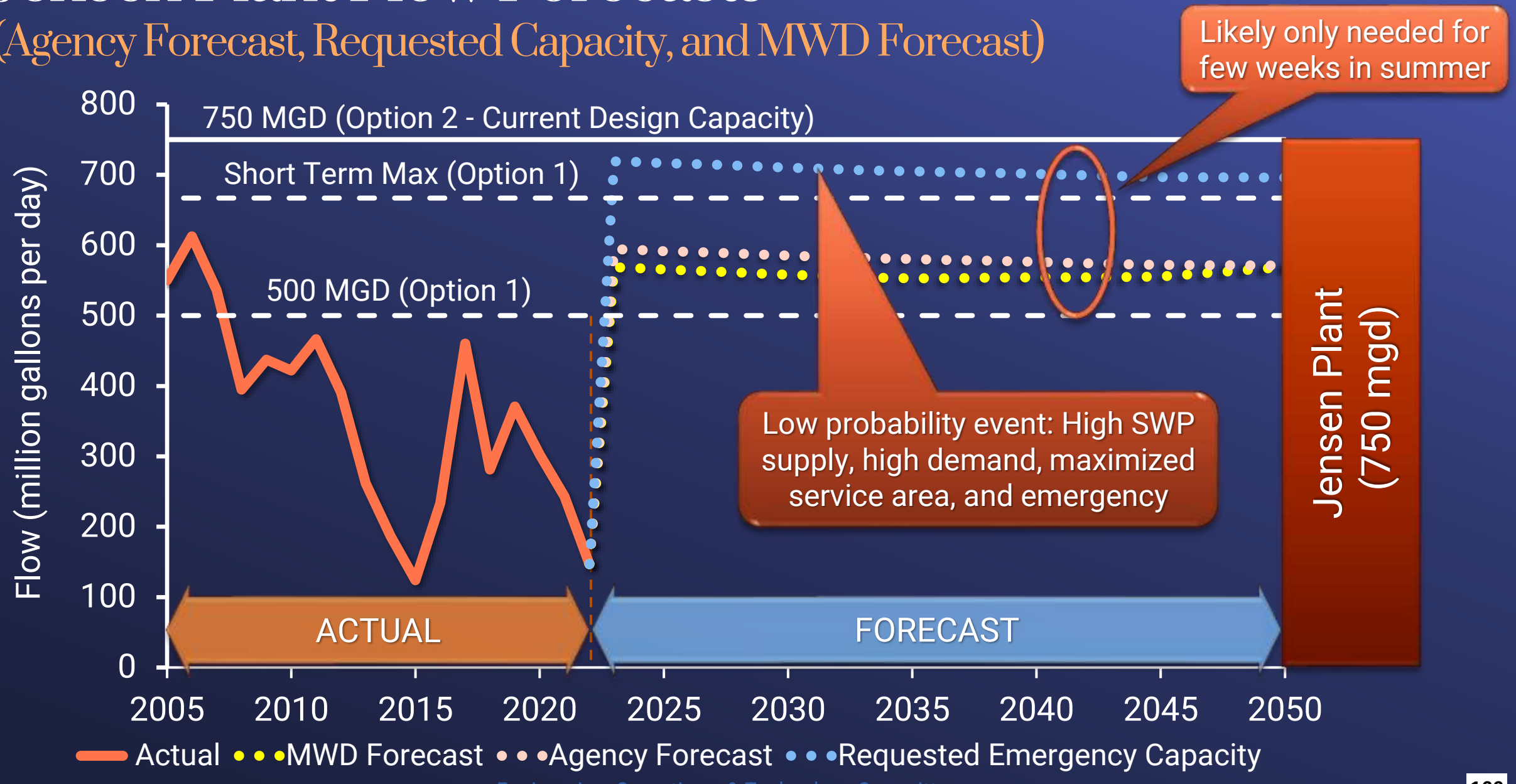
Jensen Plant Flow Forecasts

(Agency Forecast, Requested Capacity, and MWD Forecast)



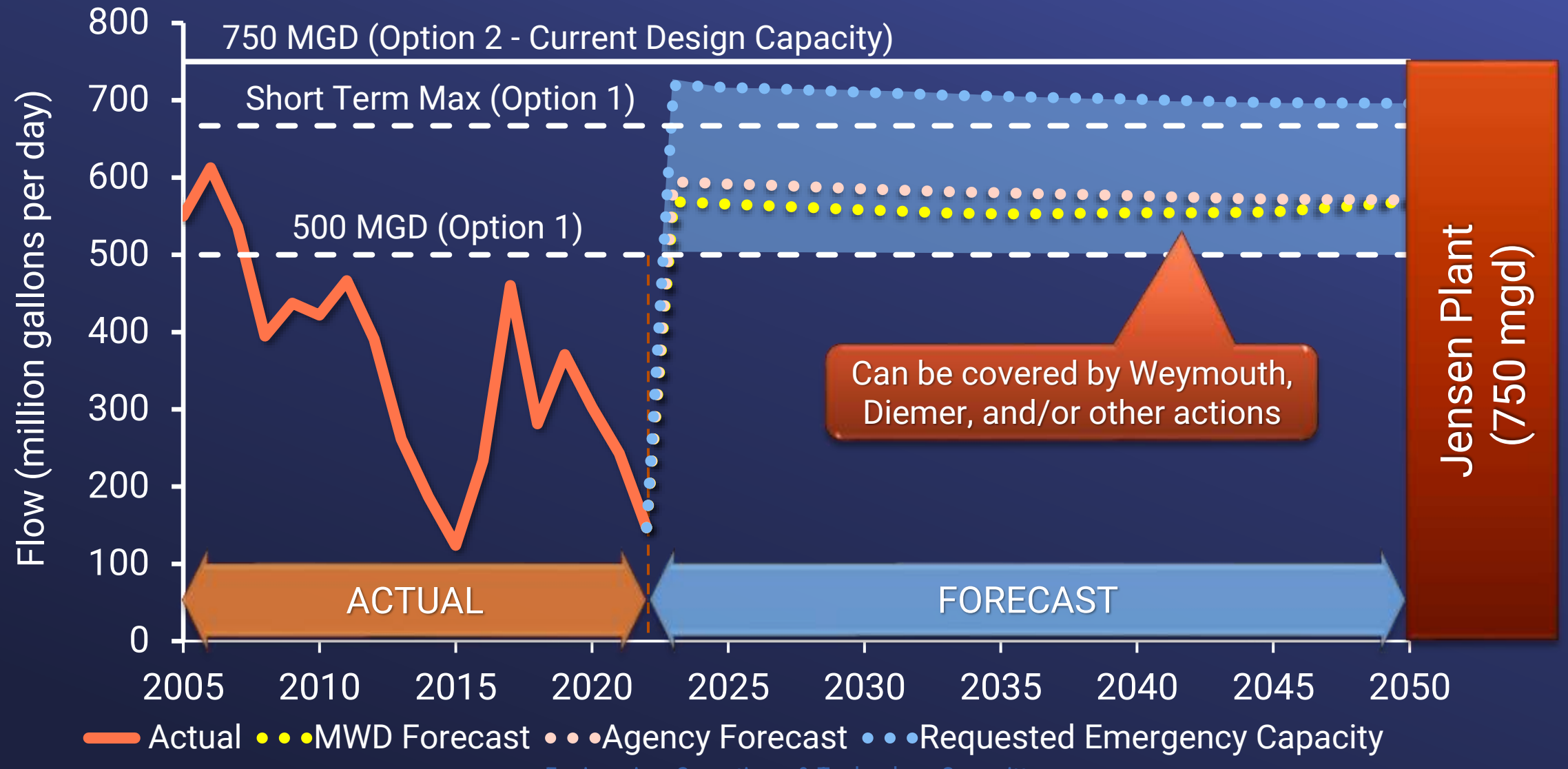
Jensen Plant Flow Forecasts

(Agency Forecast, Requested Capacity, and MWD Forecast)

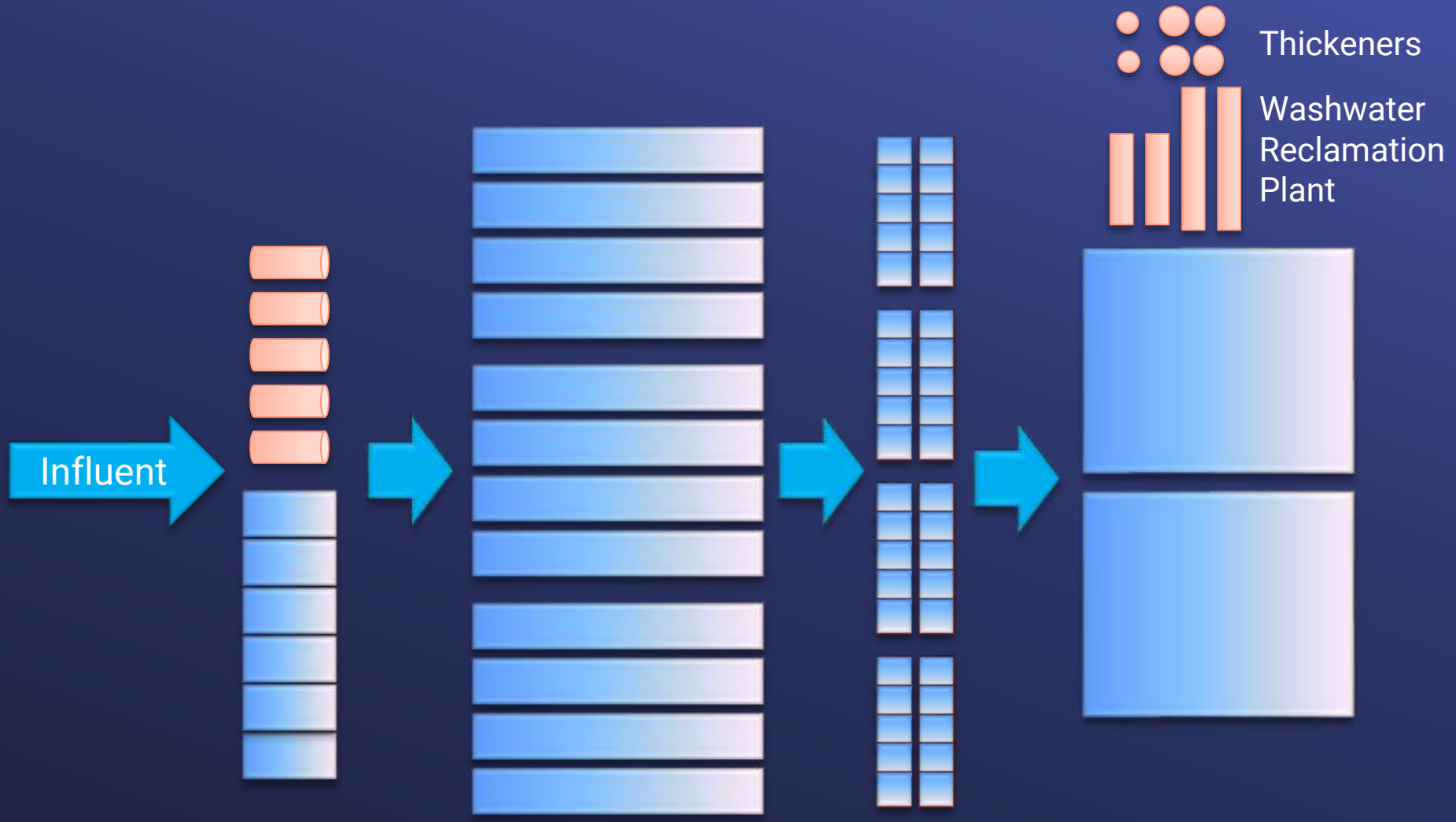


Jensen Plant Flow Forecasts

(Agency Forecast, Requested Capacity, and MWD Forecast)

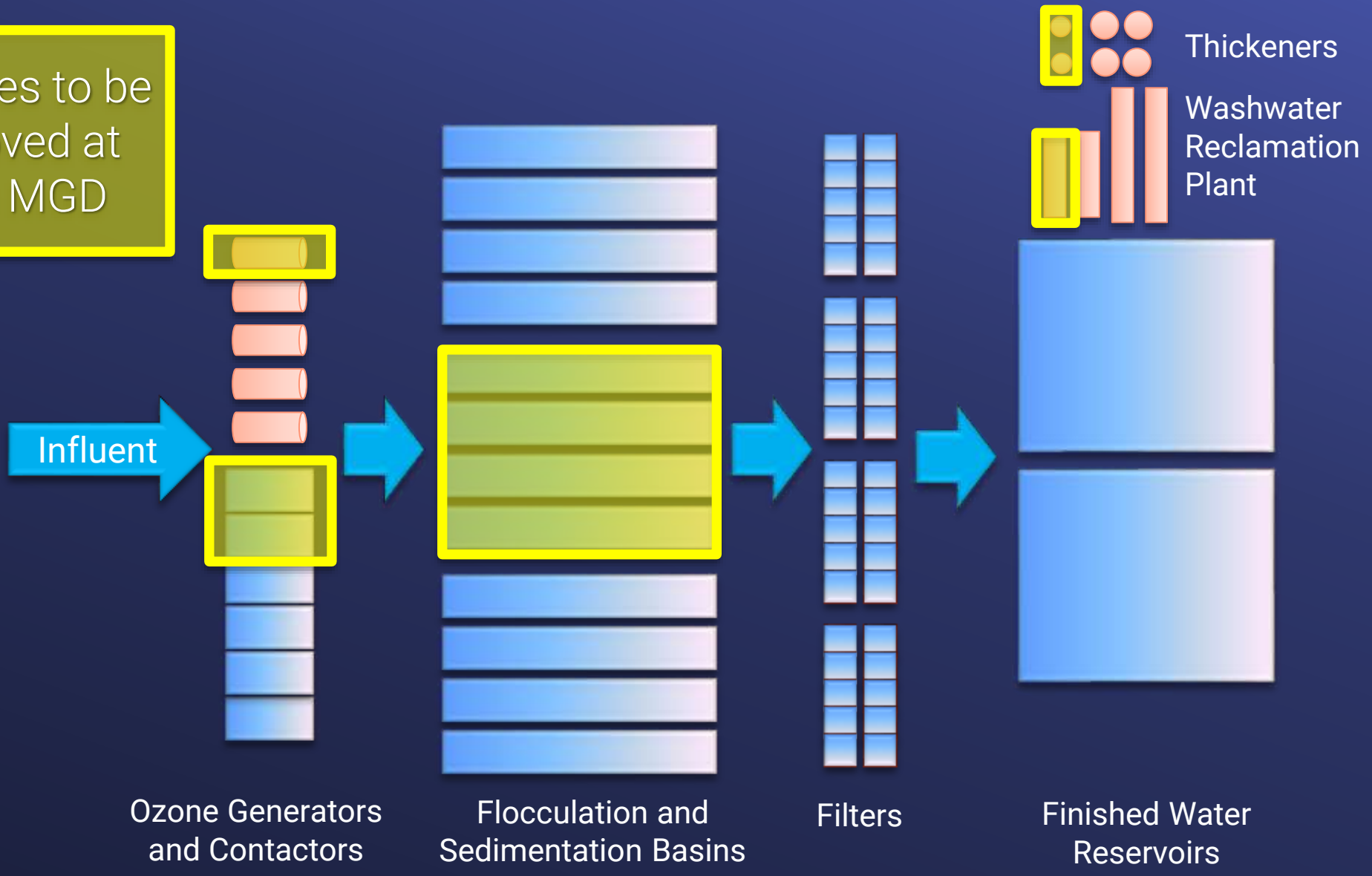


Jensen Water Treatment Plant



Jensen Water Treatment Plant

Facilities to be removed at 500 MGD



Projected CIP Savings for 500 MGD Option

Jensen WTP Operating Capacity Study

- Project phases already deferred: $32 million
  - Flocculators
  - Ozone Power Supply Units
  - Washwater Reclamation
  - Stage 2 Electrical Upgrades
- Project phases being deferred: $95 million
  - Bromate Control Upgrade
  - Stage 3 Electrical Upgrades
  - Solids Dewatering
  - Sedimentation Basins
- Total estimated CIP savings: $127 million

Jensen WTP Operating Capacity Study

Additional Cost Considerations for 500 MGD Option

- Reduces or eliminates O&M required for out-of-service facilities
  - Annual savings estimate: $420,000
- One-time cost of removing facilities from service
- Additional future recommissioning costs would be anticipated

Summary

Alternatives	Advantages	Disadvantages

Option 1 – 500 MGD	• Capital cost savings
	• O&M savings
	• Provides system flexibility and covers majority of demand scenarios
		• May not cover low-probability events
		  • High demand/high supply condition (short-term max operations needed)
		  • Worst-case emergency condition

Option 2– 750 MGD (Current Design)	• Increases system flexibility to cover low probability events
	  • High demand/high supply condition
	  • Worst-case emergency condition
		• Additional capital cost
		• Increased O&M costs

Additional Alternative for 500 MGD Option

Jensen WTP Operating Capacity Study

- Received feedback from member agencies
- Gain additional clarity through current planning efforts
  - Climate Action Management Plan
  - Pure Water Southern California
  - SWP Dependent Area Solutions
- Continue phasing CIP projects and selectively deferring maintenance

Jensen WTP Operating Capacity Study

Options Under Consideration

1a. Phase CIP projects and maintenance to 500 MGD with potential future phase to 750 MGD
- Close to maximum cost and resource savings
- Close to maximum system flexibility
- Easier opportunity to complete phases for 750 MGD if needed

1b. Officially downsize to 500 MGD
- Maximum cost and resource savings
- Close to maximum system flexibility
- Difficult and costly to increase back to 750 MGD if needed

2. Proceed with CIP project phases for 750 MGD
- Maximum system flexibility
- No cost and resource savings

Next Steps

Jensen WTP Operating Capacity Study

- Receive feedback from EO&T Committee
- Develop actions and recommendations, as appropriate


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA

Engineering, Operations, & Technology Committee

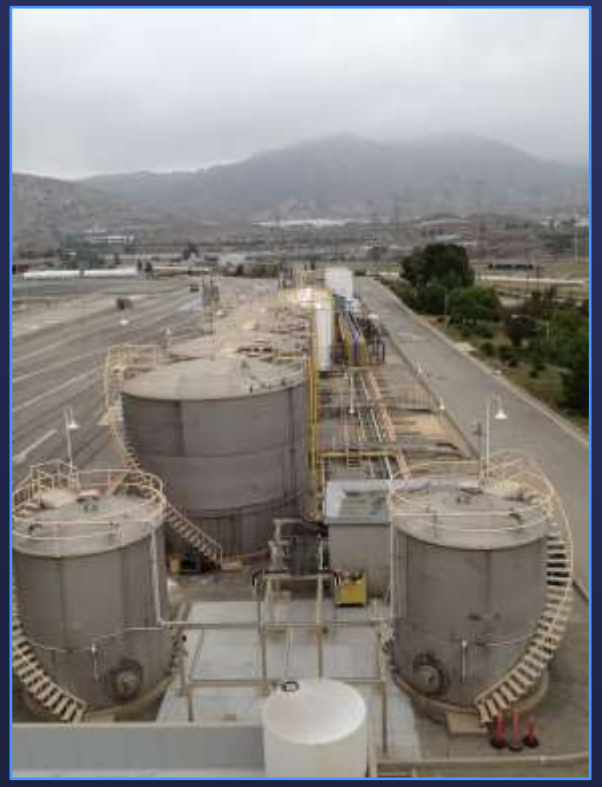
Update on Jensen Reliability Projects

Item 7c

April 10, 2023

Jensen Reliability Upgrades

Outline



- Operations
  - Recent operations under extreme conditions
  - Long-term system reliability improvements
- Key Projects
  - Bromate Control Upgrades
  - Electrical Upgrades Stage 3
  - Solids Mechanical Dewatering
- Schedule and Next Steps

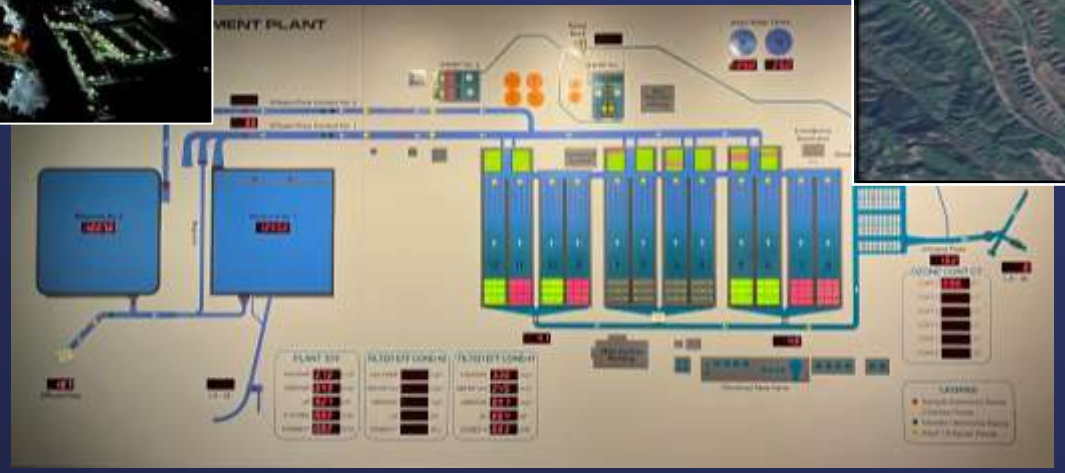
Jensen Water Treatment Plant

Jensen Plant Overview

Recent Operations under Extreme Conditions

Saddle Ridge Fire – Oct. 2019

Castaic Lake – Jan. 2023



Wide Flow Range

System Reliability Improvement 1 – Rehabilitate Aging Infrastructure and Manage Chemical Costs

- Existing caustic tank farm
  - Original from 1972
  - Previous containment retrofit does not meet current Metropolitan standards

Existing Jensen Caustic Tank Farm

- Caustic soda price increasing
  - Project cost reduced by integrating ammonia-chlorine process for bromate control

Enhanced Bromate Control Process

*Ammonia-chlorine bromate control process has been effectively implemented at the Mills and Weymouth plants

System Reliability Improvement 2 – Enhance Redundancy

- Additional power supply needed for key treatment processes
  - Chlorine
  - Coagulants
  - Flocculators
  - Finished Water Reservoirs
  - Administrative Building
- Standby 480V generators can power equipment during emergency
- Double-ending power completed at Diemer, Skinner, and Weymouth plants; underway at Mills plant

Original Plant Equipment from 1972

System Reliability Improvement 3 – Increase Solids Handling Capacity

- Existing agreement with LADWP
  - Use of four lagoons at LAAFP
  - Return two lagoons in Oct. 2024
  - Construct two new lagoons
- Limited solids handling capacity
  - Four lagoons meet design criteria for 250 MGD plant capacity
  - Ability to operate at higher flows with favorable water quality

Upcoming Reliability Projects

Bromate Control Upgrades

Long-term process improvements

- Ammonia and chlorine added upstream of ozone contactor
  - Effectively controls bromate
  - Reduces chemical costs
- New caustic soda tank farm adjacent to plant outlet
- Removal of decommissioned tank farm

Bromate control ejector building at Weymouth

*$22M estimated construction contract

Electrical Upgrades
Multi-Stage Approach

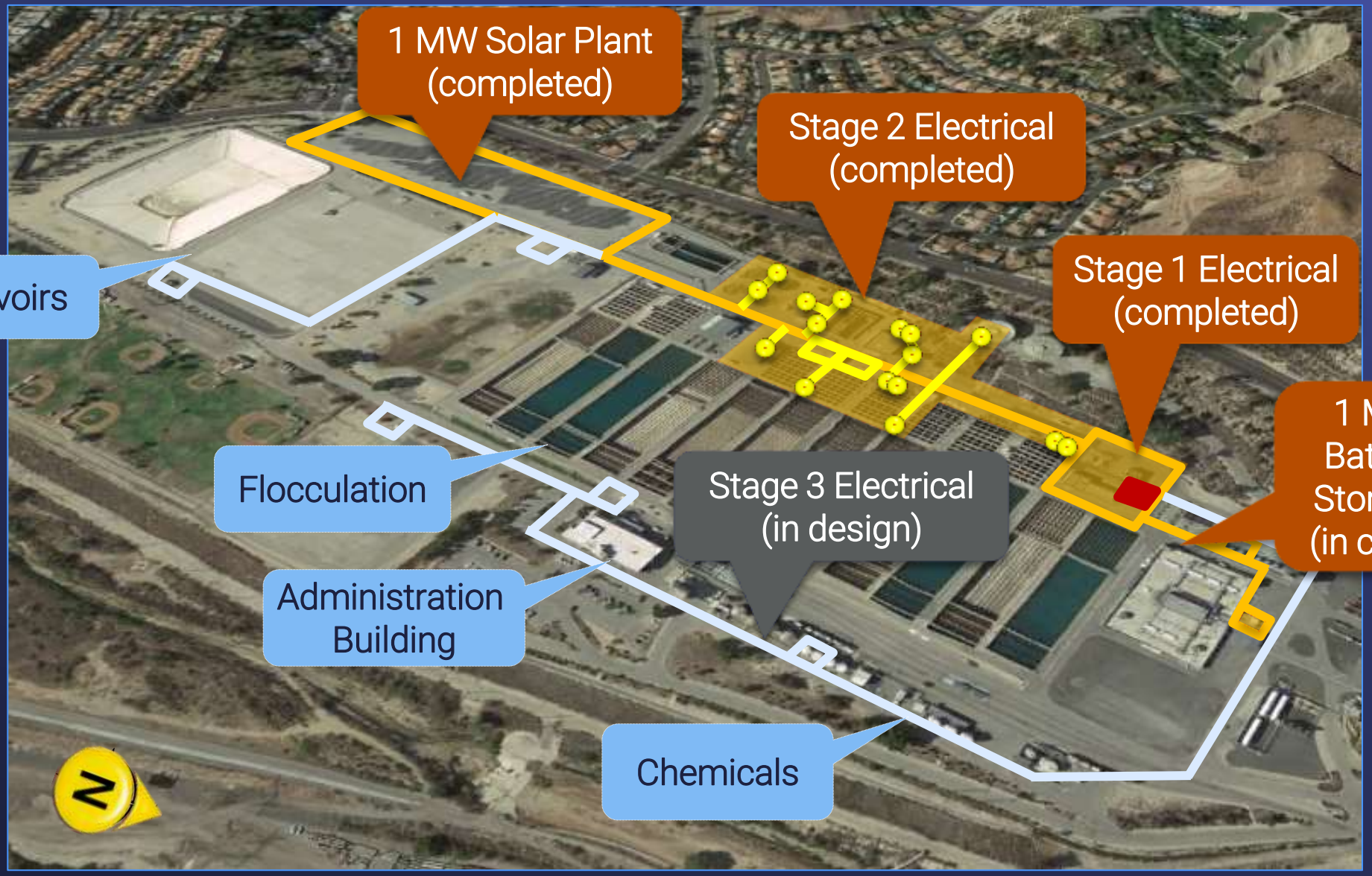
- Stage 1: Enhanced medium-voltage switchgear & provided electrical infrastructure for the Solar & BESS Facilities (completed in 2018)
- Stage 2: Upgraded Uninterruptible Power Supply (UPS) units and associated Motor Control Centers (MCCs) supporting critical process equipment on western portion of the plant (completed in 2022)

New Unit Substation


Existing Cables in Vaults


New Cables & Cable Trays

Electrical Upgrades – Stage 3



Electrical Upgrades – Stage 3
Multi-Stage Approach

- Stage 3 Scope
  - Upgrades to six existing UPCs
  - Addition of five new double-ended substations & associated MCCs
  - Improvements to backup capability of critical process equipment

*$50M estimated construction contract

New UPC – Electrical Upgrades Stage 2

Solids Mechanical Dewatering – Increased Capacity and Improved Reliability

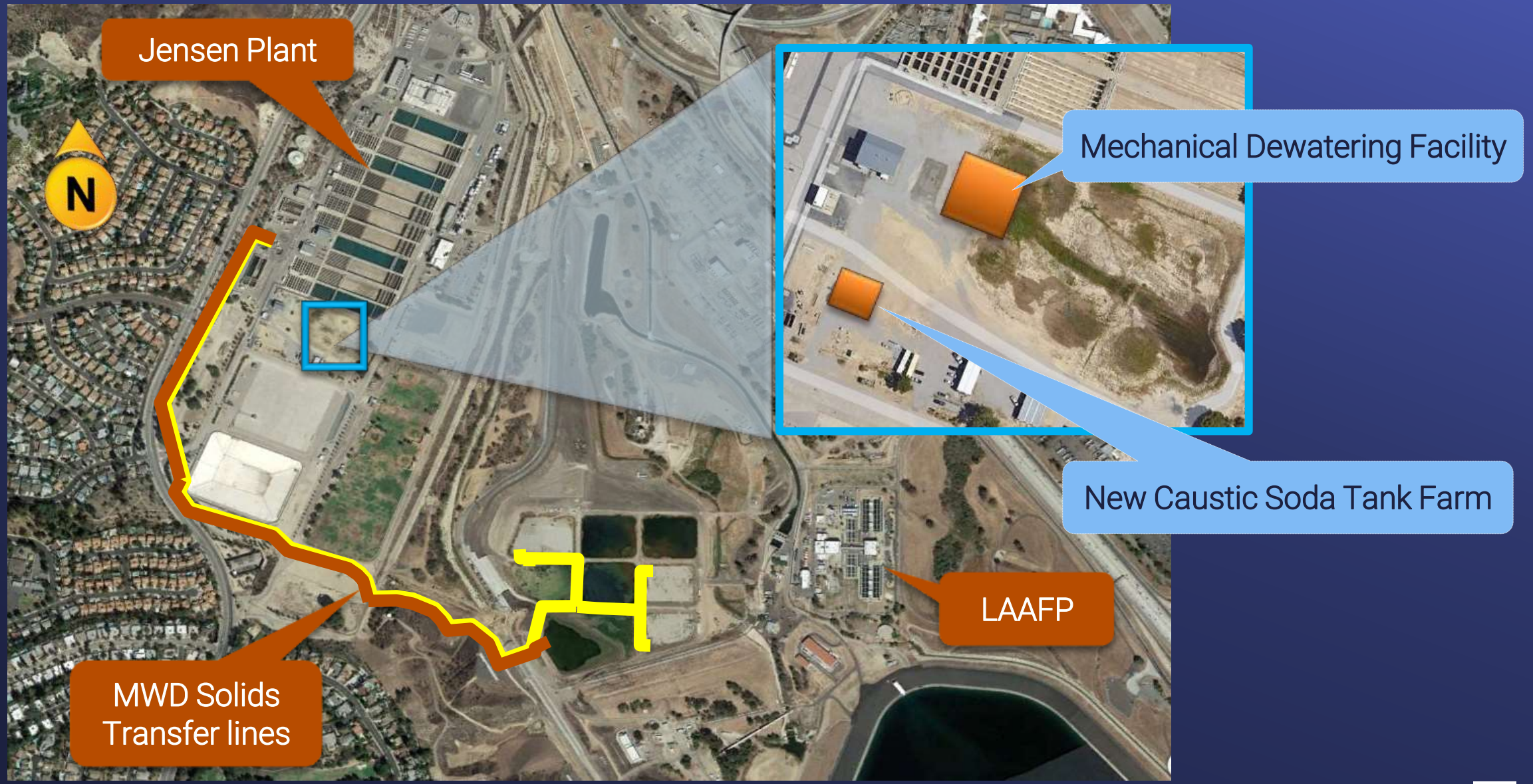
- Long-term plan for Jensen solids handling includes both lagoons and mechanical dewatering
  - Inadequate space for lagoons to support 500 MGD and above
- Most cost-effective solution
  - Use of two existing lagoons
  - Addition of mechanical dewatering

*$40M estimated construction contract

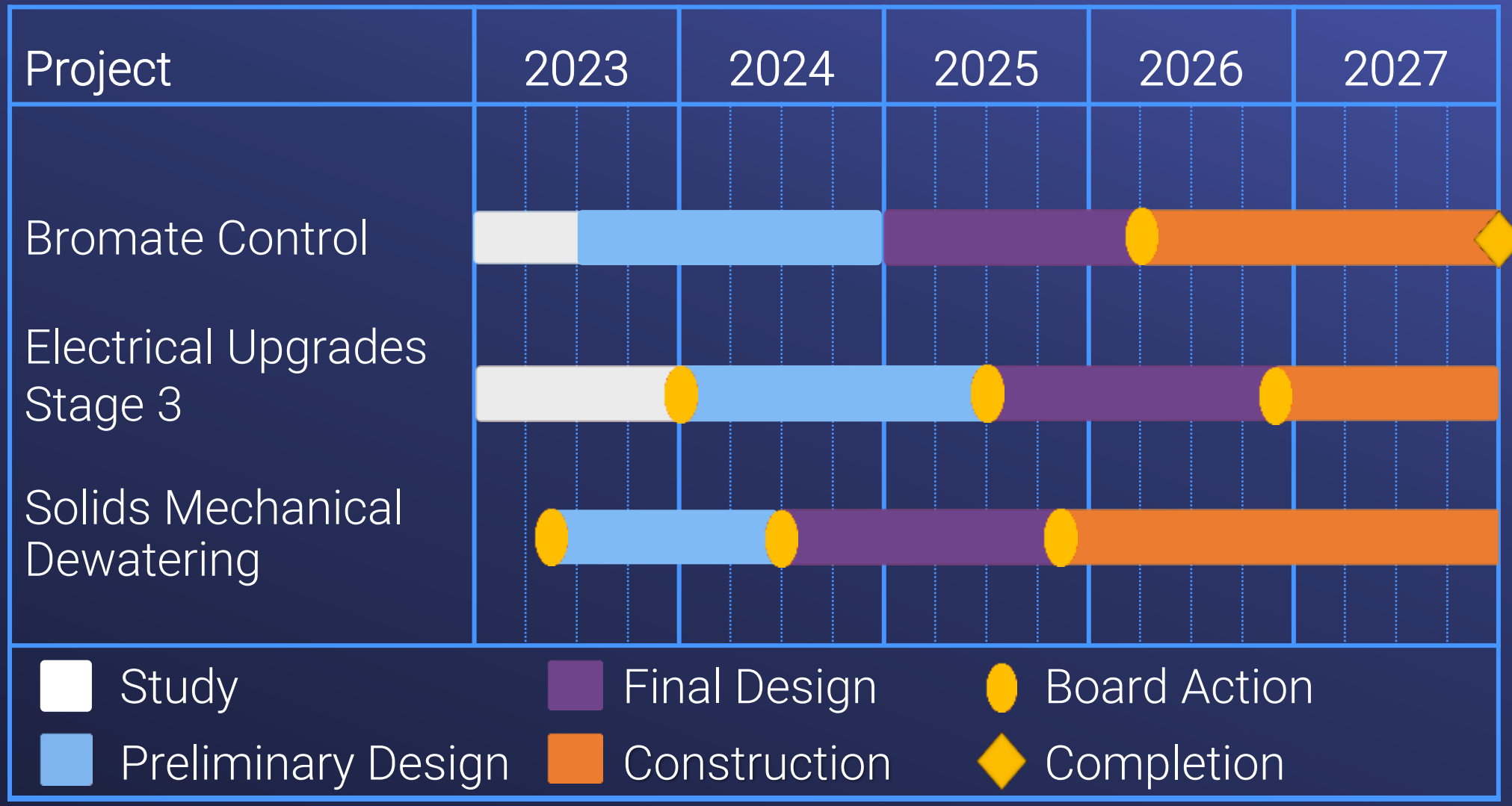
Mechanical Dewatering at Weymouth

Amendment of Use Agreement with LADWP (in Progress)

Solids Mechanical Dewatering - Proposed Location



Project Schedule



Next Steps

- Proceed with Jensen reliability projects

- Upcoming May 2023 Board Action for solids handling facilities
  - Authorize consultant agreement for preliminary design of solids mechanical dewatering
  - Amend lagoon Use Agreement with LADWP

2022 E&O Field Inspection Trip at Jensen


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

Engineering, Operations, & Technology Committee

Water System Operations Manager's Report

Item 8a
April 10, 2023

Current Operational Conditions

Operating under Rapidly Changing Conditions

- 2023 SWP Allocation is 75%
- CRA dropped from 5- to 4-pump flow at end of March to manage Lake Mathews storage and changing supply conditions
- Weymouth and Diemer continue at 100% SWP blend after Lake Mathews shutdown to manage Article 21 supplies; SWP blend currently 0% at Skinner
- Delivering Colorado River water to DWCV storage
- March 2023 deliveries of 62 TAF were 59 TAF lower than March 2022

Adapting to Wet Weather Conditions

Maximizing Article 21 Deliveries


San Luis Reservoir, 3/17/2023

- Ended DVL to Mills and Lakeview Pipeline operations on March 15 and 16, respectively
  - Mills and Lakeview now supplied from Silverwood Lake
- Article 21 deliveries started March 22, with 123 TAF allocated by DWR from March 22-April 11 for Metropolitan (includes DWCV allocation)
- Maximizing SWP West and East Branch deliveries
  - Prioritizing repayment of Castaic and Perris Flex
  - Recovering DVL storage
- Submitting Article 21 demand requests to DWR on a weekly basis

Minimizing SWP Use as Allocation Developed

Early 2023 Drought Operations

Maximizing SWP Use and Article 21 Supplies

Current Surplus Operations

Article 21 Deliveries
March 22–28: 39.7 TAF
March 29–April 4: 42.8 TAF
April 5–11: 40.4 TAF

Refilling Storage with Increased SWP Supplies

Press Event at Diamond Valley Lake - March 27, 2023

Collaborating on Water Management Strategies

Member Agency Groundwater/ Reservoir Water Management Workshop

April 6, 2023

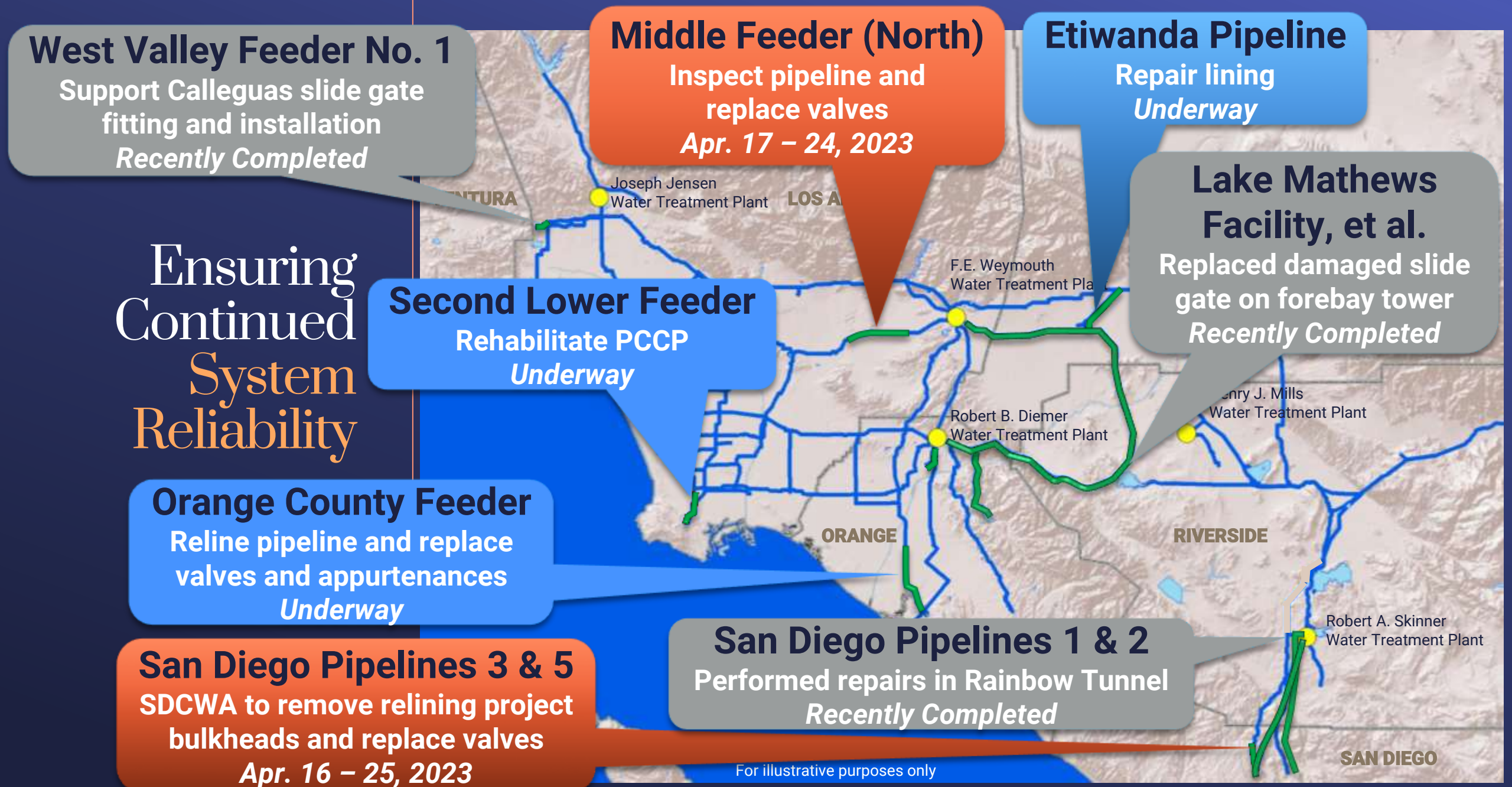
- Discussed existing programs to help recover local groundwater basins or surface reservoirs, while managing increased supplies
- Reviewed existing programs – replenishment, cyclic, reverse cyclic, conjunctive use program, CCOP
- Discussed needs for revisions to programs or new programs to provide additional flexibility
- Coordinating operations and timing of deliveries

Silverwood Lake Storm Impacts

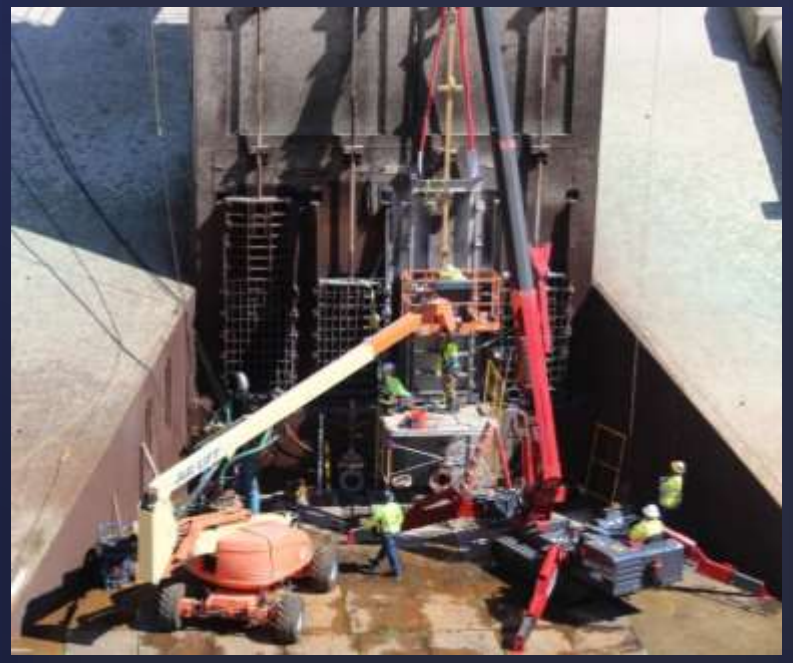
Responding to Watershed Runoff and Spill Event

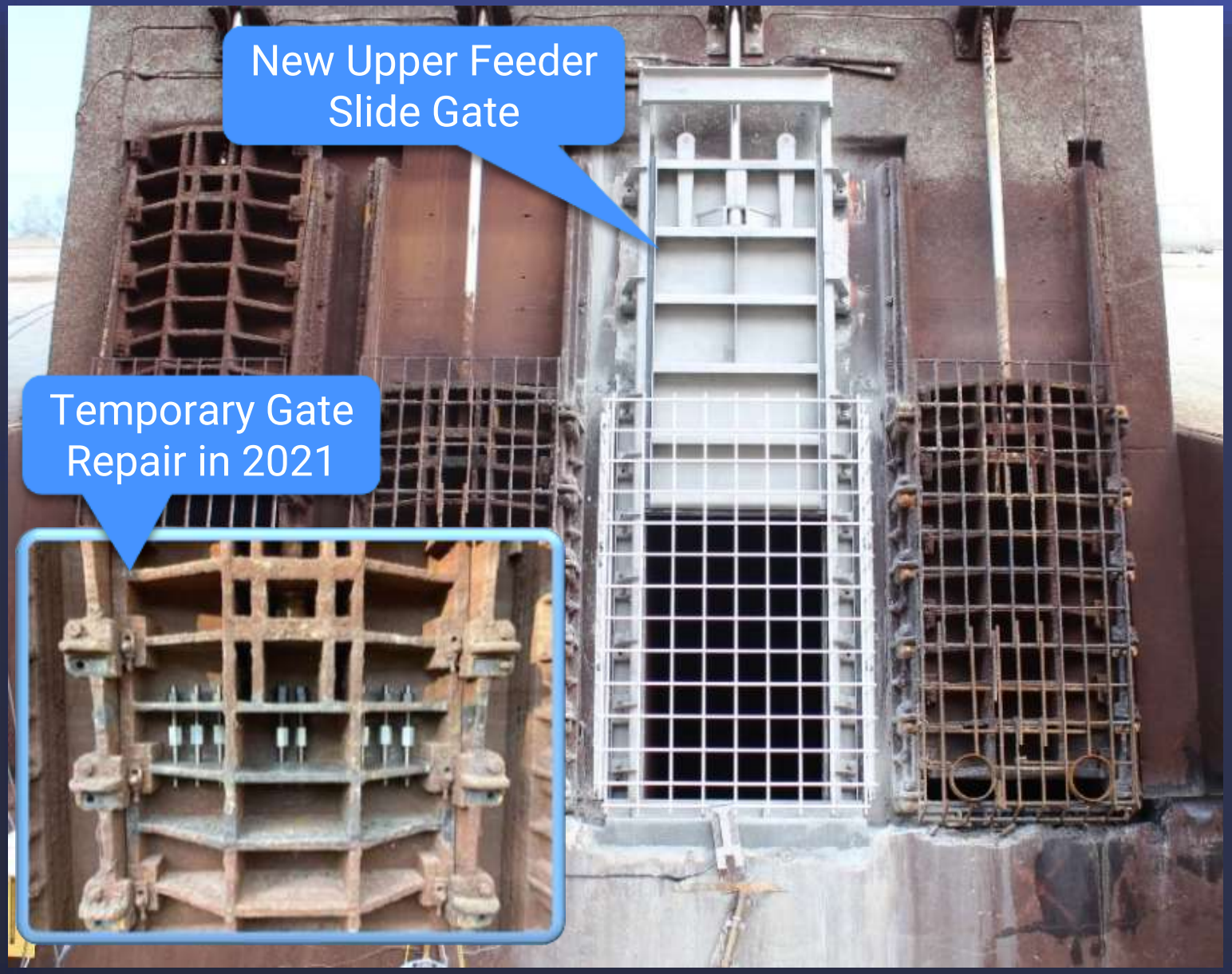
- March 15: Increased flow overwhelmed Houston Creek WWTP (over 3 miles from lake along Miller Creek)
- Significant runoff and ~15,000 gallons of partially treated wastewater flowed into creeks towards Silverwood Lake
- Metropolitan actions included increased microbial monitoring; increased disinfection; stabilized plant operations; and communication with impacted agencies, DDW, DWR, and Crestline Sanitation District
- All compliance requirements met with no impacts to treated water deliveries
  - Elevated turbidity and *Giardia* detected in raw water samples delivered to treatment plants
  - *Giardia*, coliforms, and *E. coli* not detected in plant effluents

Ensuring Continued System Reliability



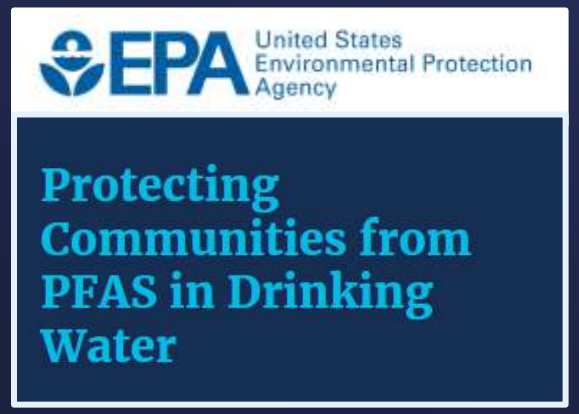
Lake Mathews Forebay Tower Gate Repair





Announced March 14

New Federal Drinking Water Standards



EPA Proposed Federal Drinking Water Regulations for Six PFAS

- Maximum Contaminant Levels for PFOA and PFOS at 4 parts per trillion (ppt) each
- Hazard Index for any mixture of PFHxS, PFNA, PFBS, and/or GenX chemicals
- EPA expects to finalize regulation by end of 2023; compliance required within 3 years
- Current California Notification Levels for PFOA and PFOS are 5.1 ppt and 6.5 ppt, respectively; and Response Levels are 10 ppt and 40 ppt, respectively

Metropolitan Response and Actions

PFAS Update

- PFAS detected in some groundwater basins; actions to remove wells from service, install treatment, or blend
- Metropolitan has voluntarily monitored source and treated water for PFAS since 2013
  - Four PFAS detected at trace levels in some source waters
  - The six PFAS with proposed regulations have not been detected in Metropolitan's treated water
- Metropolitan is coordinating with Member Agencies and industry organizations to respond to proposed regulations
- Staff providing update on Constituents of Emerging Concern at May EO&T Committee

EPA proposed regulation published in Federal Register on March 29 with 60-day comment period


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

Engineering, Operations, & Technology Committee

Engineering Services Manager's Report

Item 8b

April 10, 2023

Construction and Procurement Contracts February 2023

Construction and Procurement Contracts Through February 2023	
Number of Active Contracts at end of month	46
Total Bid Amount of Contracts in Progress at end of month	$566.2M
Contracts Awarded in month	1
Contracts With Notice To Proceed Issued in month	4
Contracts Completed in month	1
Contract Gross Earnings in month	$18.5 M

Sepulveda Feeder Pump Station Project - Update

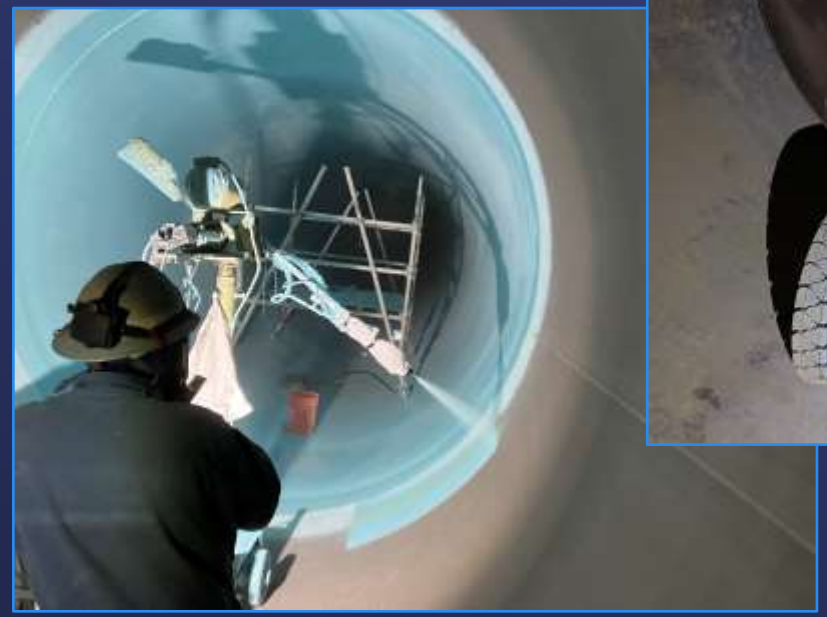
Job Walk Participants

Project Site

- Current Status –
- RFQ advertised – March 20, 2023
- Mandatory Job Walk held – March 27, 2023
- RFQ Responses Due – May 18, 2023
- Board award of Phase 1 agreement– August 2023 (Design)
- Construction Complete – early 2026

Potential Acceleration of Etiwanda Pipeline Relining Contract

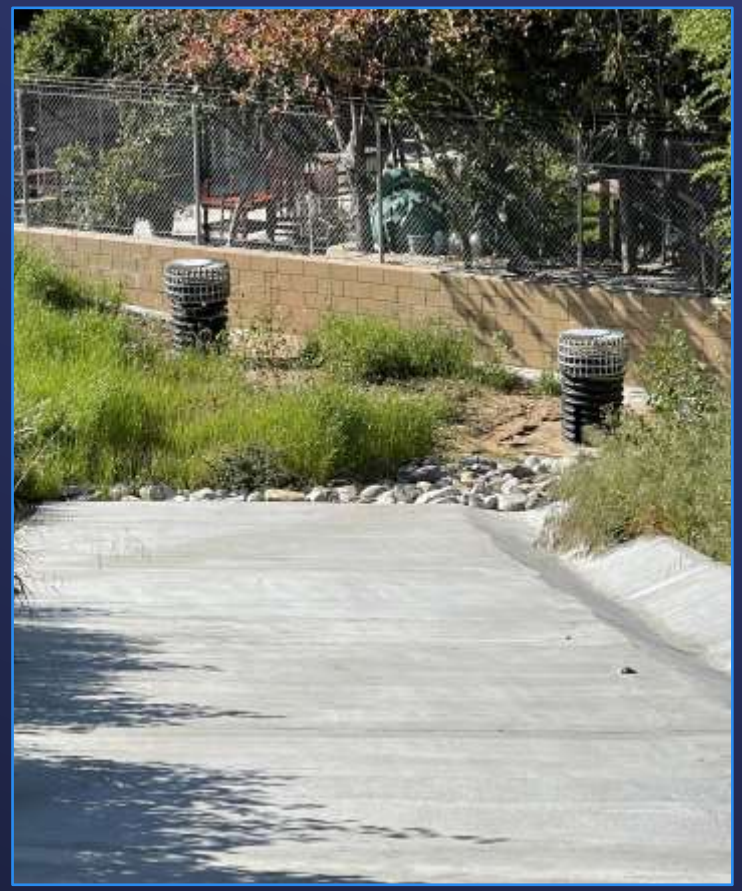
- Etiwanda Pipeline out of service until mid-September 2023 for relining
- Pipeline can be utilized to enhance deliveries of State Water Project deliveries
- Staff is exploring options to accelerate construction activities
- Potentially return pipeline to service in late-June 2023



Application of Polyurethane Coating

Installation of New Steel Liner

Garvey Reservoir
Site Drainage and Erosion Control Projects



New Bock Wall, Stand Pipes & Vee Ditches to Control Off-site Drainage

New Runoff Impoundment Area (Multiple sites on reservoir property)

Jensen and Skinner Water Treatment Plants Battery Energy Storage Systems

- Board Award Date:
  - September 14, 2021
- Contract Amount:
  - $11,604,521 / Paid to date: 33%
- Original Contract Duration:
  - 260 Calendar Days / 126 % to date
- Project completion hampered by supply chain issues for key equipment (batteries and electrical gear)
- Staff renewed incentive application for project

Installation of Underground Electrical Duct Banks

2023 Member Agency Engineering Manager Forum

- June 1, 2023
- In-person event
- Fifth consecutive year
- Co-hosted with
  Inland Empire Utility Agency

2022 Virtual Event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