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. Camacho, Vice Chair
D. Alvarez
G. Bryant
J. Crawford
B. Dennstedt
S. Faessel
L. Fong-Sakai
R. Lefevre
J. McMillan
C. Miller
J. Morris
M. Petersen
K. Seckel

Engineering, Operations, and Technology Committee

Meeting with Board of Directors *

January 13, 2025

9:00 a.m.

Monday, January 13, 2025 Meeting Schedule
09:00 a.m. EOT
10:30 a.m. EOP
01:30 p.m. Break
02:00 p.m. OWS

Agendas, live streaming, meeting schedules, and other board materials are available here: https://mwdh2o.legistar.com/Calendar.aspx. Written public comments received by 5:00 p.m. the business days before the meeting is scheduled will be posted under the Submitted Items and Responses tab available here: https://mwdh2o.legistar.com/Legislation.aspx.

If you have technical difficulties with the live streaming page, a listen-only phone line is available at 1-877-853-5257; enter meeting ID: 891 1613 4145.

Members of the public may present their comments to the Board on matters within their jurisdiction as listed on the agenda via teleconference. To participate via teleconference 1-833-548-0276 and enter meeting ID: 815 2066 4276 or to join by computer click here.

There will be No In-Person Participation Permitted. Participation is by teleconference only. See the teleconference information below.

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

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

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

Zoom Online

2. CONSENT CALENDAR OTHER ITEMS - ACTION

A. Approval of the Minutes of the Engineering, Operations, and Technology Committee for December 9, 2024 (Copies have been submitted to each Director, any additions, corrections, or omissions) **21-4100**

Attachments: 01132025 EOT 2A (12092024) Minutes

3. CONSENT CALENDAR ITEMS - ACTION

7-1 Authorize an increase of $5.55 million to an agreement with Arcadis U.S. Inc. for a new not-to-exceed total amount of $7.55 million for final design to rehabilitate the finished water reservoirs at the Henry J. Mills and Joseph Jensen Water Treatment Plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-4119**

Attachments: 01142025 EOT 7-1 B-L
01132025 EOT 7-1 Presentation

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

4. OTHER BOARD ITEMS - ACTION

NONE

5. BOARD INFORMATION ITEMS

9-2 Update on the Colorado River Aqueduct High-Voltage Transformers Replacement Project **21-4120**

Attachments: 01142025 EOT 9-2 B-L
01132025 EOT 9-2 Presentation

6. COMMITTEE ITEMS

a. Update on Prestressed Concrete Cylinder Pipe Program **21-4122**

Attachments: 01132025 EOT 6a Presentation

b. Update on Invasive Mussels in the State Water Project **21-4124**

Attachments: 01132025 EOT 6b Presentation

c. 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)] **21-4123**

7. MANAGEMENT ANNOUNCEMENTS AND HIGHLIGHTS

a. Engineering Services activities
Information Technology activities
Water System Operations activities **21-4098**

Attachments: 01132025 EOT 7a Engineering Services Activities
01132025 EOT 7a Information Technology Activities
01132025 EOT 7a Water System Operations Activities
01132025 EOT 7a Presentation

8. SUBCOMMITTEE REPORTS AND DISCUSSION

a. Discuss and provide direction to Subcommittee on Pure Water Southern California and Regional Conveyance **21-4099**

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

December 9, 2024

Chair Erdman called the meeting to order at 9:00 a.m.

Members present: Directors Alvarez, Bryant, Camacho, Dennstedt, Erdman, Fong-Sakai, Lefevre, McMillan (entered after roll call), Miller, Morris, Petersen, Seckel, and Smith (teleconference posted location).

Members absent: Directors Crawford and Faessel,

Other board members present: Chair Ortega, Directors Ackerman, Armstrong, Dick, Goldberg, Gray (teleconference posted location), Kurtz, Lewitt, McCoy, and Ramos.

Committee staff present: Bednarski, Chapman, Eckstrom, Hattar, Nobriga, Parsons, Upadhyay, Wheeler, and Word.

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

None

CONSENT CALENDAR ITEMS – ACTION

2. CONSENT CALENDAR OTHER ITEMS ACTION

A. Approval of the Minutes of the Special Engineering, Operations, and Technology Committee for November 18, 2024.

3. CONSENT CALENDAR OTHER ITEMS – ACTION

7-2 Subject: Award a $588,000 contract to Heed Engineering for construction of new drainage control improvements at the Lake Skinner dam.

Presented by: No presentation requested.

Motion: Award a $588,000 contract to Heed Engineering for construction of drainage control improvements at the Lake Skinner dam.

Director Morris made a motion, seconded by Director Bryant, to approve items 2A and 7-2.

The vote was:

Ayes:	Directors Alvarez, Bryant, Camacho, Dennstedt, Erdman, Fong-Sakai, Lefevre, Miller, Morris, Petersen, Seckel, and Smith.
Noes:	None
Abstentions:	None
Absent:	Directors Crawford, Faessel, and McMillan

The motion for Items 2A and 7-2 passed by a vote of 12 ayes, 0 noes, 0 abstentions, and 3 absent.

No Directors provided comments or asked questions.

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

4. OTHER BOARD ITEMS – ACTION

Director McMillan entered the meeting.

8-1 Subject: Approve additional funding, in an amount not to exceed $35 million over the next two years (Fiscal Years 2024/2025 and 2025/2026), to support the Zero-Emission Vehicle Transition Program at Metropolitan and partially mitigate high operational risk.

Presented by: Ron Taraporewala, Program Manager, Operations Support Services, Integrated Operations Planning & Support Services Group

Motion: Approve additional funding, in an amount not to exceed $35 million over the next two years (Fiscal Years 2024/2025 and 2025/2026), to support the Zero-Emission Vehicle Transition Program at Metropolitan and partially mitigate high operational risk.

The following Directors provided comments or asked questions.

1. Seckel
2. Dennstedt
3. Smith
4. Fong-Sakai
5. Camacho
6. Miller
7. Petersen
8. Dick
9. Erdman
10. Fong-Sakai

Staff responded to Directors' questions and comments.

After completion of the presentation, Director Petersen made a motion, seconded by Director Camacho, to approve item 8-1.

The vote was:

Ayes:	Directors Alvarez, Bryant, Dennstedt, Erdman, Faessel, Fong-Sakai, Lefevre, McMillan, Miller, Morris, Petersen, Seckel, and Smith.
Noes:	None
Abstentions:	None
Absent:	Directors Crawford and Faessel

The motion for Item 8-1 passed by a vote of 13 ayes, 0 noes, 0 abstentions, and 2 absent.

8-2 Subject: Authorize entering into one or more agreements to accept up to $125,472,855 in grant funding from the United States Bureau of Reclamation through the WaterSMART Large-Scale Water Recycling Program for Pure Water Southern California.

Presented by: Bruce Chalmers, Program Manager, Pure Water Southern California, Engineering Services Group

Motion: Authorize entering into one or more agreements with the United States Bureau of Reclamation to accept up to $125,472,855 in grant funding through the WaterSMART Large-Scale Water Recycling Program.

The following Directors provided comments or asked questions.

1. Morris
2. Goldberg
3. Alvarez

Staff responded to Directors' questions and comments.

After completion of the presentation, Director Morris made a motion, seconded by Director Seckel, to approve Item 8-2.

The vote was:

Ayes:	Directors Alvarez, Bryant, Camacho, Dennstedt, Erdman, Faessel, Fong-Sakai, Lefevre, McMillan, Miller, Morris, Petersen, Seckel, and Smith.
Noes:	None
Abstentions:	None
Recusals:	None
Absent:	Directors Crawford and Faessel

The motion for Item 8-2 passed by a vote of 13 ayes, 0 noes, 0 abstention, 0 recusal, and 2 absent.

5. BOARD INFORMATION ITEMS

None

6. COMMITTEE ITEMS

a. Subject: Capital Investment Plan Quarterly Report for period ending September 2024

Presented by: Jeffrey Nikolas, Senior Engineer, Engineering Services Group, responded to director questions.

Mr. Nikolas reported on the following:

- Informational summary of the report that was provided in the board packet.

No Directors provided comments or asked questions.

7. MANAGEMENT ANNOUNCEMENTS AND HIGHLIGHTS

a. Subject: Engineering Services, Information Technology, and Water System Operations Activities

Presented by: John Bednarski, Interim Assistant General Manager and Shane Chapman, Assistant General Manager

Mr. Bednarski reported on the following:

- Hinds, Eagle Mountain & Iron Mountain storage buildings construction progress.

Mr. Chapman reported on the following:

- Managing State Water Project supplies.
- December operations and current operational conditions.

8. SUBCOMMITTEE REPORTS AND DISCUSSION

a. Discuss and provide direction to Subcommittee on Pure Water Southern California and Regional Conveyance

There was no report.

9. FOLLOW-UP ITEMS

None.

10. FUTURE AGENDA ITEMS

None.

11. ADJOURNMENT

The next meeting will be held on January 13, 2025

Meeting adjourned at 10:41 a.m.

Dennis Erdman
Chair

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

1/14/2025 Board Meeting

7-1

Subject

Authorize an increase of $5.55 million to an agreement with Arcadis U.S. Inc. for a new not-to-exceed total amount of $7.55 million for final design to rehabilitate the finished water reservoirs at the Henry J. Mills and Joseph Jensen Water Treatment Plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Metropolitan's finished water reservoirs provide operational storage capacity within the distribution system to regulate treated water deliveries to member agencies. The California Division of Drinking Water (DDW) requires all reservoirs holding treated water to be covered to protect them from contamination. The flexible floating covers and supporting infrastructure of two finished water reservoirs at the Henry J. Mills Water Treatment (Mills plant) and one finished water reservoir at the Joseph Jensen Water Treatment Plant (Jensen plant) have exceeded the recommended 20-year service life and need rehabilitation to protect water quality and maintain reliable water deliveries.

This action authorizes an increase to an existing agreement with Arcadis U.S. Inc. (Arcadis) for final design services to rehabilitate the finished water reservoirs at the Mills and Jensen plants. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the List of Subconsultants, and **Attachment 3** for the Location Map.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Authorize an increase of $5.55 million to an agreement with Arcadis U.S. Inc. for a new not-to-exceed amount of $7.55 million for final design to rehabilitate the finished water reservoirs at the Henry J. Mills and Joseph Jensen Water Treatment Plants.

Fiscal Impact: Expenditure of $8.4 million in capital funds. Approximately $5.2 million in capital funds will be incurred in the current biennium and have been previously authorized. The remaining capital expenditures will be funded from the next capital investment plan budget.
Business Analysis: This option will improve the reliability of the Mills and Jensen reservoirs, maintain treated water quality, and enhance operational flexibility.

Option #2

Do not proceed with the project at this time.
Fiscal Impact: None
Business Analysis: Under this option, staff would continue to inspect and repair the finished water reservoir covers and equipment, as required. If damage to a floating cover could no longer be reliably repaired, the reservoir would be removed from service until the floating cover is replaced.

Alternatives Considered

Upon completion of preliminary design for the rehabilitation of Mills and Jensen finished water reservoirs, 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.

Staff has determined that specialized technical expertise is required to complete the final design of the floating cover replacement. After assessing the current workload for in-house staff, the relative priority of this project, and the specialized technical expertise required, staff recommends continuing the use of both a professional services agreement and in-house staff to perform final design of the subject project. This approach will allow for the completion of this program and other capital work within their current schedule and ensure the work is conducted in the most efficient manner possible.

Applicable 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

Related Board Action(s)/Future Action(s)

By Minute Item 50782, dated April 11, 2017, the Board authorized preliminary design to rehabilitate finished water reservoirs at the Joseph Jensen and Henry J. Mills Water Treatment Plants.

By Minute Item 53098, dated January 10, 2023, the Board authorized an agreement to provide engineering services to complete preliminary design for the rehabilitation of finished water reservoirs at the Mills and Jensen plants.

By Minute Item 53598, dated April 9, 2024, the Board appropriated a total of $636.5 million for projects identified in the Capital Investment Plan for Fiscal Years 2024/25 and 2025/26.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is exempt from CEQA because it involves only feasibility or planning studies for possible future actions which the Board has not approved, adopted, or funded. (Public Resources Code Section 21080.21; State CEQA Guidelines Section 15262.)

CEQA determination for Option #2:

None required

Details and Background

Background

Located within the City of Riverside, the Mills plant was placed into service in 1978, has a current treatment capacity of 220 million gallons per day (mgd), and treats water directly from the East Branch of the State Water Project (SWP) and occasionally from Diamond Valley Lake. The plant operates two finished water reservoirs with floating covers and geomembrane liners. The Hypalon cover on Reservoir No. 1 was installed in 1997, while the polypropylene cover on Reservoir No. 2 was installed in 1996. Each reservoir has a capacity of 25 million gallons, and both are classified as jurisdictional dams by the state Division of Safety of Dams (DSOD).

Located in the community of Granada Hills, the Jensen plant was placed into service in 1972, has a current treatment capacity of 750 mgd, and treats water from the West Branch of the SWP. The plant has two 50-million-gallon finished water reservoirs. Reservoir No. 1 is a concrete structure with a concrete roof, while Reservoir No. 2 has a polypropylene floating cover installed in 1997.

Treated water is stored in these reservoirs to serve the downstream distribution system. DDW requires covering all finished water reservoirs to protect treated water from contamination. Metropolitan has a rigorous floating cover inspection and maintenance program to ensure compliance with DDW regulations. The floating covers are carefully inspected regularly to identify damage and signs of deterioration. The useful life of a reservoir's floating cover is determined by the longevity of the cover material based on staff's ability to repair and maintain the cover. As the cover material ages, the bonding capability of repair patches to adhere to the original material declines. The repair patches become increasingly less effective, the repair work becomes more difficult to perform, and eventually the cover material can no longer be reliably repaired. The typical useful life for a floating cover is approximately 20 years.

The floating covers at both Mills reservoirs and Jensen Reservoir No. 2 have exceeded the recommended 20-year service life. Each cover must be rehabilitated to maintain treated water quality, comply with DSOD operating permits, and minimize the risk of costly urgent repairs. In addition to the new floating covers, other improvements are needed, including enhanced security features; rehabilitation of the rainwater removal systems and existing slide gates; installation of a slide gate at the Mills reservoirs; and reservoir mixing improvements.

In January 2023, Metropolitan's Board authorized an agreement for engineering services to perform preliminary design activities to rehabilitate the finished water reservoirs at the Mills and Jensen plants. The work was conducted as a hybrid effort of Metropolitan staff and a specialized consultant. Staff completed inspections of floating covers and supporting infrastructure, assessed required structural modifications, and made recommendations to improve low-flow operations at both plants. The consultant developed specialized studies, including low-flow water mixing scenarios utilizing computational fluid dynamics models and established design criteria for modifications to reservoir inlets, outlets, and associated valving to enhance water quality within the reservoirs. These low-flow mixing improvements will be implemented when the existing floating covers are removed during construction.

Preliminary design activities to rehabilitate the Mills and Jensen reservoirs have been completed, and staff recommends proceeding with final design at this time. The work will be staged based on a coordinated reservoir shutdown sequence. Staff will return to the Board to award several contracts to complete the reservoir rehabilitation work.

Mills and Jensen Finished Water Reservoirs Rehabilitation – Final Design

Planned rehabilitation work for Mills and Jensen reservoirs includes installation of new reservoir liners and floating covers; upgrades to the rain removal system, piping, and valving to enhance reservoir operational flexibility and mixing improvements; and installation of reservoir security features. The work will also include refurbishment of existing reservoir gates and installation of a new drop gate for Mills reservoirs; and improvement of the existing inlet configuration for Jensen Reservoir No. 2.

Final design phase activities include: (1) detailed structural analyses; (2) preparation of drawings and technical specifications; (3) development and coordination of a reservoir shutdown plan; (4) development of construction cost estimates; (4) value engineering; and (5) advertising and receiving competitive bids for multiple contracts. These activities are planned to be conducted by both Metropolitan staff and Arcadis U.S. Inc. under an existing agreement described below. Metropolitan staff will perform instrumentation and control design, DSOD coordination and permitting, project management, technical oversight, and review of the consultant's work.

A total of $8.4 million is required for this work. Allocated funds include $5.55 million for the final design activities by Arcadis described above. Other allocated funds for professional services include $130,000 for value engineering, which will be performed by an on-call consultant. Allocated funds for Metropolitan staff activities include $1.42 million for design services described above; $870,000 for DSOD permitting, environmental support, shutdown planning, project management, and project controls; and $430,000 for remaining budget. **Attachment 1** provides the allocation of the required funds.

As described above, final design will be performed by Arcadis and Metropolitan staff. Engineering Services' performance metric target range for final design of projects with a construction cost of more than $3 million is 9 to 12 percent. For this project, the performance metric goal for final design is 11.7 percent of the total

construction cost. The total estimated cost for design is $6.97 million, which includes $5.55 million for Arcadis and $1.42 million for Metropolitan design activities. The estimated cost of construction to rehabilitate the three finished water reservoirs at the Mills and Jensen plants is anticipated to range from $59.5 million to $64.5 million.

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

In January 2023, Metropolitan's Board authorized an agreement with Arcadis to complete the preliminary design for the rehabilitation of finished water reservoirs at the Mills and Jensen plants. Arcadis was selected for this project through a competitive process via Request for Proposals No. 1328 based on their staff qualifications and their experience in evaluating and designing reservoirs. Preliminary design work activities have been completed, and Arcadis is now recommended to provide engineering services for final design as described above.

This action authorizes an increase of $5.55 million to the existing agreement with Arcadis for a new not-to-exceed total of $7.55 million to perform the final design to rehabilitate the finished water reservoirs at the Mills and Jensen plants. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 25 percent. Arcadis has agreed to meet this level of participation. The planned subconsultants for this work are listed in **Attachment 2**.

Project Milestone

February 2027 – Completion of final design for rehabilitation of Mills and Jensen reservoirs

12/19/2024
Mai Hattar *Date*
Interim Chief Engineer
Engineering Services

12/26/2924
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Listing of Subconsultants

Attachment 3 – Location Map

Ref# es12698150

Allocation of Funds for Mills and Jensen Finished Water Reservoirs Rehabilitation

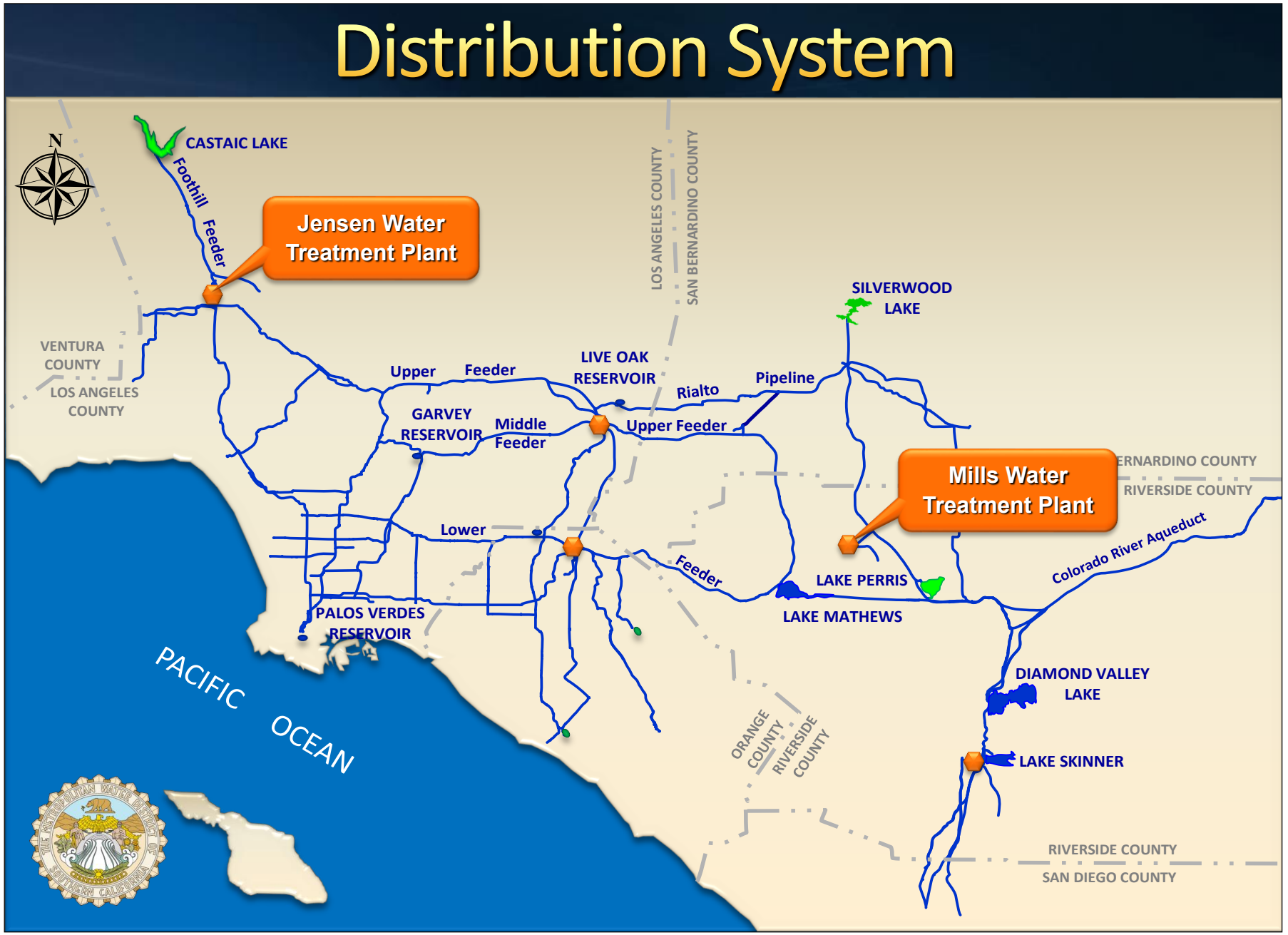
	Current Board Action (Jan. 2025)
Labor	
Studies & Investigations	$ -
Final Design	1,420,000
Owner Costs (Program mgmt., permitting, & project controls)	870,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	
Arcadis US Inc.	5,550,000
Value Engineering	130,000
Contracts	-
Remaining Budget	430,000
Total	**$ 8,400,000**

The total amount expended to date is approximately $2.9 million. The total estimated cost to rehabilitate the finished water reservoirs at the Mills and Jensen plants, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from $75 million to $85 million.

The Metropolitan Water District of Southern California

Subconsultants for Agreement with Arcadis U.S. Inc.
Mills and Jensen Reservoir Rehabilitation

Subconsultant and Location	Service Category; Specialty
Hilts Consulting Group Inc. Yorba Linda, CA	Reservoir cover and liner design
Paul Hansen Engineering Rancho Palos Verdes, CA	Cost estimating
Greg Drilling Signal Hill, CA	Geotechnical
DRP Inc. Monterey Park, CA	Drafting


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

Engineering, Operations, & Technology Committee

Mills and Jensen Finished Water Reservoir Rehabilitation

Item 7-1

January 13, 2025

Item 7-1
Mills & Jensen Finished Water Reservoir Rehabilitation

Subject

Authorize an increase of $5.55 million to an agreement with Arcadis U.S. Inc. for a new not-to-exceed total amount of $7.55 million for final design to rehabilitate the finished water reservoirs at the Henry J. Mills and Joseph Jensen Water Treatment Plants

Purpose

Improve the reliability of the Mills and Jensen reservoirs

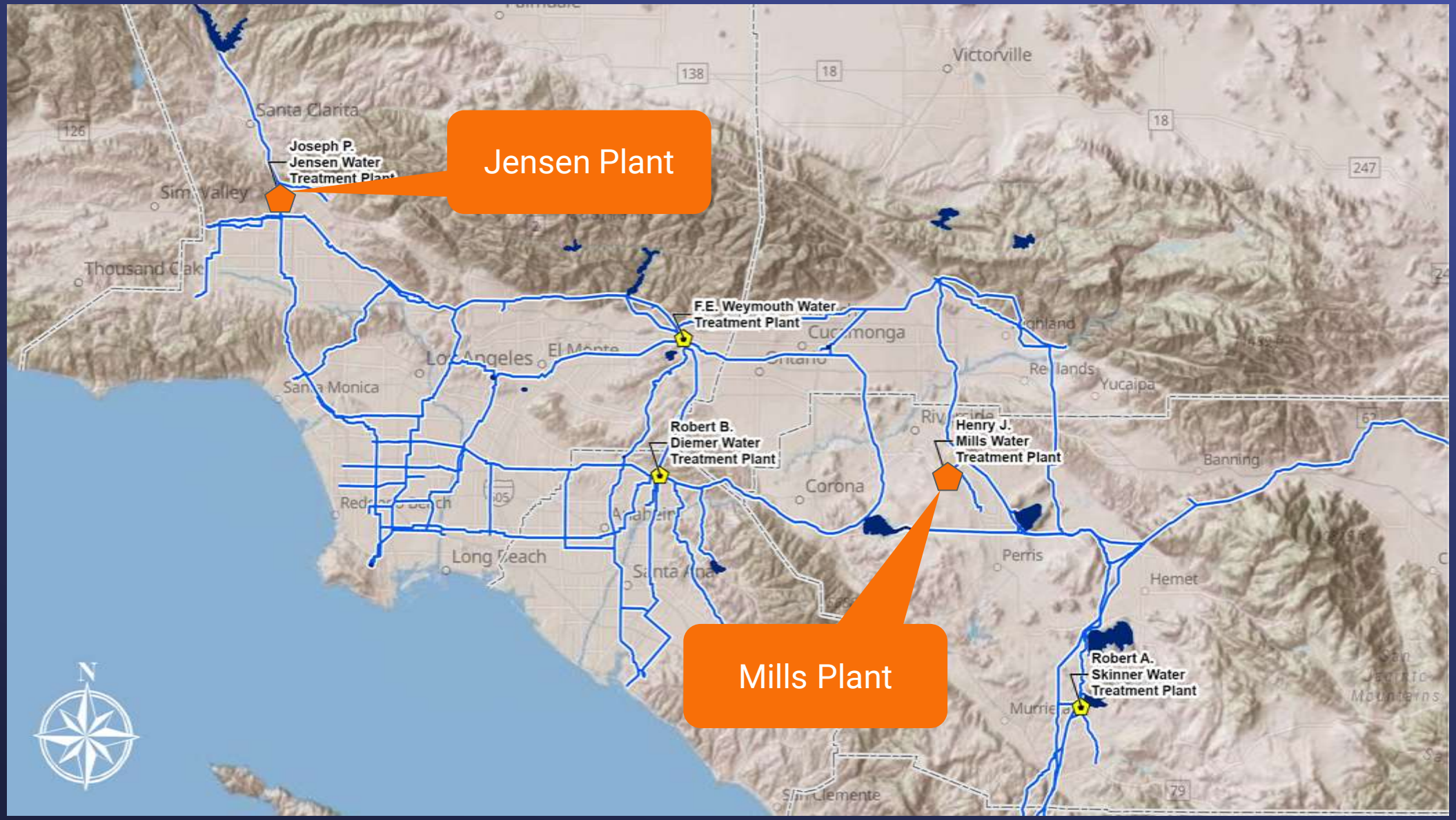
Recommendation and Fiscal Impact

Authorize an amendment to an existing agreement for final design of finished water reservoirs at the Mills and Jensen plants

Fiscal Impact of $8.4 Million

Budgeted

Location Map



Finished Water Reservoirs

Henry J. Mills Water Treatment Plant

Joseph Jensen Water Treatment Plant

Mills & Jensen Finished Water Reservoir Rehabilitation

Floating Covers

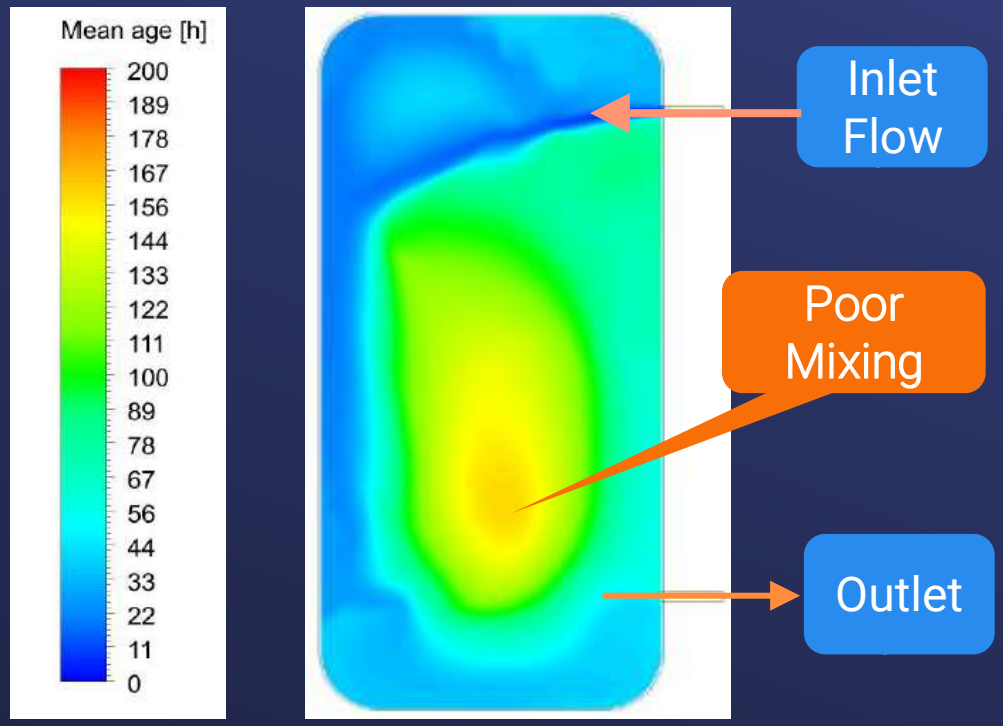
- Mills & Jensen finished water reservoirs floating covers were installed in 1996 & 1997
  - Mills classified as a jurisdictional dam under DSOD
- Floating covers at both plants have exceeded the recommended 20-year service life

2024 EOT inspection trip at Mills reservoirs

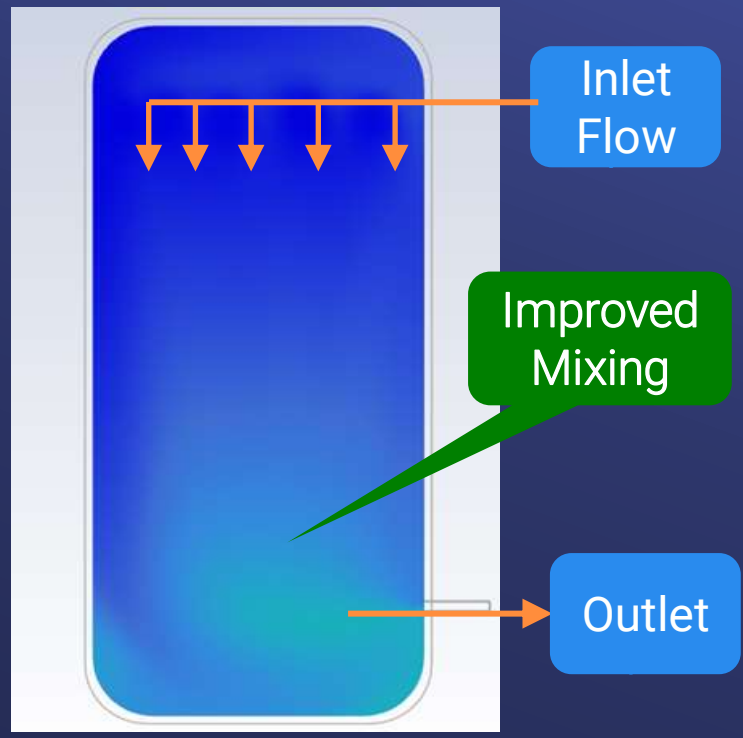
Mills & Jensen
Finished Water Reservoir Rehabilitation

Mixing Improvements

- During low flow conditions, poor water circulation in the reservoirs can lead to potential water quality challenges including nitrification
- Hydraulic modeling shows that inlet flow modifications can improve mixing and reduce water age



Existing Mills FWR No. 2



Proposed Configuration for Mills FWR No. 2

Mills & Jensen
Finished Water Reservoir Rehabilitation

Other Critical Components

- Slide isolation gates & actuators
- Motor control center electrical panels & structures
- Water quality sample lines & sampling equipment structure
- Rainwater & dewatering systems

Existing Gate at Mills FWR No. 1

Outlet at Mills FWR No. 1

Mills & Jensen Finished Water Reservoir Rehabilitation

Planned Improvements

- Reservoir rehabilitation
  - Implement inlet flow modifications to improve water mixing
  - Replace floating covers & liners
  - Replace instrumentation & control panels
- Upgrades to other critical components
  - Water quality sample & testing equipment
  - Reservoir isolation gates
  - Upgrade rainwater & dewatering systems

Mills & Jensen
Finished Water Reservoir Rehabilitation

Alternatives Considered

- Metropolitan staff to complete all final design activities
  - Resource needs exceed staff availability, additional specialized simulation expertise required
- Selected Alternative
  - Use both a professional services agreement to perform specialized portions of design & staff to perform instrumentation design

Mills & Jensen
Finished Water Reservoir Rehabilitation

Arcadis U.S. Inc. – Agreement

- Competitively selected under RFP No. 1328 for preliminary design
- Recommended amendment
  - Perform final design
    - Preparation of drawings & technical specs
    - Construction cost estimate
  - Amendment amount: $5.55 M
  - New NTE amount: $7.55 M
- SBE participation level: 25%

Mills & Jensen
Finished Water Reservoir Rehabilitation

Metropolitan Scope

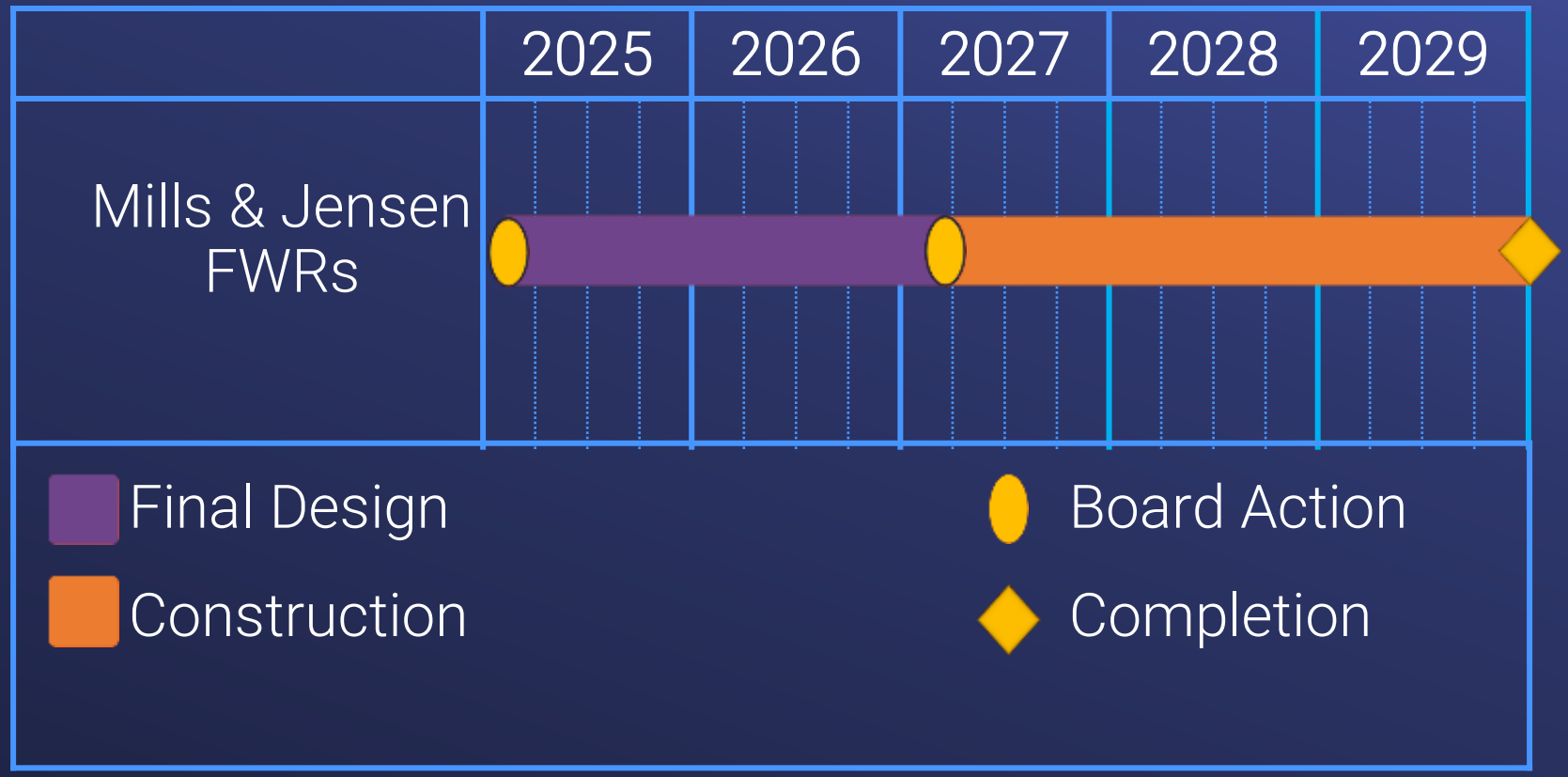
- Piping & instrumentation design
- Project management, permitting, & technical oversight
- Shutdown planning & value engineering

Allocation of Funds

Mills & Jensen Finished Water Reservoir Rehabilitation

Metropolitan Labor	
Final Design	$ 1,420,000
Owner Costs (Proj. Mgmt., Contract Admin., Envir. Support)	870,000
Professional/Technical Services	
Arcadis US Inc.	5,550,000
Constructability review	130,000
Remaining Budget	430,000
Total	$ 8,400,000

Project Schedule – Finished Water Reservoir Rehabilitation



Board Options

- Option #1

  Authorize an increase of $5.55 million to an agreement with Arcadis U.S. Inc. for a new not-to-exceed amount of $7.55 million for final design to rehabilitate the finished water reservoirs at the Henry J. Mills and Joseph Jensen Water Treatment Plants.

- Option #2

  Do not proceed with the project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

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

1/14/2025 Board Meeting

9-2

Subject

Update on the Colorado River Aqueduct High-Voltage Transformers Replacement Project

Executive Summary

The Colorado River Aqueduct (CRA) system utilizes 69 kV and 230 kV transformers to step down Hoover and Parker power to the lower voltages used to run the main pumps and other equipment at the five CRA pumping plants. The existing transformers have exceeded their design life, show signs of deterioration, and require replacement to maintain reliable CRA water deliveries. This item is being presented to update the Engineering, Operations, and Technology Committee on recent efforts to procure the high-voltage power transformers. A spring 2025 board action is planned to award a procurement contract for the 35 transformers and to authorize final design services related to the installation of these transformers at all five CRA pumping plants.

Applicable Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

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

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Metropolitan Water District Administrative Code Section 8150: Best Value Procurement

Related Board Action(s)/Future Action(s)

By Minute Item 52330, dated April 13, 2021, the Board authorized preliminary design to replace the CRA main pump transformers.

Board action planned for spring 2025 to award a procurement contract for 35 CRA transformers and amendment of an existing agreement for final design in support of the CRA Transformer Replacement Project.

Details and Background

Background

The CRA is a 242-mile-long conveyance system that transports water from the Colorado River to Lake Mathews. It consists of five pumping plants, 124 miles of tunnels, siphons, and reservoirs, 63 miles of canals, and 44 miles of cut-and-cover conduits. The aqueduct was constructed in the 1930s and was placed into service in 1941.

Electrical power for the CRA's five pumping plants is transmitted via 237 miles of high-voltage lines from Hoover and Parker Dams. Higher voltages are used on overhead power lines to increase transmission efficiency, and the voltage is then decreased (stepped down) at the CRA pumping plants to match the lower voltages of plant equipment. Four pumping plants have incoming voltages of 230 kV, while the incoming voltage at the Intake

pumping plant is 69 kV. Each plant uses seven single-phase power transformers to step down the voltage from its incoming voltage to the operating voltage of 6.9 kV, which is used to operate the main pumps and other equipment. There are 35 transformers across all five pumping plants. At each plant, four transformers were installed in 1939 with the initial construction of the aqueduct, and the remaining three transformers were installed in 1959 with the aqueduct's expansion. The seven transformers at each plant are arranged in two banks of three transformers, each with one common spare unit. Each transformer bank powers up to five pump units, or approximately 63 percent of the aqueduct's capacity.

While a typical power transformer service life is expected to be 40 to 50 years, the CRA's transformers have operated continuously for over 80 years due to thorough maintenance and ideal operating conditions in a dry climate. In the mid-1980s, a significant effort was undertaken to rehabilitate and refurbish the original transformers installed in 1939. Most transformers continue to operate reliably; however, recent inspections have identified elevated gas levels in the transformer oil, an early indicator of equipment failure. Analysis of this data, along with operational performance and non-destructive microscopic examinations of selected transformers' insulating materials, indicates that the transformers are nearing the end of their service life and need replacement to ensure the reliable operation of the CRA.

Due to the specialized nature of the transformers and the continued strong demand for electrical equipment, long lead times are required for manufacturing. As such, staff recommends the transformers be procured before the installation contract is ready for advertisement. This approach ensures the transformers are available when the installation contractor mobilizes to conduct on-site work and minimizes impacts on the plants' operations during installation and commissioning. Deliveries of the transformers will be staged, and they will be stored at the individual pumping plants before installation.

To ensure manufacturers could meet Metropolitan's requirements and had sufficient experience, ability, resources, and demonstrated performance to provide custom high-voltage power transformers, staff conducted extensive, worldwide outreach to transformer suppliers. A Request for Qualification No. 1240A was issued on October 8, 2021, to prequalify potential bidders. Statements of Qualifications were received on November 19, 2021. Six manufacturers and/or authorized distributors were prequalified to bid on the transformer's procurement contract. They included Delta Star Inc., Hitachi, ILJIN Electric USA Inc., Siemens Energy, Tubos Trans Electric, and WEG Transformers USA.

Specifications No. 1897 – Furnishing 69 kV and 230 kV Power Transformers for the Colorado River Aqueduct Pumping Plants was advertised on May 19, 2023, to the prequalified manufacturers. During the bidding period, manufacturers indicated to staff that market conditions had significantly changed since the prequalification list was established, and substantial exceptions would be taken concerning: (1) Technical requirements; (2) Standard contract terms and conditions, including delivery schedule and warranty; and (3) Up-front, fixed pricing for the units. Items affecting fixed pricing include unprecedented global industry demand for transformers, current global events that have caused disruptions to supply chains, and significant materials price fluctuations. Collectively, these issues result in even longer lead times to procure the transformers.

The advertisement period for Specifications No. 1897 closed on September 21, 2023, after two separate time extensions were granted at the request of the potential bidders. Metropolitan received only one bid that was deemed nonresponsive and rejected, as it only included pricing for seven of the 35 transformers. In addition, the vendor took numerous exceptions to Metropolitan's bidding requirements and technical specifications.

Following these bidding challenges, staff elected to implement best-value procurement provisions, per Metropolitan's Administrative Code Section 8150. This approach allows prequalified manufacturers to submit proposals addressing the solicitation's technical specifications while enabling the evaluation of additional factors beyond cost. These factors include payment schedules, material escalation clauses, operational performance guarantees, warranty provisions, and delivery schedules, all of which can be negotiated with manufacturers.

Request for Proposal (RFP) No. 1360 was issued on March 15, 2024. Before advertisement, staff conducted extensive outreach to each of the prequalified manufacturers and determined that only two could furnish transformers that meet all of Metropolitan's technical requirements. Metropolitan then solicited the two

manufacturers to provide proposals under RFP No. 1360. One proposal was received from Siemens Energy Inc. (Siemens), whose manufacturing facilities are in Austria, on July 18, 2024. Metropolitan completed a thorough review and analysis of the submitted proposal. Siemens has proposed commercial terms that differ materially from those included in Metropolitan's standard procurement contracts. Metropolitan entered negotiations in September 2024 with Siemens on contract pricing, technical requirements, and contractual terms and conditions.

Siemens provided a cost breakdown in 2024 U.S. dollars for proposal evaluation totaling over $110 million. These costs do not include manufacturer field services, optional testing procedures if exercised by Metropolitan, price adjustments based on escalation, or the possible imposition of tariffs. In addition, delivery terms were proposed in a cost-plus format to hedge against uncertainty with future costs. Staff contacted several entities that have recently purchased large transformers and found the initial proposal was reasonable and reflects the high demand and limited manufacturers of the specialty equipment.

Next Steps

Staff is negotiating the proposal with Siemens to achieve the best overall value for Metropolitan, including addressing potential price escalation. Upon successful completion of the negotiations, staff will return to the Board in the first half of 2025 to award a procurement contract for 35 high-voltage power transformers, as well as to authorize final engineering design services for the installation of the 69 kV and 230 kV transformers at the five CRA pumping plants.

Project Milestone

March 2025 – Board award of a procurement contract for 35 CRA main transformers

12/19/2024
Mai M. Hattar *Date*
Interim Chief Engineer
Engineering Services

12/26/2024
Deven Upadhyay *Date*
Interim General Manager

Ref# es12699870

Engineering, Operations, & Technology Committee

Update on Colorado River Aqueduct High-Voltage Transformers Replacement Project

Item 9-2

January 13, 2025

Item 9-2
CRA High-Voltage Transformers Replacement Project

Subject

Colorado River Aqueduct High-Voltage Transformers Replacement Project

Purpose

Provide an update on the CRA High-Voltage Transformers Replacement Project, which will enhance reliability of pumping operations in the Desert Region

Next Steps

Continue contract negotiations with Siemens Energy Inc.

Board Action planned for Spring 2025 to award a procurement contract for 35 transformers & authorize final engineering design services

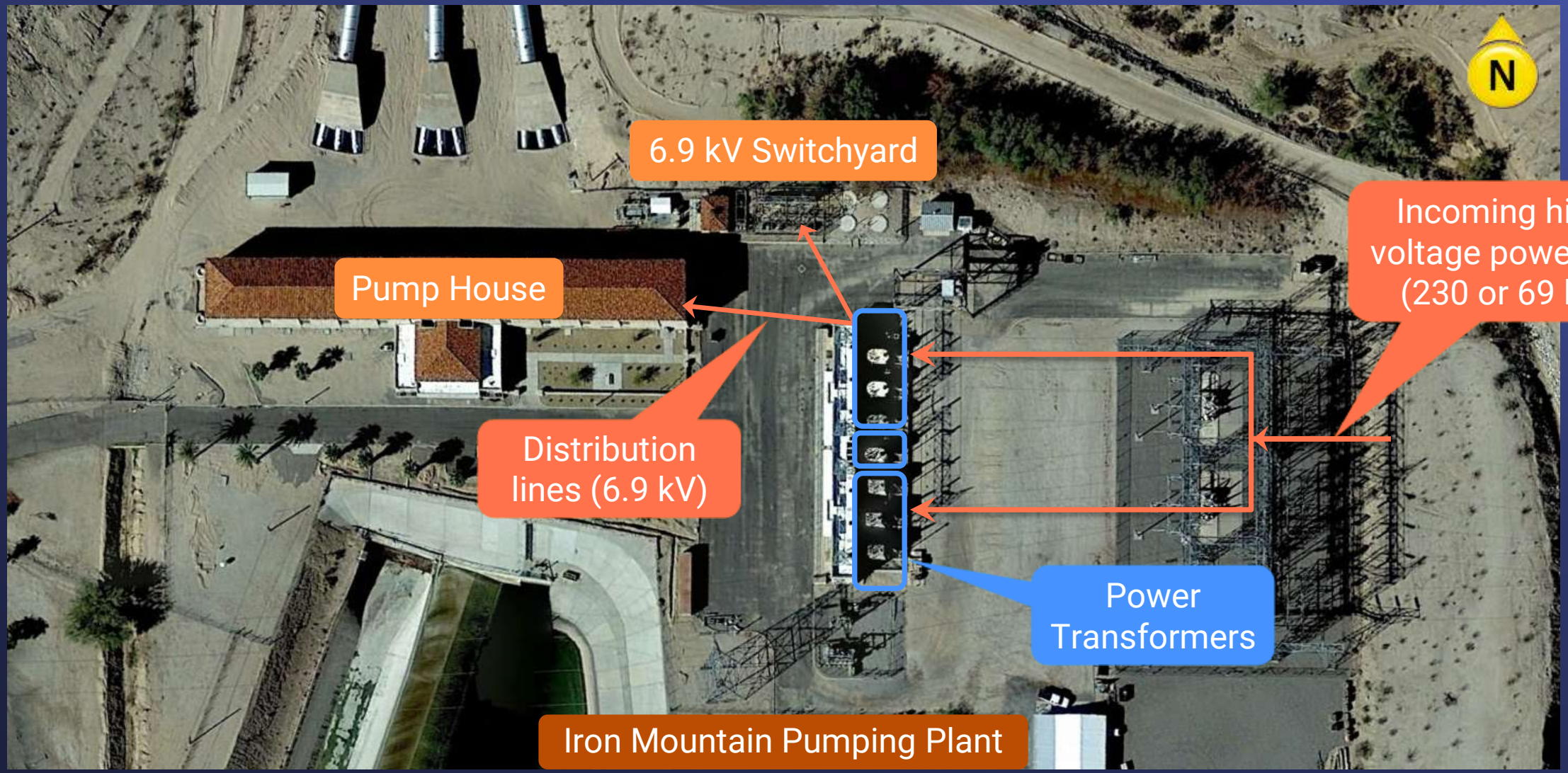
CRA High-Voltage Transformers Replacement

Agenda

- Background
- Planned Improvements
- Installation Methodology
- Procurement Approach
  - Best Value Procurement
- Negotiations Highlights
- Costs
- Schedule
- Next Steps

Project Location

Typical Site Layout



Background

- Facilities initially constructed in 1939
- 35 transformer units
  - 15 in service since 1940
  - 20 in service since late 1950s
- Exceeded typical life expectancy
  - Deteriorating insulation materials
- Potential failure may impact water deliveries

Hinds Pumping Plant

Planned Improvements

- Replace 35 transformers at 5 CRA pumping plants
- Upgrade foundations to meet current seismic standards
- Enhance physical security features
- Construct secondary containment systems

Gene Pumping Plant

Iron Mtn. Pumping Plant

Installation Methodology

- All 35 units will be delivered in advance & stored onsite for installation
- Transformers will be replaced one unit at a time across all plants
  - Provides 8-pump flow flexibility
  - Ensures alignment with water supply needs
- 5 transformers will be replaced per year
  - Coordination required with annual CRA shutdowns to minimize impacts on pumping plant operations

Eagle Mtn. Pumping Plant

Intake Pumping Plant

Procurement Approach

- Apr ’21: Initiated preliminary design
- Mar ’22: Prequalified 6 transformer manufacturers
  - Conducted extensive vendor outreach
- May ’23: Completed preliminary design & advertised transformer procurement package
  - No responsive bids received
    - Limited number of manufacturers met technical requirements
    - Reluctance to provide upfront pricing due to supply chain disruptions & material price volatility
    - Priority given to repeat customers

Best-Value Approach

- Mar ’24: Re-advertised solicitation as “best value” procurement to all prequalified manufacturers
  - Administrative Code Section 8150
  - Evaluate factors in addition to capital costs
- Jul ’24: Received one responsive proposal from Siemens Energy Inc.
  - GM authorized to enter negotiations
- On-going negotiations with Siemens
  - Terms & Conditions
  - Technical Standards/ Requirements
  - Cost
  - Delivery Schedule

Negotiation Highlights

- Payment Schedule
- Price Adjustment
  - Escalation/ De-escalation
  - Labor, materials, & currency exchange
- Other Price-Related Risks
  - Tariffs
  - Uncertainty of global events
- Limitations on Liability
- Warranty

Eagle Mtn. Pumping Plant

Project Costs

- Procurement costs:
  - All 35 units estimated between $100 M to $140 M
  - Each transformer is approx. $2.5 M to $3.5 M
  - Includes taxes, delivery & spare parts
- Installation costs:
  - All 5 sites estimated between $90 M to $110 M

Iron Mtn. Pumping Plant

Project Schedule

CRA
High-Voltage Transformers Replacement

Next Steps

- Complete contract negotiations with Siemens Energy Inc.
- Spring board action planned to award procurement contract & amend consultant agreement for final design services


THE METROPOLITAN WATER DISTRICT OF
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Engineering, Operations & Technology Committee

Prestressed Concrete Cylinder Pipe Rehabilitation Program Update

Item 6a

January 13, 2025

Item 6a
Prestressed Concrete Cylinder Pipe Rehabilitation Program Update

Subject

Update on PCCP Rehabilitation Program

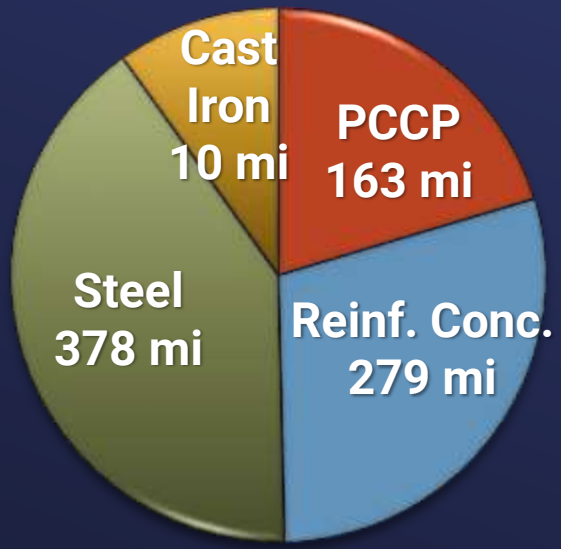
Purpose

Provide briefing on status of the PCCP Rehabilitation Program

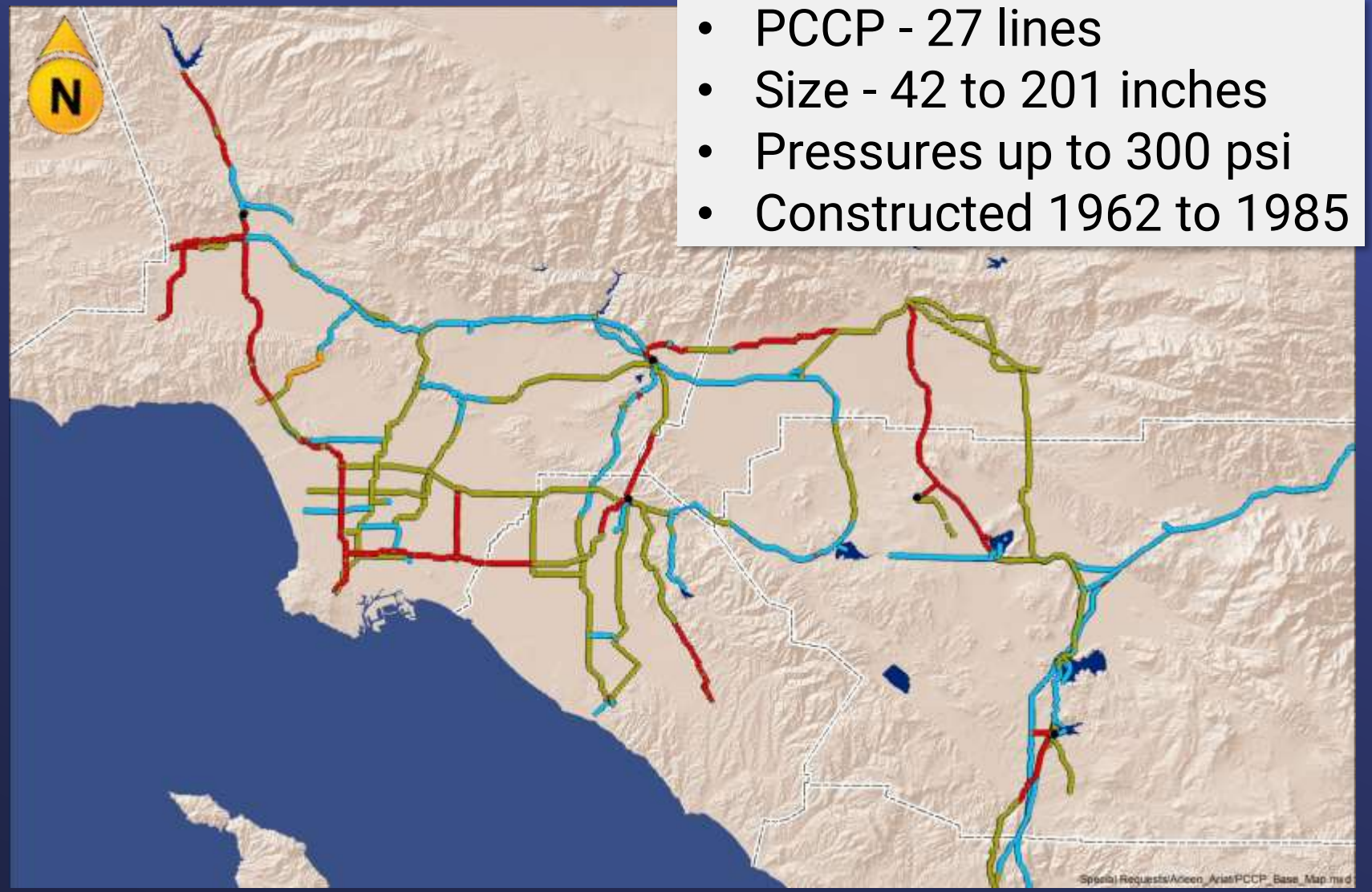
Next Steps

Continue implementation of the PCCP Rehabilitation Program with a schedule consistent with board priorities

PCCP Rehab Program Update

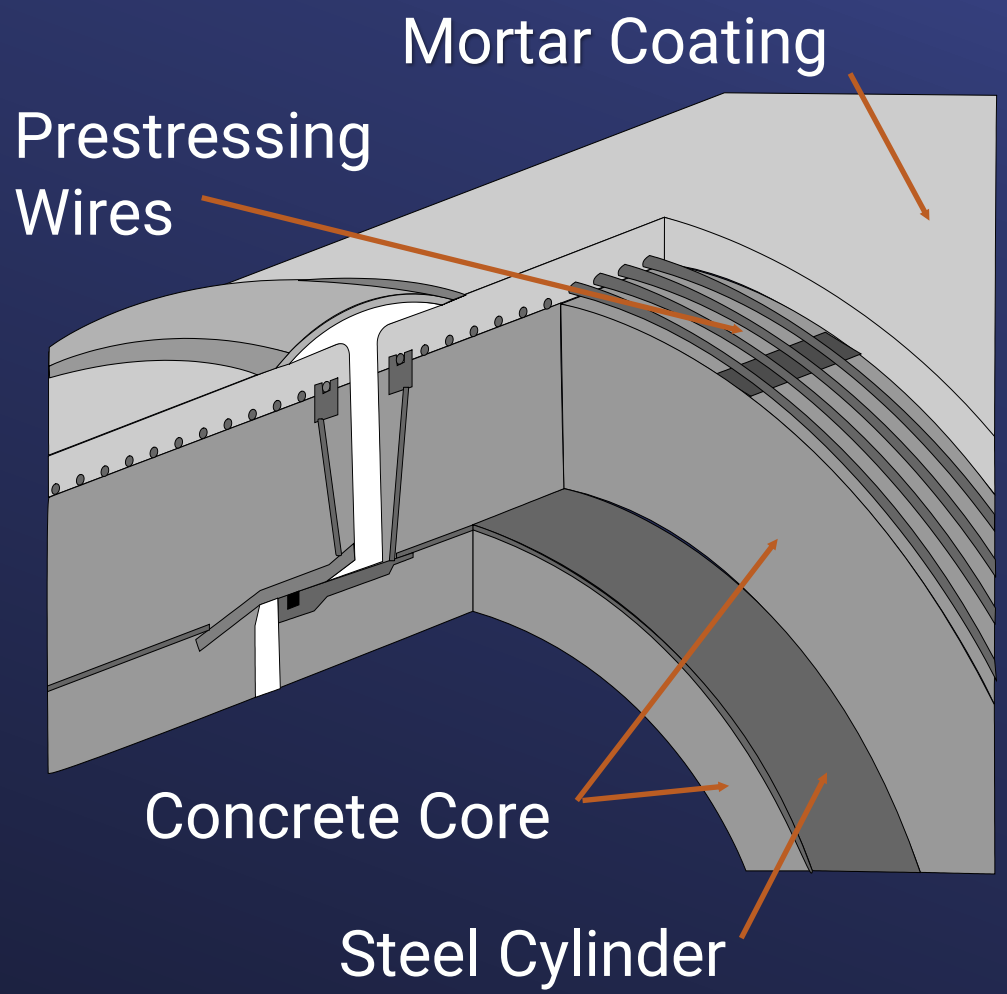


Distribution System

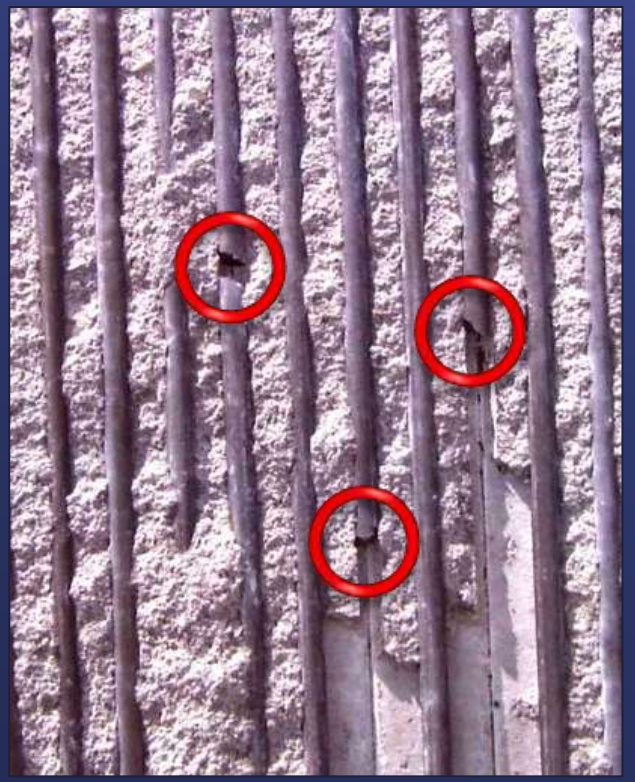


- PCCP - 27 lines
- Size - 42 to 201 inches
- Pressures up to 300 psi
- Constructed 1962 to 1985

Prestressed Concrete Cylinder Pipe (PCCP)



Broken Prestressing Wires



PCCP Management Strategy

- Continue regular inspection & monitoring
  - Visual & electromagnetic inspections
  - Investigate new technologies
  - Monitor stray currents & install drain stations where necessary
- Perform repair of distressed segments
- Plan & execute long-term rehabilitation
  - Identify & prioritize reaches
  - Reline or replace pipelines based on priority of individual reaches
  - Adjust priorities as needed

Second Lower Feeder Relining

2024/2025 Electromagnetic Inspections

Pipeline	Miles
Lake Perris Bypass	2.2
Second Lower Feeder	5.4
East Lake Skinner Bypass	1.3
San Diego Pipeline No. 5	7.8
Auld Valley Pipeline	2.1
Rialto Pipeline	15.9
Yorba Linda Feeder	5.0
Lake Skinner Outlet Conduit	0.8
La Verne Pipeline	2.0
Total	**42.5**

Electromagnetic Inspection

PCCP Rehabilitation Program

- **5 PCCP priority lines**
- **100 miles to be rehabilitated**

PCCP Rehabilitation Program Budget

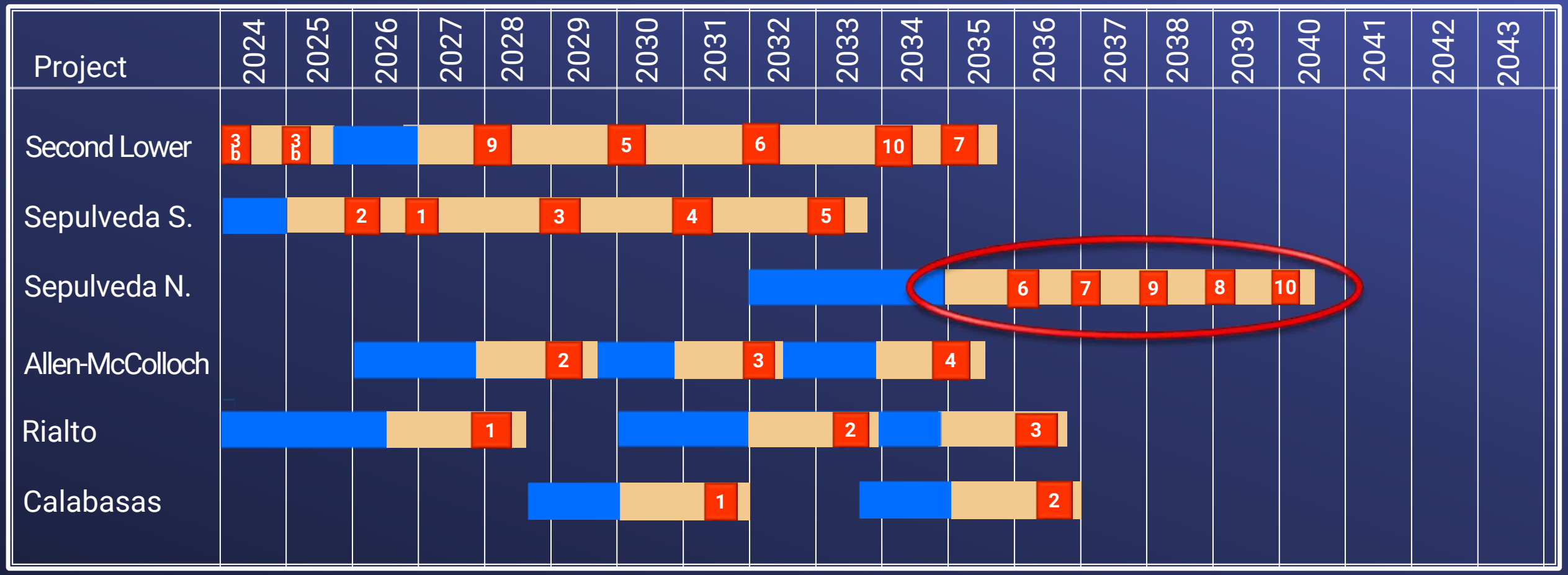
Feeder	Program Estimate	Actual Costs	Work Completed
Second Lower	$696,000,000	$291,052,655	• 16.5 miles relined (55%)
Sepulveda	$1,384,000,000	$38,584,540	• 1.6 miles relined (4%)
Rialto	$547,000,000	$3,480,148	• Completing prelim. design
Calabasas	$160,000,000	$2,496,345	• Prelim. design underway
Allen-McColloch	$320,000,000	$54,840,351	• 3.2 miles completed or underway (35%)
Other	$40,000,000	$26,233,928	
Total	**$3,147,000,000**	**$416,687,967**	• **21.3 miles total relined (21%)**

Sepulveda Pump Stations

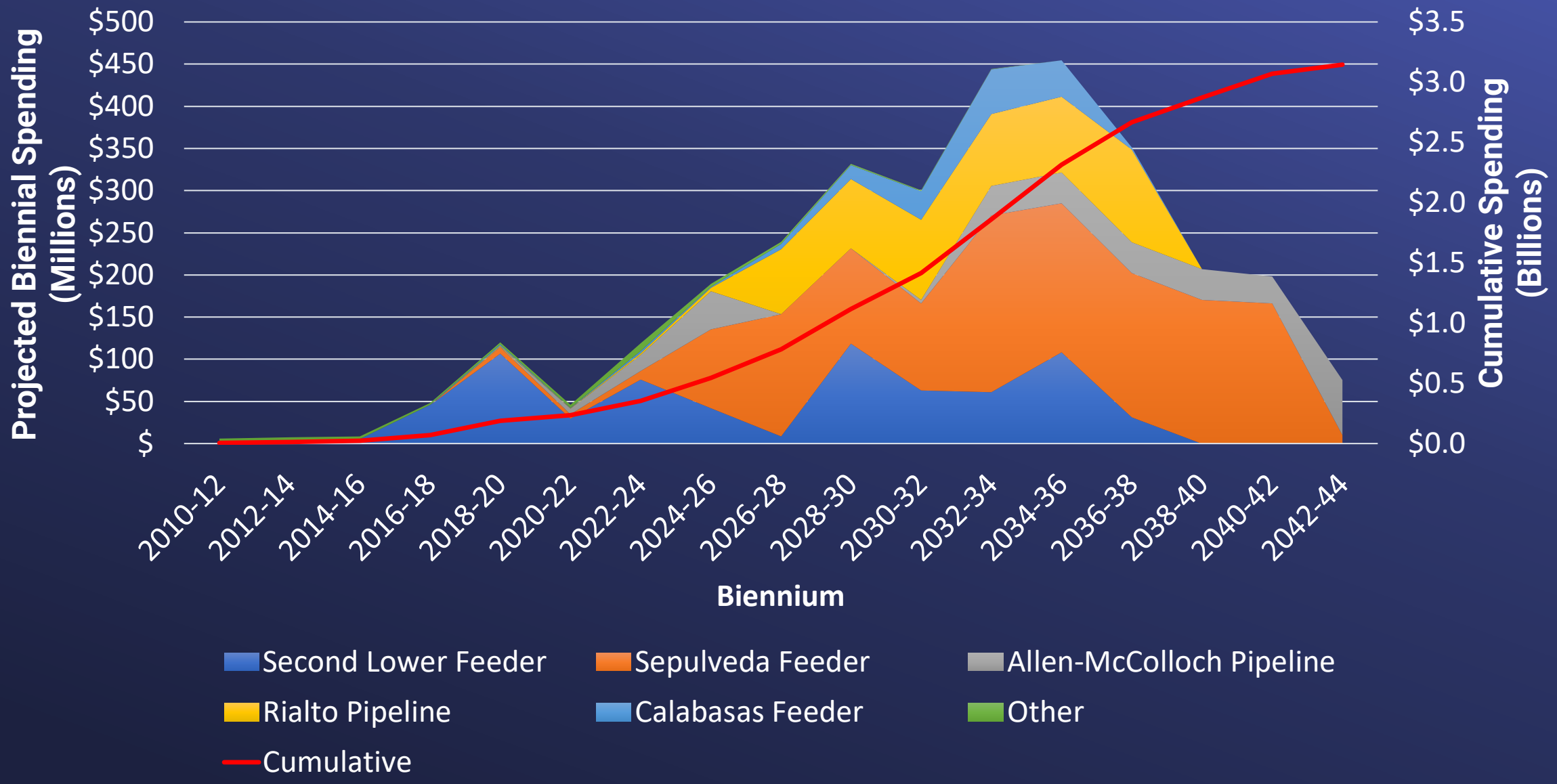
- Drought mitigation effort – Allows pumping of CRA supplies to western SWP dependent areas
- Stage 1 – 30 CFS
  - Current Progressive Design-Build contract underway
  - Projected 2027 online date
  - No PCCP relining required
- Stage 2 – 160 CFS
  - Anticipated 2032 online date
  - Being evaluated under CAMP4Water
  - Requires relining of Sepulveda Feeder

Venice Pump Station Rendering

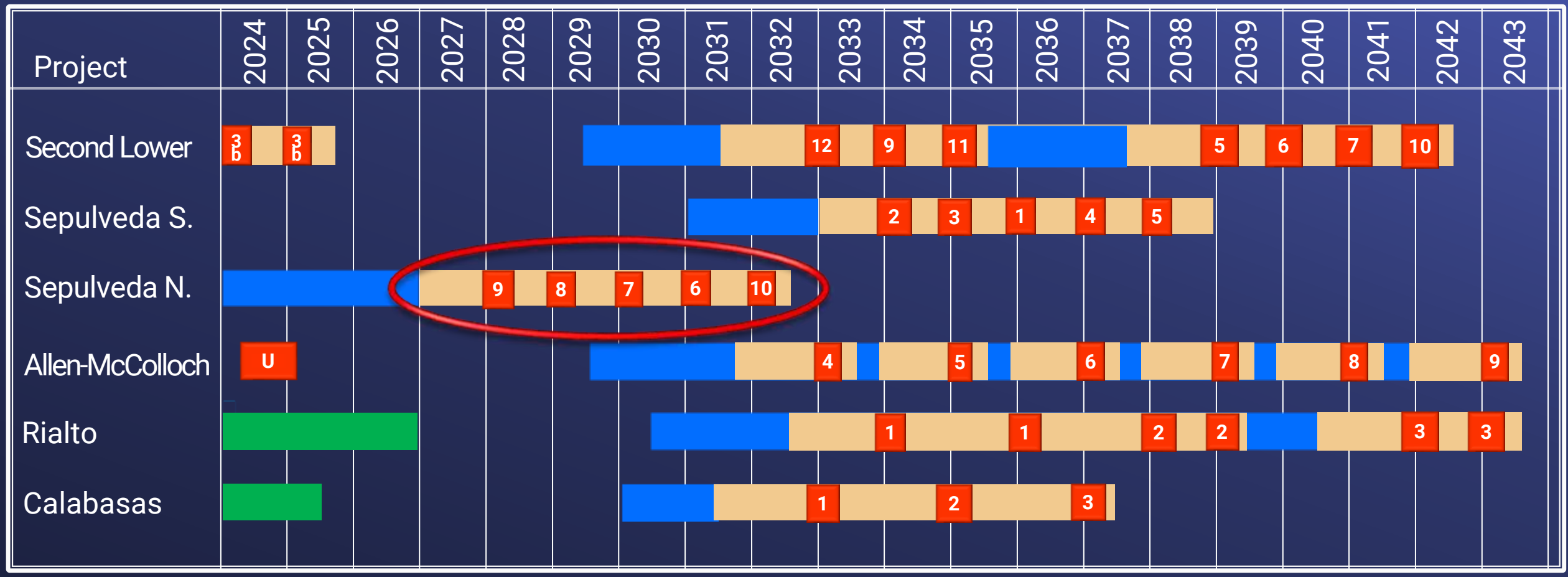
PCCP Rehabilitation Program Early Completion Schedule



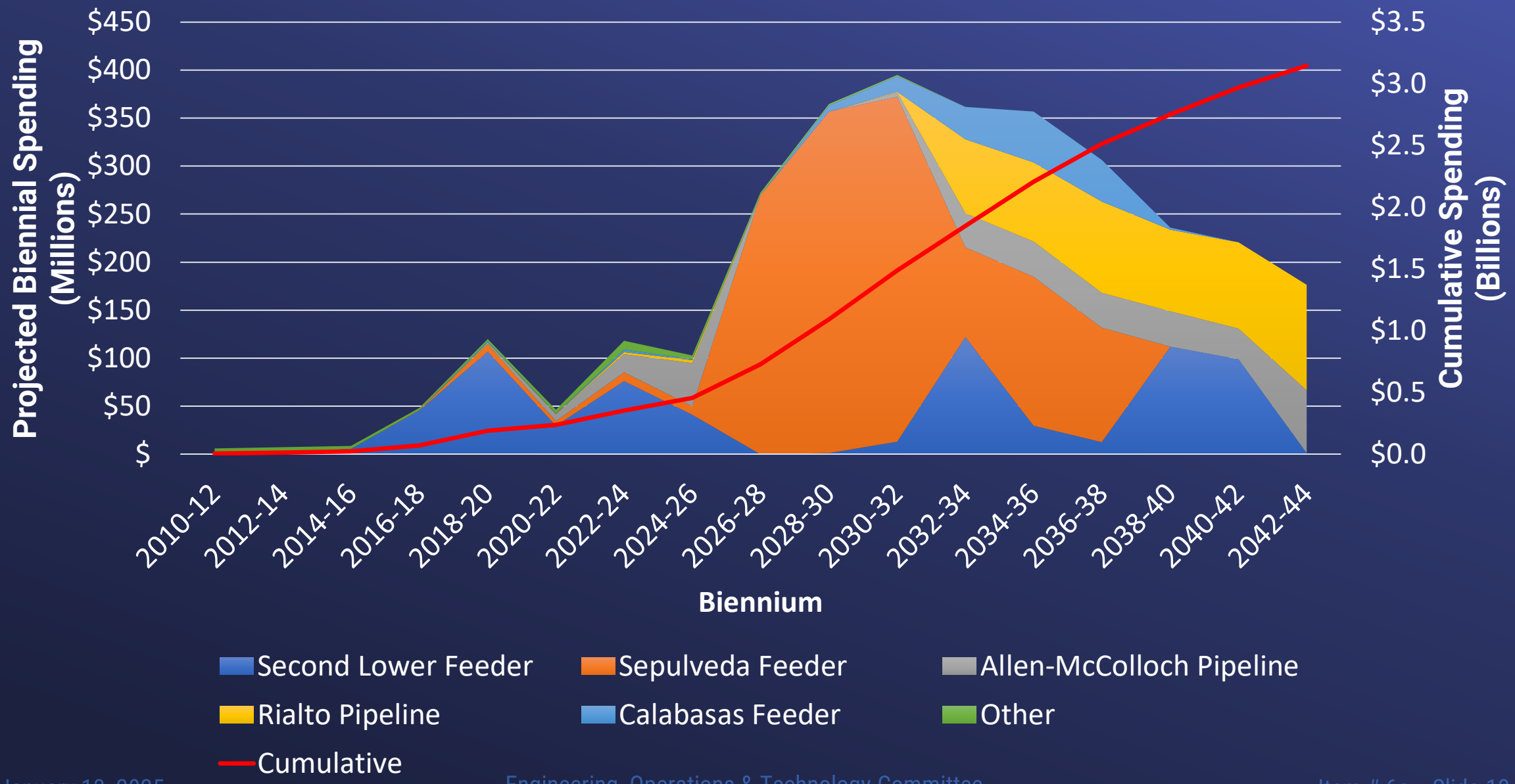
PCCP Rehab Program Biennial Early Completion Cash Flow



Accelerated PCCP Rehabilitation Program Schedule



Accelerated PCCP Rehab Program Biennial Cash Flow



Summary

- Accelerated PCCP Rehabilitation Program schedule
  - Moves forward aggressively with Sepulveda Feeder relining to support Sepulveda Feeder Pumping
  - Relines all priority feeders by 2044
- Program schedule can be adjusted to meet CIP budget limits
- Increased PCCP failure risk can be mitigated with increased inspection
  - Potential for increased urgent relining projects
  - Inspections show PCCP generally stable

Next Steps

- Continue implementation of PCCP Rehabilitation Program strategy to mitigate risk
  - Complete preliminary designs
  - Perform inspections
    - Adjust priorities based on inspection results
    - Conduct urgent repairs if needed
  - Perform comprehensive rehabilitation based on risk priority
- Evaluate schedule options
  - Consider CIP cash flow
  - Overall system reliability
- Return with program schedule options


THE METROPOLITAN WATER DISTRICT OF
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Engineering, Operations, & Technology Committee

Update on Invasive Mussels in State Water Project

Item 6b

January 13, 2025

Item 6b
Update on Invasive Mussels in SWP

Subject

Invasive mussels in the State Water Project

Purpose

Provide an update on invasive quagga and golden mussels in the State Water Project and their current and possible impact on Metropolitan's operations

Next Steps

Continue monitoring invasive mussels in SWP, coordinate with state agencies, and assess potential control measures

Invasion of the Colorado River Aqueduct

Quagga Mussels in CRA

- First discovered in Lake Mead in January 2007
- Spread quickly through the CRA by July 2008
- Colonized intakes and raw water conveyance facilities
- Safety of drinking water not affected

Yorba Linda Feeder, 2011

Colonized Intake Trash Rack

Multi-Generation Cluster of Quagga Mussels

Quagga Mussel Control in the CRA System

Continuous Chlorination at Copper Basin, Lake Mathews, Lake Skinner

Periodic Tower Chlorination at Lake Mathews and Lake Skinner

Periodic Cleaning of Trash Racks and Fish Screens

Desiccation, Cleaning and Inspections during CRA Shutdowns

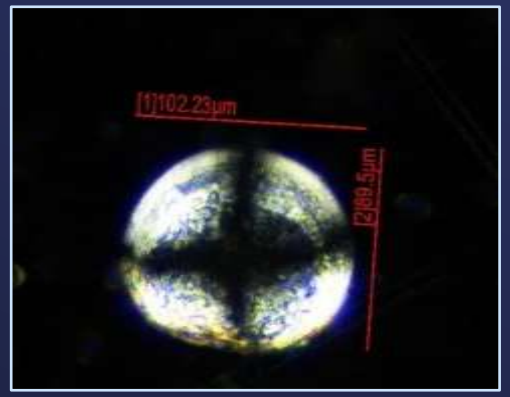
Extensive Veliger Monitoring

Control Measures (e.g., Filtration) during Raw Water Discharges

Quagga Mussels in West Branch State Water Project

- Adult mussel discoveries
  - 2016 — Pyramid Lake and Angeles Tunnel
  - 2021 — Pyramid Lake and Castaic Lake
  - 2023 — Pyramid, Elderberry Forebay, Castaic, and Castaic Lagoon
- Veliger monitoring by microscopy
  - January 2023 — Veligers (larval stages) consistently detected in Pyramid Lake, Castaic Lake, Foothill Feeder PCS, and Jensen Plant influent

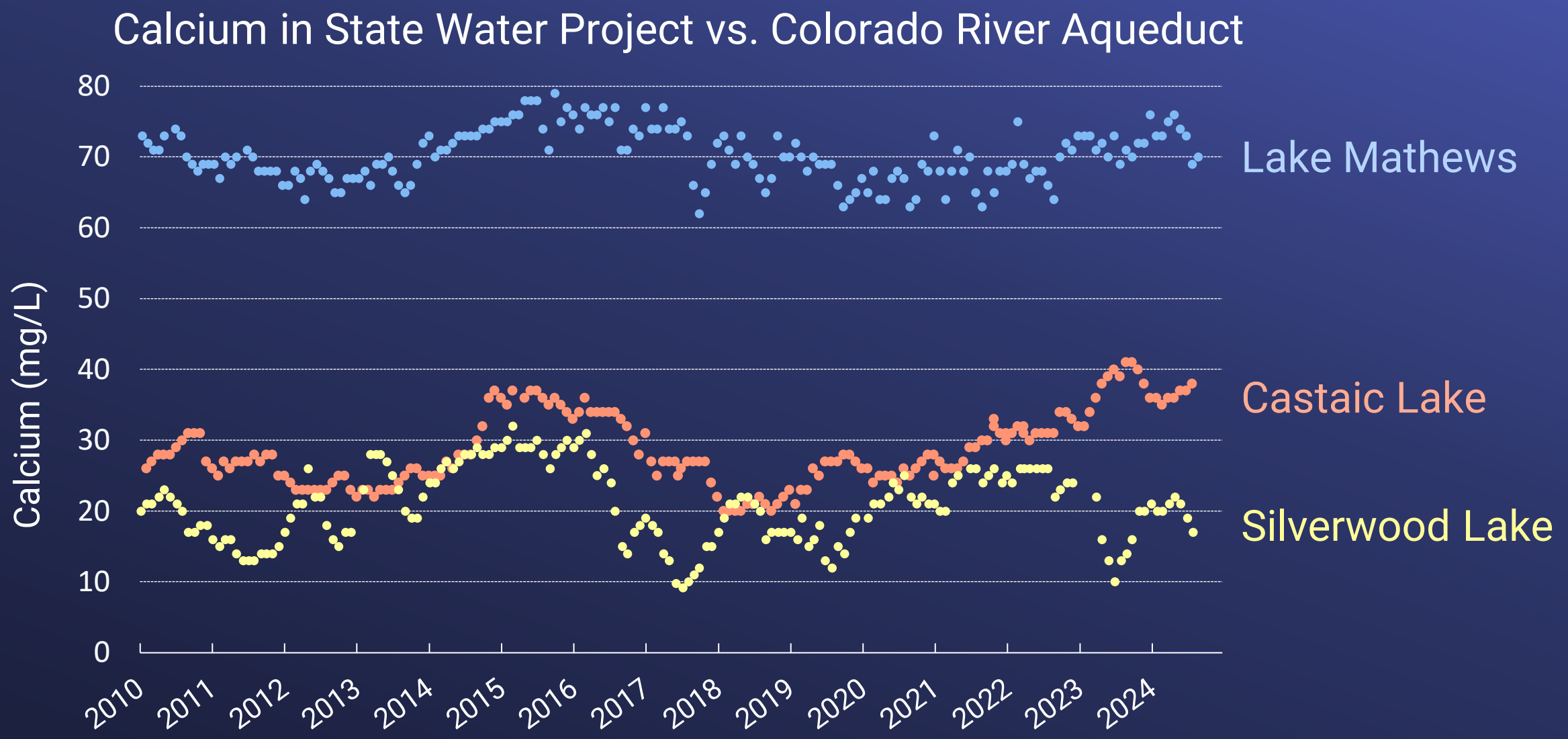

Castaic Lake, 2021



Foothill Pressure Control Structure veliger, 2023


Castaic Outlet Tower, Sept. 2024

Calcium in WB-SWP Supports Quagga Mussel Reproduction



Impact of Quagga Mussels on Current Operations

- Water leaving Castaic Lake is now considered to be infested
- More extensive monitoring of adults and veligers
- Control measures required to limit further spread and protect infrastructure
  - Raw water discharge plans for water deliveries and shutdowns
  - Implement control measures – percolation and/or filtration

Veliger Sampling at Castaic Lake

Veliger Monitoring by Microscopy

Filters for Raw Water Discharges

Quagga Mussel Impacts on Operations in WB-SWP

Foothill Feeder Shutdown

- Rescheduled from 2025 to 2026 to allow time to implement control measures
- Filtration
- Raw water discharge plan to be approved by CDFW

B-06 Delivery - Groundwater Replenishment, 2024-2025

- Raw water discharge plan approved by CDFW
  - Percolation
  - Veliger monitoring

Next Steps

- Assess management and control options
- Coordinate with CDFW, DWR and other agencies

New Invasive Mussels 2024

Golden Mussels

- Native to China and southeast Asia
- Similar to quagga mussels with impacts on infrastructure and operations
  - Veligers are free-swimming and migrate through water
  - Adults attach to solid surfaces
- Adapt to a wide range of freshwater environments
- Spread to at least nine countries in last 50 years
  - South America in 1990s

Global Distribution of Golden Mussels Prior to October 2024

Image credit: Boltovskoy, CC BY-SA 4.0

Global Distribution of Golden Mussels After October 2024

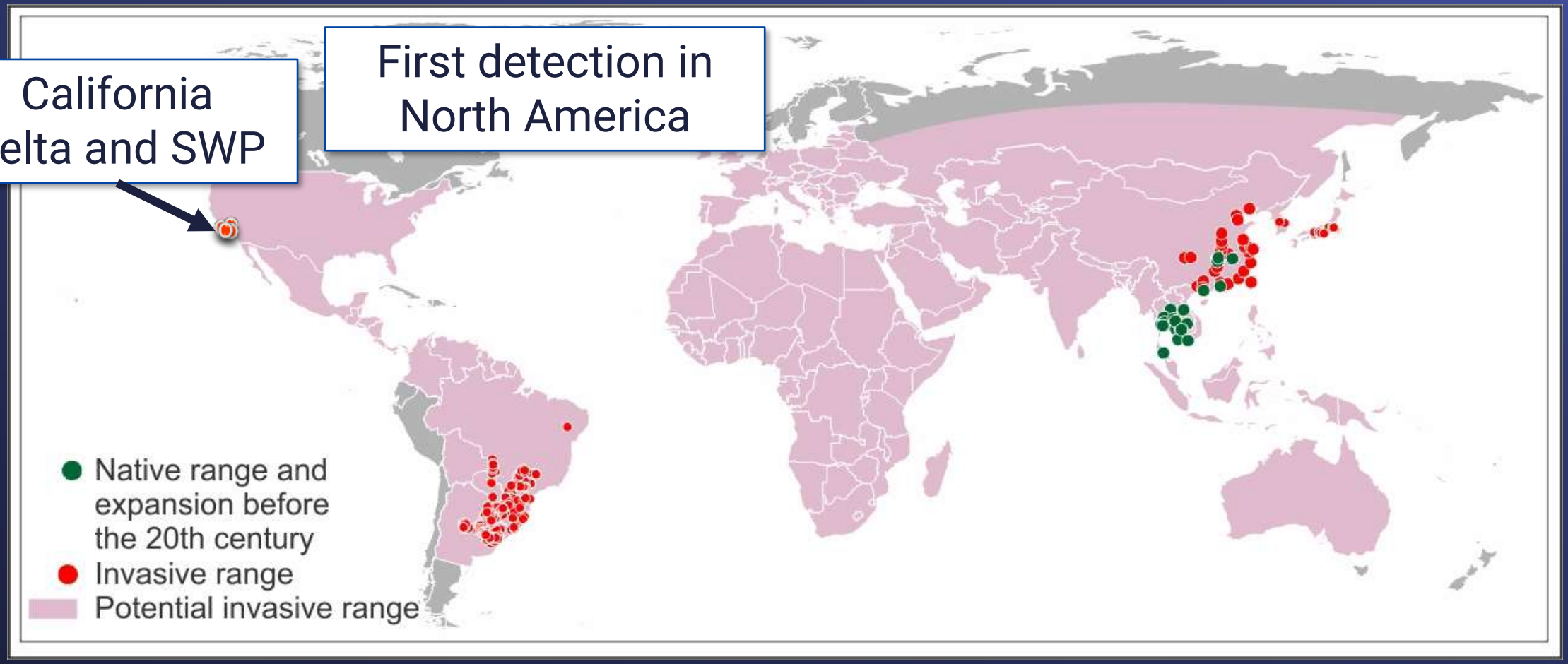


Image credit: Boltovskoy, CC BY-SA 4.0

Discovery of Golden Mussels in California Delta and SWP

- Adult mussels found in Port of Stockton and O'Neill Forebay at San Luis Res. in October 2024
- Subsequent inspections found mussels throughout the Delta
- Inspections implemented for boats leaving O'Neill Forebay
- California Fish & Game Commission added golden mussels to list of restricted species
- State taskforce formed to determine extent of invasion and assess control measures

Photos courtesy of DWR

Invasive Mussels in State Water Project

Next Steps

- Continue monitoring invasive mussels
- Assess management and control options
- Manage raw water releases when necessary
- Expand Quagga Mussel Control Plan to include golden mussels
- Coordinate with CDFW, DWR, and other agencies
- Provide updates to the Board and Member Agencies as needed


THE METROPOLITAN WATER DISTRICT OF
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Engineering Services Group

- **Engineering Services Monthly Activities Report for December 2024**

Summary

This monthly report provides a summary of Engineering Services Group activities for December 2024 in the following key areas:

- Colorado River Aqueduct (CRA) Program
- Dams & Reservoirs Program
- Distribution System Program
- Information Technology and Control Systems Program
- Additional Facilities and Systems Program
- Prestressed Concrete Cylinder Pipe (PCCP) Program
- Water Treatment Plants Program
- Pure Water Southern California
- Drought Mitigation – State Water Project Dependent Areas
- Workforce Development

Purpose

Informational

Attachments

Attachment 1: Detailed Report - Engineering Services Group's Monthly Activities for December

Date of Report: January 13, 2025

Engineering Services Key Activities Report for December 2024

Engineering Services manages and executes projects within the Capital Investment Plan (CIP) to maintain infrastructure resiliency, ensure regulatory compliance, enhance sustainability, and provide flexibility in system operations to address uncertain water supply conditions. In addition, Engineering Services provides technical services to enhance reliable system operation and real property planning, valuation, acquisition, and disposition services to protect Metropolitan's assets. Engineering Services empowers our staff and partners with our business partners and the communities we serve to accomplish Metropolitan's mission.

Recent activities on CIP programs and other key engineering functions are described below.

Protect public health, the regional economy and Metropolitan's assets

Colorado River Aqueduct (CRA) Program

The CRA program is composed of CIP projects to replace or refurbish facilities and components of the CRA system to reliably convey water from the Colorado River to Southern California.

- CRA Domestic Water Treatment Systems Upgrade—This project upgrades the domestic water treatment systems at all five CRA pumping plants, including the replacement of the water treatment units. The contractor is currently performing water quality testing of the temporary treatment skid system that was recently installed at the Intake Pumping Plant. The temporary skid will remain in operation until installation, testing, and commissioning of the new system is complete. Construction is 42 percent complete and is anticipated to be completed in March 2026.
- CRA Storage Buildings—This project furnishes and installs pre-engineered steel metal storage buildings at Hinds, Eagle Mountain, and Iron Mountain pumping plants and constructs associated site improvements. The contractor is currently performing site work at Iron Mountain and Hinds pumping plants and has initiated erecting the building at Eagle Mountain Pumping Plant. Construction is 57 percent complete and is scheduled to be completed in April 2026.
- Main Transformer Procurement—This project replaces 35 230 kV and 69 kV step-down transformers that are used to operate the main pumps at all five of Metropolitan's Colorado River Aqueduct pumping plants. Preliminary design was completed in June 2023. The transformer procurement was

advertised as a best-value procurement contract, and staff is currently negotiating the contract terms. A board action for award of a procurement contract and authorization of a consulting agreement for final design is scheduled for March 2025.

- Eagle Mountain and Hinds Utilities Improvements—This project will replace the existing potable water, non-potable water, and sewer lines at the Eagle Mountain and Hinds pumping plants. Final design is 95 percent complete and is scheduled to be completed in April 2025.

CRA Domestic Water Treatment Systems Upgrade — Temporary Treatment Skid at Intake Plant

CRA Storage Buildings—Contractor staff installing overhead conduit
at the interior of the Storage Building at Eagle Mountain Pumping Plant

Dams & Reservoirs Program

The Dams & Reservoirs Program is composed of CIP projects to upgrade or refurbish Metropolitan's dams, reservoirs, and appurtenant facilities to reliably meet water storage needs and regulatory compliance.

- Garvey Reservoir Rehabilitation—This project will replace the aging reservoir floating cover and liner, structurally strengthen the outlet tower, upgrade the on-site water quality laboratory building, rehabilitate the junction structure, and replace the existing standby generator and a portion of the security perimeter fence. The final Environmental Impact Report (EIR) for this rehabilitation effort was certified by the Board in November 2024. Final design is approximately 60 percent complete and is scheduled to be completed in September 2025.
- Lake Skinner Erosion Improvements—This project replaces the 4,800-foot concrete v-ditch and rehabilitates the adjacent access road at the toe of the Lake Skinner Dam to improve stormwater drainage and provide long-term protection against erosion consistent with Department of Safety of Dams' requirements. The Board awarded a construction contract in December 2024.
- Lake Skinner Outlet Tower Valve Procurement—This project replaces two 42-inch diameter butterfly valves and actuators to ensure that Lake Skinner can be fully dewatered if needed, consistent with Department of Safety of Dams' requirements. The valve fabricator is preparing submittals for review. The valves are scheduled to be delivered in December 2026.
- Copper Basin Discharge Valve Rehabilitation—This project installs a new 54-inch fixed cone valve and actuator at the base of the dam, refurbishes a slide gate and the existing valve house, and upgrades all associated electrical systems and access ladders at the Copper Basin Reservoir. This project will also include the replacement of access ladders at the Gene Wash Dam. Final design is complete. Acquisition of environmental permits is in progress.

Distribution System Program

The Distribution System Program is composed of CIP projects to replace, upgrade, or refurbish existing facilities within Metropolitan's distribution system, including pressure control structures, hydroelectric power plants, and pipelines, to reliably meet water demands.

- Perris Valley Pipeline Tunnels—This project will complete construction of the Perris Valley Pipeline and provide service connections to Eastern and Western Municipal Water Districts. This project installs 3,000 linear feet of tunnel that crosses the Interstate 215 freeway. The contractor has completed the installation of the 97-inch diameter welded steel pipe and continues to backfill and restore three of the four shafts. The contractor is installing the final connection at the last shaft west of Interstate 215. Overall construction is 95 percent complete and is scheduled to be complete in early 2025.
- Red Mountain Pressure Control Structure (PCS) Sleeve Valve Procurement—This project will furnish a replacement sleeve valve for the Red Mountain PCS facility. The Board awarded the procurement contract in October 2024. The notice to proceed was issued to the supplier in December 2024. The valve is expected to be delivered in the fourth quarter of 2025.
- San Diego Canal Concrete Rehabilitation—This project will replace damaged concrete lining at one location on the San Diego Canal near the interconnection with the Casa Loma Canal. The contractor is currently transmitting submittals for review. Rehabilitation of the liner will occur during the San Diego Canal shutdown scheduled from February to March 2025. The construction effort is approximately 5 percent complete and is scheduled to be completed in April 2025.
- Foothill Hydroelectric Plant and Control Building Seismic Upgrade–This project strengthens the Foothill Hydroelectric Plant and Control Building to withstand a significant earthquake by removing and replacing the roofing system, adding encasements to enlarge and strengthen concrete columns, and reinforcing shallow foundations. The contractor has completed installing the building's roof and placing concrete around the lower half of the existing concrete columns. Construction is approximately 85 percent complete and is scheduled to be completed in February 2025.
- Hollywood Tunnel North Portal Improvements—The project will replace two sleeve valves operated by electric actuators for pressure control and two bonneted knife gate valves for flow isolation at the Hollywood Tunnel North Portal along the Santa Monica Feeder. The valve procurement is currently advertising and scheduled to open bids in January 2025.
- San Gabriel Tower Gate Structure Improvements—The San Gabriel Tower controls water flow in the Upper Feeder downstream of the Weymouth plant. It is also used to provide the required hydraulic grade at the turnouts located upstream from the San Gabriel Control Tower. The project will install three new electrically actuated slide gates in the tower. Value Engineering was recently completed, and the design team is taking the recommendations into consideration. Preliminary design is approximately 95 percent complete and is scheduled to be completed in February 2025.

Perris Valley Pipeline Tunnels—Backfilling and compacting at tunnel shaft site

Information Technology and Control Systems Program

The Information Technology and Control Systems Program is composed of projects to replace, upgrade, or provide new facilities, software applications, or technology that will enhance cybersecurity, reliability, flexibility, and capability of information, communication, and control systems.

- Supervisory Control and Data Acquisition (SCADA) System Upgrades—This project will upgrade Metropolitan's entire control system in incremental stages, spanning the Colorado River Aqueduct, the five water treatment plants, and the conveyance and distribution system. The first stage of this project replaces the control system at the Mills plant, starting with a pilot effort on one of the plant's remote terminal units to demonstrate the proposed technology and the consultant's approach for the plant and the overall project. The pilot phase is 100 percent complete. Staff continued evaluating the results of the recently installed pilot equipment to determine the criteria for equipment implementation. The system upgrades at the Mills plant are scheduled to be completed in October 2026.

Additional Facilities and Systems Program

The Additional Facilities and Systems Program is composed of CIP projects to refurbish, replace, upgrade, or provide new facilities and systems that support Metropolitan's business and district-wide operations.

- Headquarters Physical Security Upgrades—This project implements comprehensive security upgrades for the Metropolitan Headquarters Building. These upgrades are consistent with federally recommended best practices for government buildings. The work has been prioritized and staged to minimize rework and impacts on day-to-day operations within the building. Stage 1 work is complete and provides enhanced security related to perimeter windows and doors. Stage 2 work is complete and provides security system upgrades inside the building with a focus on the main entry rotunda

area, boardroom, executive dining lounge, and security control room. Construction of Stage 3 improvements provides security system upgrades around the perimeter of the building. Construction was completed in December 2024.

- La Verne Shops Improvements—This project improves the La Verne Shops building and installs Metropolitan-furnished shop equipment. The contractor continued installing electrical conduits for branch circuits, began installing reinforcing steel for the new blast booth foundation, continued installing maintenance holes for the new electrical ductbank, and began installing concrete formwork for the blast booth pit walls. Construction is approximately 95 percent complete and is scheduled to be completed in March 2025.
- Diamond Valley Lake Wave Attenuator—This project adds a second attenuator to the existing wave attenuating system at the East Marina in Diamond Valley Lake. The second attenuator will protect the boats and launch ramp from excessive wave action. As part of the improvements, the existing wave attenuator will be relocated to a new location and the new attenuator will be installed in its place. Additional anchors will be placed on the bottom of the reservoir to provide anchorage for the new, longer attenuator. The contractor completed the fabrication of new anchor blocks and began delivery. The project is 28 percent complete and is scheduled to be completed by May 2026.

La Verne Shops Improvements—Safety fencing installed around existing Horizontal Boring Mill

Diamond Valley Lake Wave Attenuator—Preparing Concrete Anchor Blocks for Installation

Prestressed Concrete Cylinder Pipe (PCCP) Program

The PCCP Program is composed of CIP projects to refurbish or upgrade Metropolitan's PCCP feeders to maintain water deliveries without unplanned shutdowns.

- Second Lower Feeder Valve Procurement—This project will procure 13 long-lead-time, 48-inch and 54-inch diameter conical plug sectionalizing valves for the Second Lower Feeder. As PCCP portions of the Second Lower Feeder are rehabilitated, aging sectionalizing valves are being replaced with valves procured under this project. The last valve was delivered to Metropolitan's Lake Mathews facility in December 2024. All 13 valves have now been received.
- Allen-McColloch Pipeline (AMP) Urgent Relining—This project will perform urgent relining of approximately three miles of distressed PCCP segments of the Allen-McColloch Pipeline (AMP) that were discovered during an inspection in 2023. The urgent relining of the AMP is being performed in stages. Stage 1 includes carbon fiber reinforced polymer (CFRP) lining of four segments and steel relining of approximately 4,500 feet of pipeline. Stage 1 upstream of OC-88 is complete. Downstream of OC-88, pipe installation and backfill is complete and site restoration will be complete by December 2024. Stage 2 work consists of 12,600 feet of steel liner installation and appurtenant work. Pipe installation at seven sites is complete, and pipe installation at the last access site began in October 2024. The Stage 2 work is approximately 80 percent complete. Bulkhead removal downstream of OC-88 is planned for January 2025, and site restoration is expected to be completed in March 2025.

- Foothill Feeder Acoustic Fiber Optic (AFO) Installation—This project will install an acoustic fiber optic monitoring system within the 201-inch diameter Foothill Feeder to allow continuous monitoring of the 6.5 miles of PCCP portions, minimizing the need for expensive prolonged shutdowns. Final design is approximately 45 percent complete and is planned for completion by April 2025. The project team is evaluating options for dewatering the pipeline now that quagga mussels have been discovered in the West Branch of the State Water Project. Installation of the AFO system is currently scheduled to occur during the Foothill Feeder shutdown in January 2026.

Allen-McColloch Pipeline (AMP) Urgent Relining—Steel Liner Pipe Installation

Water Treatment Plants Program

The Water Treatment Plants Program comprises CIP projects to replace or refurbish facilities and components at Metropolitan's five water treatment plants and the chemical unloading facility to continue to reliably meet treated water demands.

- Weymouth Basins 5–8 and Filter Building No. 2 Rehabilitation—This project rehabilitates major mechanical and structural components of Basins 5–8 and Filter Building No. 2 at the Weymouth plant, including the flocculation/sedimentation equipment, sludge pumps, baffle boards and walls, launders, inlet gates, and outlet drop gates. Rehabilitation work also includes seismic upgrades of basin walls and inlet channel, hazardous material abatement, and replacement of filter valves and actuators in Filter Building No. 2. The contractor completed all rehabilitation work in Basins 7 and 8 and continued construction activities including structural wall modifications, mechanical piping, and equipment installation in Basins 5 and 6 and Filter Building No. 2. Construction is approximately 85 percent complete and is scheduled to be completed in September 2025.

- Weymouth Administration Building Upgrades—This project upgrades the Weymouth Administration Building to withstand a significant earthquake. The planned upgrades include structural strengthening consistent with current seismic standards for essential facilities as well as accessibility and fire/life safety improvements, architectural modifications near the areas of structural upgrades, and improvements associated with the preservation of historic architectural features. The project constructability review workshop was completed in July 2024. Final design is approximately 90 percent complete and is scheduled to be completed in May 2025.
- Diemer Filter Rehabilitation—This project rehabilitates the 48 filters at the Diemer plant to enhance filter performance, minimize filter media loss, and rehabilitate or replace aging components. Planned upgrades include replacing filter media, filter valve actuators, and instruments; modifying the filter upstream influent weir and surface wash laterals; and improving the coal grit removal facilities for the east and west sides of the plant. Final design is approximately 95 percent complete and is scheduled to be completed in January 2025.
- Mills Electrical Upgrades, Stage 2—This project upgrades the electrical system with dual-power feeds to key process equipment to comply with current codes and industry practice, improve plant reliability, and enhance worker safety. Stage 1 construction is complete. Stage 2 improvements will add a second incoming 12 kV service from Riverside Public Utilities, reconfigure the existing 4.16 kV switchgear, and replace the standby generator switchgear and the emergency generator programmable logic controller. The contractor completed installation of the switchgear doors inside the Ozone Switchgear Building and is preparing for installation of the switchgear doors inside the Standby Generator building. Construction is approximately 75 percent complete and is scheduled to be completed in August 2025.

Weymouth Basins 5–8 and Filter Building No. 2 Rehabilitation—
Basin 6 Flocculator Shaft Installation

Pure Water Southern California

The Pure Water Southern California (PWSC) Program is a large regional recycled water program that will provide a new local source of safe and reliable drinking water for Southern California. PWSC currently focuses on four areas: demonstration testing, environmental planning, technical studies, and preliminary design of initial pipeline reaches. PWSC will produce up to 150 million gallons per day (mgd) of purified water from the Advanced Water Purification Facility (AWPF) in Carson, for indirect potable reuse (IPR) and direct potable reuse (DPR) applications.

- Environmental Planning—The environmental planning phase began in 2020. Biological surveys and resource technical studies have been completed to support the effort, and staff continues to prepare and review individual draft technical sections. The draft EIR is currently scheduled for publication in early 2025, with board certification of the document in early 2026.
- Program Management—PWSC program management efforts lead the planning for the PWSC Program, including project controls, scheduling, budget development, risk management, coordination with program partners and stakeholders, grants and funding, and preparation of various plans and studies.
    - Metropolitan received notice in May 2024 that it was one of the recipients of the U.S. Bureau of Reclamation (USBR) Large-Scale Water Recycling Program (LSWRP) grant. The USBR announced that they intend to grant Metropolitan up to $99,199,096 to advance the PWSC planning and design efforts. A second grant application to the LSWR program was submitted to the USBR in May for up to $26 million dollars, or the difference between the initial grant request of $125 million and the amount awarded. On November 15, 2024, USBR announced that they intend to award Metropolitan an additional $26,273,759. The Board adopted resolutions in November to support the USBR grant applications and development of the subsequent grant agreement. In December 2024, the Board authorized entering into an agreement with USBR to accept up to $125,472,855 in grant funding.
    - Program internal governance and program plans are currently being developed. The first workshop was held on October 29. Technical studies are underway to support planning of DPR implementation, EIR analysis on per- and polyfluoroalkyl substances compounds, and development of program phasing options, including treated water augmentation.
    - Metropolitan and LACSD are developing a work plan and gathering information to pursue certification for PWSC under State Senate Bill 149. This certification makes critical projects, which are necessary for the State to meet its climate and clean energy goals, eligible for expedited judicial review.
- Advanced Water Purification Facility—The AWPF will purify treated wastewater from LACSD's A.K. Warren Water Resource Facility using membrane bioreactors (MBRs), reverse osmosis, and

ultraviolet/advanced oxidation. With its expertise in biological wastewater treatment, LACSD will assume the responsibility of implementing the AWPF pretreatment, including the MBR facilities.

  - A draft conceptual facilities plan has been prepared to document key assumptions of AWPF components. The final draft plan is currently being prepared.
  - Southern California Edison is performing a Method of Services (MOS) study to identify infrastructure needed to meet AWPF power requirements. The MOS investigation has been completed.
  - Staff is preparing a Request for Qualification document for the procurement of a Progressive Design Build (PDB) entity to progress the design of the AWPF.

- Direct Potable Reuse (DPR)—The California Division of Drinking Water (DDW) published the final DPR regulations in December 2023. On August 6, 2024, the California Office of Administrative Law approved these DPR regulations, which took effect on October 1, 2024. Metropolitan has completed bench-scale testing to screen the potential DPR treatment processes that could be used for the program. Planning of pilot-scale and demonstration-scale testing is in progress. Information documented in the DPR white paper was presented at the September 2024 PWSC Subcommittee.
- Conveyance Pipeline System—The PWSC conveyance system consists of the backbone pipeline, which extends over 40 miles from the AWPF in the city of Carson to as far north as the city of Azusa; repurposing an existing pipeline owned by the San Gabriel Valley Municipal Water District; and a new DPR pipeline to convey water from the backbone eastward for raw water augmentation at Metropolitan's Weymouth plant in the city of La Verne. It also includes several pump stations, service connections, isolation valves, and other pipeline appurtenances. As part of the current environmental planning phase efforts, the project team is preparing the Conveyance Facilities Conceptual Design Report to support the environmental studies and permitting processes required by CEQA. The final draft report was completed in September, with the final report anticipated by early next year. In addition, Metropolitan's Board authorized two consulting agreements for preliminary design of the first two pipeline reaches in March 2023, and preliminary design of these two reaches is anticipated to be complete by mid-2025. Additional progress updates are provided below.
  - Reach 1—This reach is approximately 6.3 miles long, primarily within public rights of way in the city of Carson, with service connections for LADWP and West Basin MWD. Current work includes utility field investigation and geotechnical work, incorporating value engineering comments and assessing the need for more tunneling to minimize project risks. Additional investigations will be conducted over the next couple of months to optimize the extent of tunneling.
  - Reach 2—This reach is approximately 7.5 miles long, primarily within public rights of way in the cities of Long Beach and Lakewood, with a service connection for Long Beach Utilities District. Current work includes utility field investigation and geotechnical work, incorporating value engineering comments, as well as coordination with Long Beach Utilities District, Caltrans, and other permitting entities for the major tunnel crossing of the I-710 and Los Angeles River.

Drought Mitigation—State Water Project Dependent Areas

The Drought Mitigation—State Water Project Dependent Areas Program is composed of CIP projects to replace, refurbish, upgrade, or construct new facilities, which are identified to mitigate the vulnerability experienced by specific member agencies that are affected during shortages of State Water Project supplies.

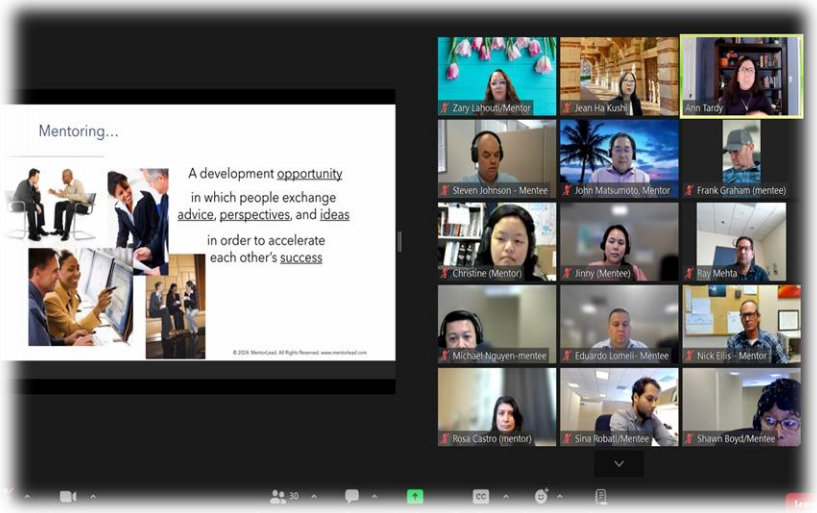
- Foothill Pump Station Intertie—This project will connect Metropolitan's Inland Feeder to San Bernardino Valley Municipal Water District's (SBVMWD) Foothill Pump Station. The project is one of four Rialto Pipeline service area supply reliability improvement projects. Foothill Pump Station will provide the hydraulic lift needed for direct water delivery from Diamond Valley Lake to Rialto Pipeline. The project will install supply and discharge bypass pipelines, isolation valves and their vault, and a surge protection system. Final design for the project is anticipated to be complete by late 2024. The project requires permits from CA Fish and Wildlife and U.S. Fish and Wildlife Service (USFWS) to address impacts to endangered species found at the project site. The project is to receive a $5M US Bureau of Reclamation (USBR) grant, and USBR will assist Metropolitan with permit consultation with USFWS. USBR is currently preparing National Environmental Policy Act documentation and a funding agreement for the grant. It is anticipated that USBR's consultation with USFWS will begin in January 2025.
    - 54-Inch Valve for Foothill Pump Station Intertie—Materials for the actuator and valve body are being procured by the manufacturer. The vendor will begin full production by Fall 2024. Valve delivery is anticipated by June 2025.
    - 132-inch Valve for Foothill Pump Station Intertie—The vendor is preparing submittal documents for Metropolitan's review and approval.
- Sepulveda Feeder Pump Stations—This project installs new pump stations at the existing Venice and Sepulveda Canyon pressure control facilities, providing the ability to reverse flow in the Sepulveda Feeder and deliver 30 cubic feet per second from the Central Pool to portions of the Jensen plant-exclusive area. This project uses a PDB project delivery method. The Board awarded a Phase 1 PDB agreement in September 2023. Phase 1 includes preliminary design and development of a Guaranteed Maximum Price for completion. The contractor is proceeding with the purchase of long lead items, including pumps, large valves, and electrical switchgear and transformers recently authorized by the Board. The 70 percent design package has been submitted by the Design-Builder for staff review. Authorization of Phase 2 final design and construction is anticipated in Spring 2025.

54-Inch Valve for Foothill Pump Station Intertie—Surface Preparation of Valve Interior before Rubber Lining

Empower the workforce and promote diversity, equity, and inclusion

Workforce Development

Engineering's Annual Mentoring Program successfully culminated in its twelfth year with a total of 26 mentoring pairs participating. This six-month program included one-on-one mentoring sessions and a range of core activities, including goal setting, meet and greet sessions, and flash mentoring, in addition to specialty sessions entitled Navigating Conflict and AI—Wave of the Future.



Virtual Meeting—Kickoff Meeting

Mentor Pairs—
Wade Takeguchi and Michael Nguyen

Virtual Meeting—Flash Mentoring

Mentor Pairs—
Judith Martinez and Rosa Castro

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Report

Information Technology Group

- **Information Technology Group Monthly Activities for December 2024**

Summary

This report provides a summary of activities related to the Information Technology Group for December 2024.

Purpose

Informational

Detailed Report

To better serve our customers, the Information Technology Group parterned with Human Resources to improve the offboarding process within the IT ServiceNow application by developing streamlined offboarding activities and workflows. This enhanced feature located in the Metropolitan IT Service Portal is a seamless process providing HRIS the ability to request and disable specific system access for an offboarding employee. The previous process involved HR submitting manual transactions and notifications followed by manual transactions executed by IT. The updated process provides a friendly end-user experience which assists in managing employee separation from the company, HR notification, and initiation of the off-boarding process within ServiceNow. One request can generate up to 15 tasks for various departments including automated notification(s) across various Metropolitan departments.

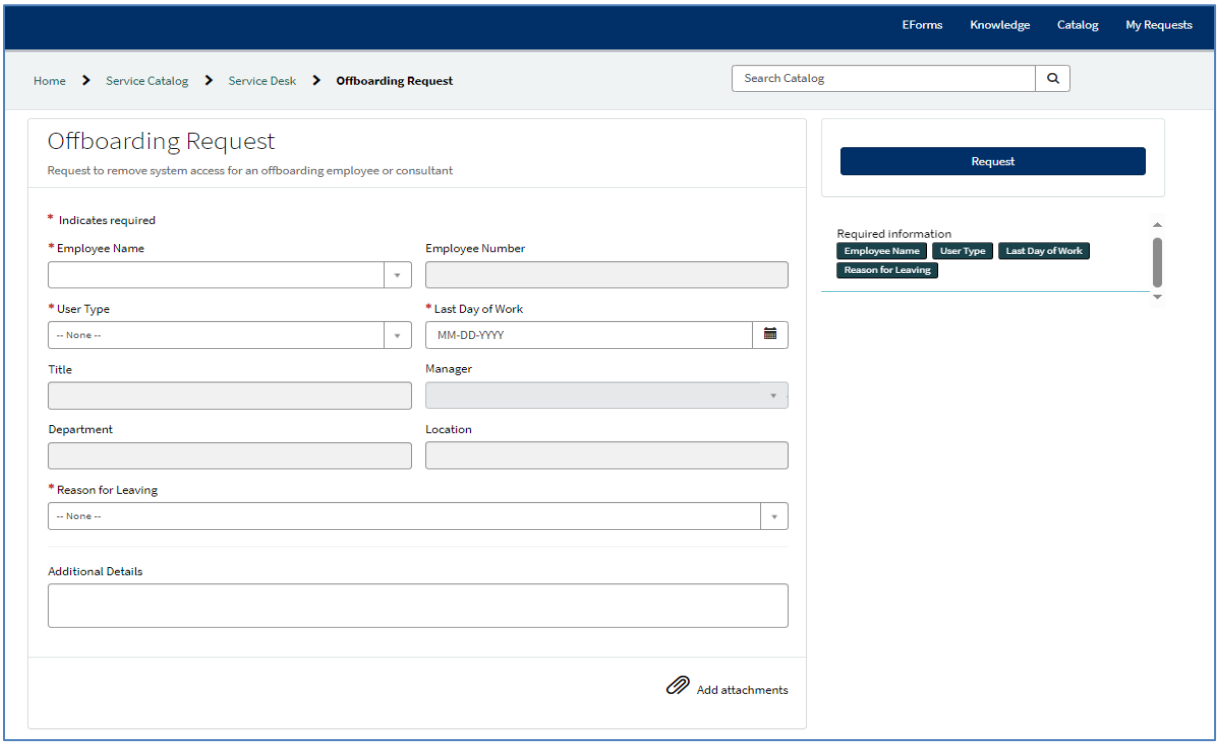


Image 1: Offboarding request in MWD IT Service Portal

Date of Report: December 16, 2024

Operations Groups

- **January Operations Groups Monthly Activities Report - December**

Summary

This monthly report for the Operations Groups provides a summary of activities for December 2024 in the following key areas:

- Enhance Workplace Safety
- Develop Workforce and Prepare Employees for New Opportunities
- Develop New Solutions to Enhance Operational and Business Processes
- Provide Reliable Water Deliveries and Manage Storage
- Manage Power Resources and Energy Use in a Sustainable Manner
- Protect Source Waters and Ensure Water Quality Compliance
- Optimize Water Treatment and Distribution
- Protect Infrastructure and Optimize Maintenance
- Ensure Power and Environmental Regulatory Compliance
- Enhance Emergency Preparedness and Response
- Advance Education and Outreach Initiatives
- Engage with Member Agencies and Other Stakeholders on Technical Matters

Purpose

Informational by the Operations Groups on a summary of key activities for the month of December 2024.

Attachments

Attachment 1: Detailed Report –Operations Groups' Monthly Activities for December 2024

Date of Report: January 14, 2025

Operations Groups

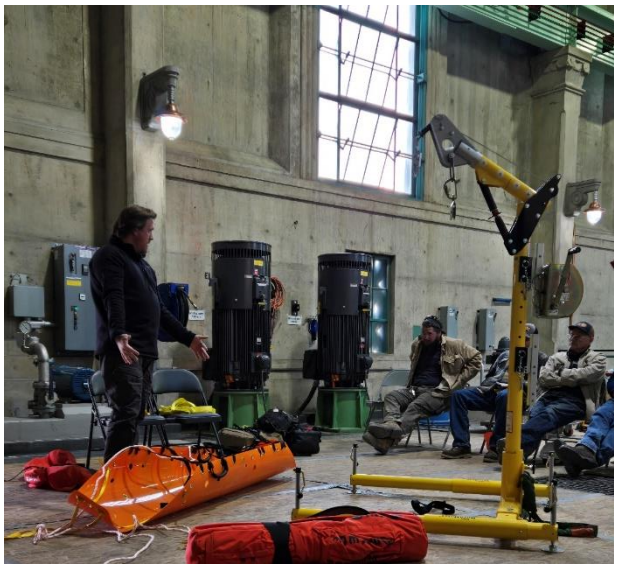
Core Business Objectives

Enhance Workforce Safety

Weymouth staff made modified the plant rejection structure isolation gates to increase site security. The modifications included a door stop fastened to the interior wall, which can be removed only from within the structure. This will prevent unauthorized entry to the rejection structure from downstream flood control facilities. The new door was secured to the frame with oversized hardware, making it increasingly difficult to cut through.

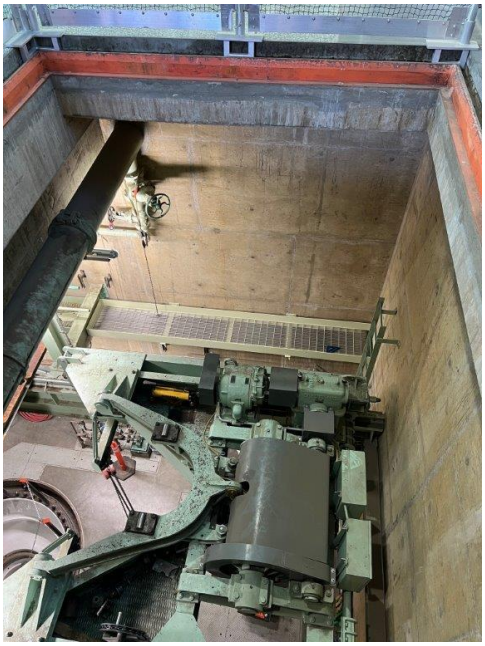
Weymouth rejection structure new door stop (left) and oversized hardware (right)

Safety training on the use of personnel rescue extraction equipment was provided to Desert personnel by an outside vendor. This four-hour training class provided actual, real-world rescue scenarios to equip staff with practical knowledge on using new emergency rescue equipment acquired for the five CRA pumping plants.



Rescue training at Gene Pumping Plant (left) including securing a person in a rescue stretcher (right)

Desert staff installed an extended catwalk, handrails, and self-closing gate to improve safe access to equipment at Eagle pumping plant. This allows staff to safely access piping, valves, and associated instrumentation.



Extended catwalk for safer access to equipment (left) and self-closing gate for improved fall protection (right)

Staff collaborated with an outside vendor to install security badge readers on all exterior doors of the La Verne Shops. Access to the shops is unrestricted (with appropriate personal protective equipment) during normal business hours; however, shop access will now be controlled and limited to authorized staff with a demonstrated need to enter the facility after hours. Badge access control will ensure that the safety and security of all Metropolitan staff and shop equipment is maintained.

Develop Workforce and Prepare Employees for New Opportunities

Three staff members completed a test preparation course and took the International Society of Automation Certified Control Systems Technician Level II (ISA CCST II) examination onsite at the Weymouth plant. As stated by ISA, "Becoming an ISA Certified Control Systems Technician® (CCST®) is a mark of career excellence that affirms your commitment to quality and demonstrates your expertise and knowledge of automation and control systems. It provides a non-biased, third-party, objective assessment and confirmation of your skills as a control systems technician." Congratulations to all who participated and earned their certification, advancing both their knowledge and professional credentials.

Develop New Solutions to Enhance Operational and Business Processes

During December, staff continued baseline monitoring for tertiary membrane bioreactor nitrification-denitrification testing, following a diurnal flow pattern at the Pure Water Southern California Napolitano Innovation Center demonstration plant. Additionally, staff provided ongoing support for the Los Angeles County Sanitation Districts (LACSD) reverse osmosis concentrate testing. This testing aims to investigate previous anomalous toxicity test results to ensure that a future full-scale advanced water treatment facility will meet all discharge permit conditions. Also, the oxidant used for the UV/AOP system was switched from hydrogen peroxide to sodium hypochlorite, while the carbon dosage was increased to achieve a reduced nitrate target. Metropolitan and LACSD staff also participated in joint safety training provided by Metropolitan's Safety, Regulatory, and Training section.

Provide Reliable Water Deliveries and Manage Storage

Metropolitan member agency water deliveries were 134,200 acre-feet (AF) for December with an average of 4,300 AF per day, which was about 400 AF per day higher than in November. Metropolitan continued delivering water to the Cyclic and Conjunctive Use Programs through the end of the calendar year. Treated water deliveries were 1,000 AF lower than November for a total of 57,400 AF, or 43 percent of total deliveries for the month. The Colorado River Aqueduct (CRA) pumped a total of 100,000 AF in December. State Water Project (SWP) imports averaged 2,200 AF per day, totaling about 68,500 AF for the month. The target SWP blend is 0 percent for Skinner, Weymouth, and Diemer plants.

Metropolitan has sufficient SWP and Colorado River supplies to meet demands in 2024. Water continues to be managed according to Water Surplus and Drought Management (WSDM) principles and operational objectives with an emphasis to position SWP supplies to meet future demands in the SWP-dependent area. Metropolitan ramped down deliveries to Desert Water Agency and Coachella Valley Water District in early December. The California Department of Water Resources made an initial 5 percent State Water Project Allocation for 2025 and it was recently increased to 15 percent. Metropolitan is continuing to minimize the use of Table A supplies this year to improve SWP carryover storage for next year. Metropolitan is targeting around 400,000 AF in carryover storage and a nearly full Diamond Valley Lake at the end of 2025.

Manage Power Resources and Energy Use in a Sustainable Manner

Weymouth plant staff completed fiber installations, point-to-point testing, and input/output verification on the Battery Energy Storage System (BESS) capital project. System commissioning is in progress and is expected to be completed this month. The BESS will enable the Weymouth plant to store surplus energy generated by the solar farm in a dedicated battery bank. When energy pricing is at its peak or during times when supplemental energy is needed, the battery bank can provide power to portions of the Weymouth plant—improving energy efficiency and lower operating costs.

BESS near Weymouth plant solar farm (left), BESS control panel (middle), and staff interfacing BESS to SCADA network (right)

Protect Source Waters and Ensure Water Quality Compliance

Metropolitan complied with all water quality regulations and primary drinking water standards during November 2024.

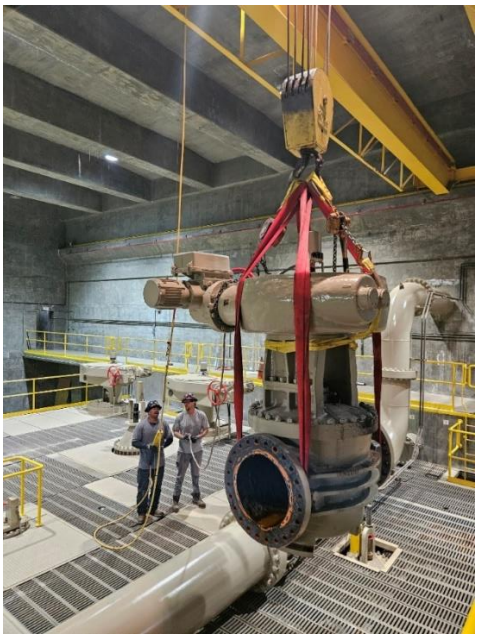
Optimize Water Treatment and Distribution

The State Water Project (SWP) target blend entering the Weymouth and Diemer plants increased from 25 percent to 50 percent before decreasing to zero percent in November. The SWP blend entering Lake Skinner decreased from 25 percent to zero percent. Flow-weighted running annual averages for total dissolved solids from September 2023 through August 2024 for Metropolitan's treatment plants capable of receiving a blend of supplies from the SWP and the CRA were 497, 571, and 508 mg/L for the Weymouth, Diemer, and Skinner plants, respectively.

Skinner plant staff began the process of removing the horizontal supports for the sedimentation basin launders at the washwater reclamation plant, as the existing launders are at the end of their service life and undergoing replacement. The launders collect and direct clarified water from the reclamation plant sedimentation basin to the pump back, where the reclaimed washwater re-enters the treatment process to ultimately become treated water.

Staff working from utility basket to replace launders at Skinner washwater reclamation plant

Staff dewatered and removed approximately seven miles of the 78-inch diameter Second Lower Feeder from service. This outage allows a contractor to replace three 42-inch diameter sectionalizing valves at the Second Lower Feeder/Sepulveda Feeder Interconnection and to steel reline approximately 1.4 miles of the pipeline, which is expected to be completed in April 2025. Metropolitan staff took this opportunity to inspect five miles of previously relined pipe and replace several faulty valves at the Oak Street Pressure Control Structure (PCS) and service connection WB-40. These repairs ensure enhanced reliability under a range of future operating conditions.



Staff removing a conical plug valve at Oak Street PCS for repair

Protect Infrastructure and Optimize Maintenance

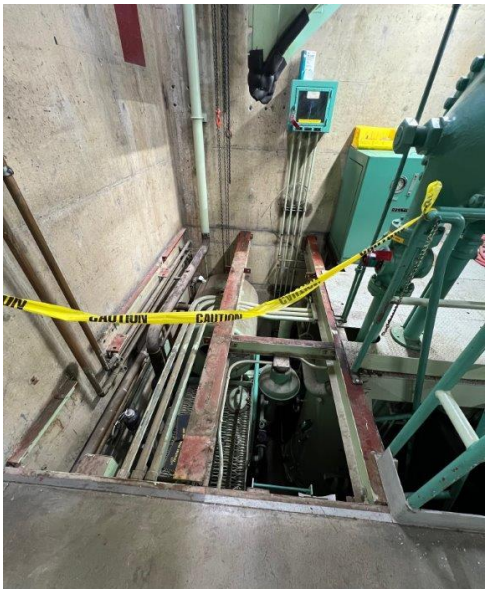
The San Diego Pipelines 1 and 2 shutdown was scheduled from December 8 through 17 to allow San Diego County Water Authority to perform repairs and maintenance within their jurisdiction. Metropolitan staff used this opportunity to inspect and make repairs inside the Rainbow Tunnel and perform an inspection on San Diego Pipeline 1. Staff sealed various water intrusion locations using high-pressure hydrophilic sealant to fill small cracks in the aging concrete.

Water intrusion (left) and staff performing repairs (right) inside Rainbow Tunnel

Desert staff disassembled a pump unit at Intake pumping plant to repair a water leak. Cooling water is used to keep the bearing and lubrication oil for the main pumps cool during operation. The copper cooling coils can fail over time, which leads to water contamination of the oil. Staff must repair the cooling water coils to maintain oil integrity needed to preserve reliable pump operations.

Removing pump unit cooling coil for repair

Desert staff continues work on repairing a pump unit at Eagle pumping plant. In addition to motor testing and repair, an inspection of the lubrication system revealed failing coating in the oil sump tank. Staff removed the sump tank and transported it to the La Verne Shops for repair.



Pump unit repair at Eagle pumping plant

Desert staff made repairs and refurbished the machine shop water jet machine located at the Gene facility. This unit is vital for manufacturing components not readily available for purchase, an increasingly common occurrence as the CRA systems continue operation past their useful life. These water jet machine units require periodic maintenance such as tub coating and support web replacement.

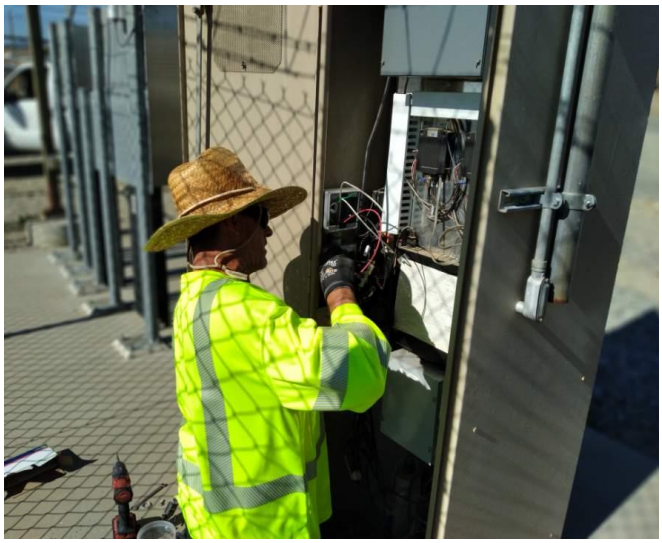


Empty tub (left), tub recoating completed (center), and water jet tub repairs completed (right)

Desert staff identified and replaced leaking high-voltage electrical bushings on the Gene-Peddler transmission line. These devices isolate high voltage within transformers and allow for connection points to the device.


Gene-Peddler Line electrical testing and bushing replacement

Numerous remote structures throughout Metropolitan's service area depend on outdated copper wiring for alarms and communication. These lines are being upgraded to new fiber optic cable, which will provide higher bandwidth, enhanced security capabilities, and improved reliability in areas that have historically experienced communication issues. Recently, a crew completed work at the CB-14 Service Connection structure on the Rialto Feeder (and will proceed to other locations within the Orange County region).



Staff modifying cabinets for the new communication equipment

Staff began the replacement of a 16-inch diameter lubricated plug valve and a 24-inch check valve at the Oak Street Pressure Control Structure located on the Second Lower Feeder. As part of this work, staff removed a pipe section and transported it to the La Verne Shops for modification. Upon completion, staff will reassemble the piping with a new restrained coupling to fit new valve installations.

Staff dismantling pipe section (left) and hoisting pipe section out of Oak Street PCS (right)

Ensure Power and Environmental Regulatory Compliance

Staff applied arc flash hazard labels to electrical equipment throughout the Skinner plant. The labels indicate the hazard present at each point in the electrical distribution system, as modeled by computer analysis using data points from electrical devices such as transformers, circuit breakers, and cables. The labels allow electrical workers to identify inherent dangers and determine the appropriate level and type of personal protective equipment needed to stay safe in the event of an arc flash event.

Staff adhering arc flash hazard labeling to electrical equipment at the Skinner solar facility

Enhance Emergency Preparedness and Response

Staff continued construction for the Diemer Helicopter Hydrant Facility. The helicopter hydrant consists of an open-top tank and supporting infrastructure, allowing helicopters to quickly collect water to fight nearby fires. Metropolitan collaborated with Yorba Linda Water District (YLWD) to develop a project that would benefit both agencies. YLWD will provide up to $500,000 in grant funding, technical support during design and construction, and coordination with the California Department of Forestry and Fire Protection and Orange County Fire Authority. Metropolitan will own and operate the facility after construction is completed.

Staff compacting base rock for the helipad at the Diemer plant

Advance Education and Outreach Initiatives

Tours of the Water Quality Laboratory were provided for the Council on Watershed Health on December 4 and staff from the City of San Diego on December 6.

Engage with Member Agencies and Other Stakeholders on Technical Matters

On December 18, Metropolitan hosted its regular quarterly meeting with the State Water Resources Control Board's Division of Drinking Water. Discussion topics included updates on regulations and emerging disinfection byproducts, capital projects, and treatment and distribution system water quality. Staff also met with representatives of the state's Environmental Laboratory Accreditation Program to discuss expectations and requirements for maintaining Metropolitan's laboratory certification during the Water Quality Laboratory building improvement project (currently in preliminary design) and temporary relocation of laboratory functions during construction.

Engineering, Operations, & Technology Committee

Management Announcements and Highlights

Item 7a

January 13, 2025

Engineering Services

Construction & Procurement Contracts

Construction & Procurement Contracts Through November 2024

Number of Contracts at end of November 2024	57
Total Bid Amount of Contracts in Progress at end of Nov. 2024	$527 M
Contracts Awarded in November 2024	1
Contracts With Notice To Proceed Issued in November 2024	2
Contracts Completed in November 2024	1
Contract Gross Earnings in November 2024	$26.9 M

2024 ESG Mentoring Program

- Engineering's Mentoring Program completed its 12th year in 2024
  - 26 mentoring pairs participated last year
- Mentoring program
  - Provides structure for personal interaction between less experienced & more experienced staff
  - Learning sessions help with career development
    - With topics such as goal setting & navigating conflict

2024 Mentoring Program Culmination

Mentor & Mentee, Wade Takeguchi & Michael Nguyen

Water System Operations

Managing State Water Project Supplies

Current Operational Conditions

- 2025 SWP Allocation at 15%
- CRA at 4-pump flow until March shutdown
- Deliveries to DWCV at 0 cfs
- Deliveries to CUP and Cyclic stopped
- SWP blend targets are 0% at Weymouth, Diemer, and Skinner
- December 2024 deliveries of 125 TAF, which is 26 TAF higher than December 2023

Sunrise at Hinds

Maximizing future reliability

Protecting Drought Storage

San Luis Reservoir

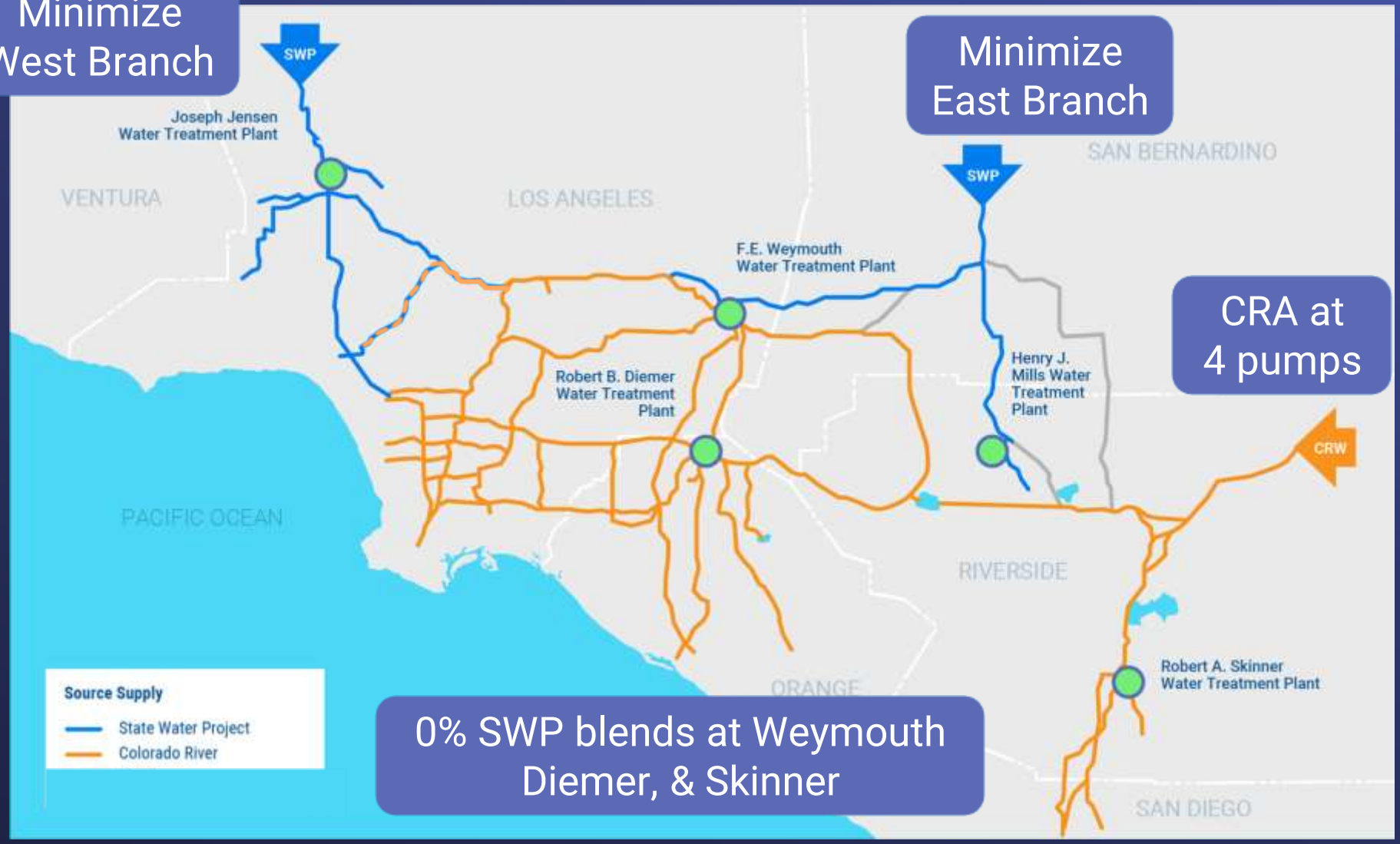
Preserving SWP Supplies with Low Initial Allocation

- Early 2025 operations based on lessons learned during last drought
  - Preserve Carryover supplies
  - Preserve Flex storage
  - Maintain a full DVL
- Position SWP supplies to meet SWP Dependent Area needs if dry conditions continue
- Increase use of SWP supplies as allocation increases

Managing State Water Project Supplies

Early 2025 Operations

Minimizing SWP Supplies to Prepare for Possible Drought Sequence

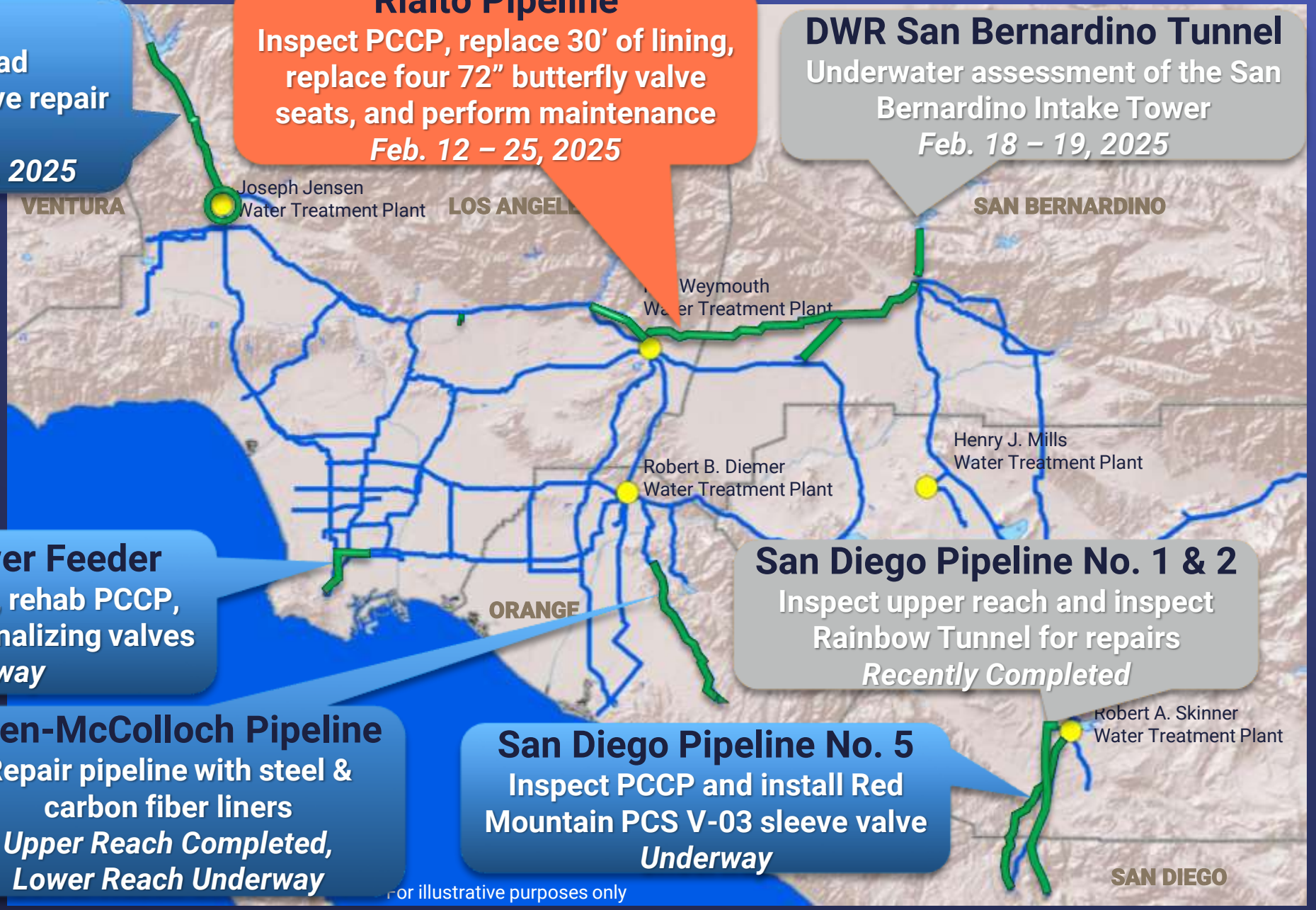


Ensuring Continued System Reliability

Foothill Feeder
Support DWR's bulkhead installation/removal and valve repair
Phase I - Completed
Phase II - Jan. 27 – Feb. 2, 2025

Rialto Pipeline
Inspect PCCP, replace 30' of lining, replace four 72" butterfly valve seats, and perform maintenance
Feb. 12 – 25, 2025

DWR San Bernardino Tunnel
Underwater assessment of the San Bernardino Intake Tower
Feb. 18 – 19, 2025



Second Lower Feeder
Install bulkhead, rehab PCCP, and install sectionalizing valves
Underway

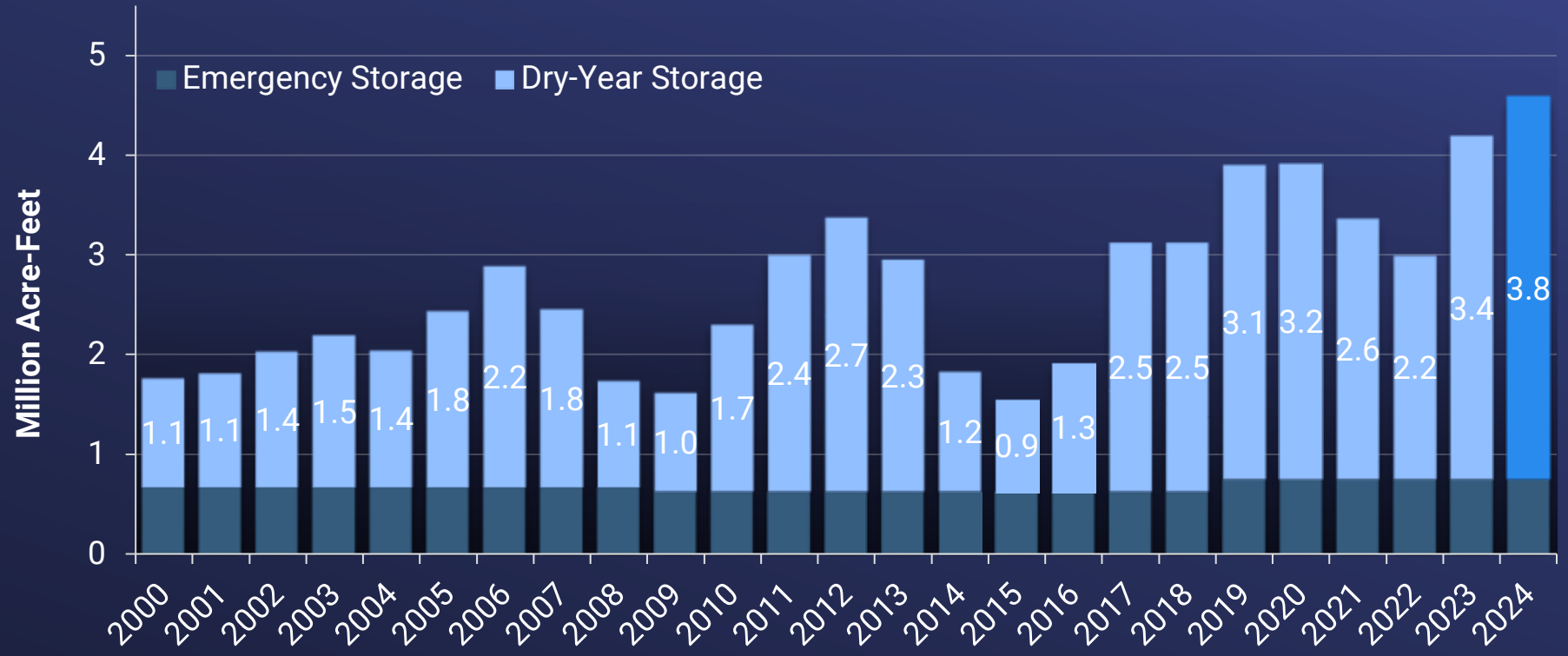
San Diego Pipeline No. 1 & 2
Inspect upper reach and inspect Rainbow Tunnel for repairs
Recently Completed

Allen-McColloch Pipeline
Repair pipeline with steel & carbon fiber liners
Upper Reach Completed, Lower Reach Underway

San Diego Pipeline No. 5
Inspect PCCP and install Red Mountain PCS V-03 sleeve valve
Underway

Recap of 2024

- Surplus year at a 40% SWP Allocation
- Ended the year with record-high storage of 3.8 MAF
  - Added around 400 TAF to our dry-year storage



Note:
2024 end-of-year balance is preliminary as it is subject to DWR adjustments and USBR final accounting.

Steady Operations through Most of 2024

May-November 2024 Operations

Managing SWP supplies to meet storage goals

Deliveries at Whitewater

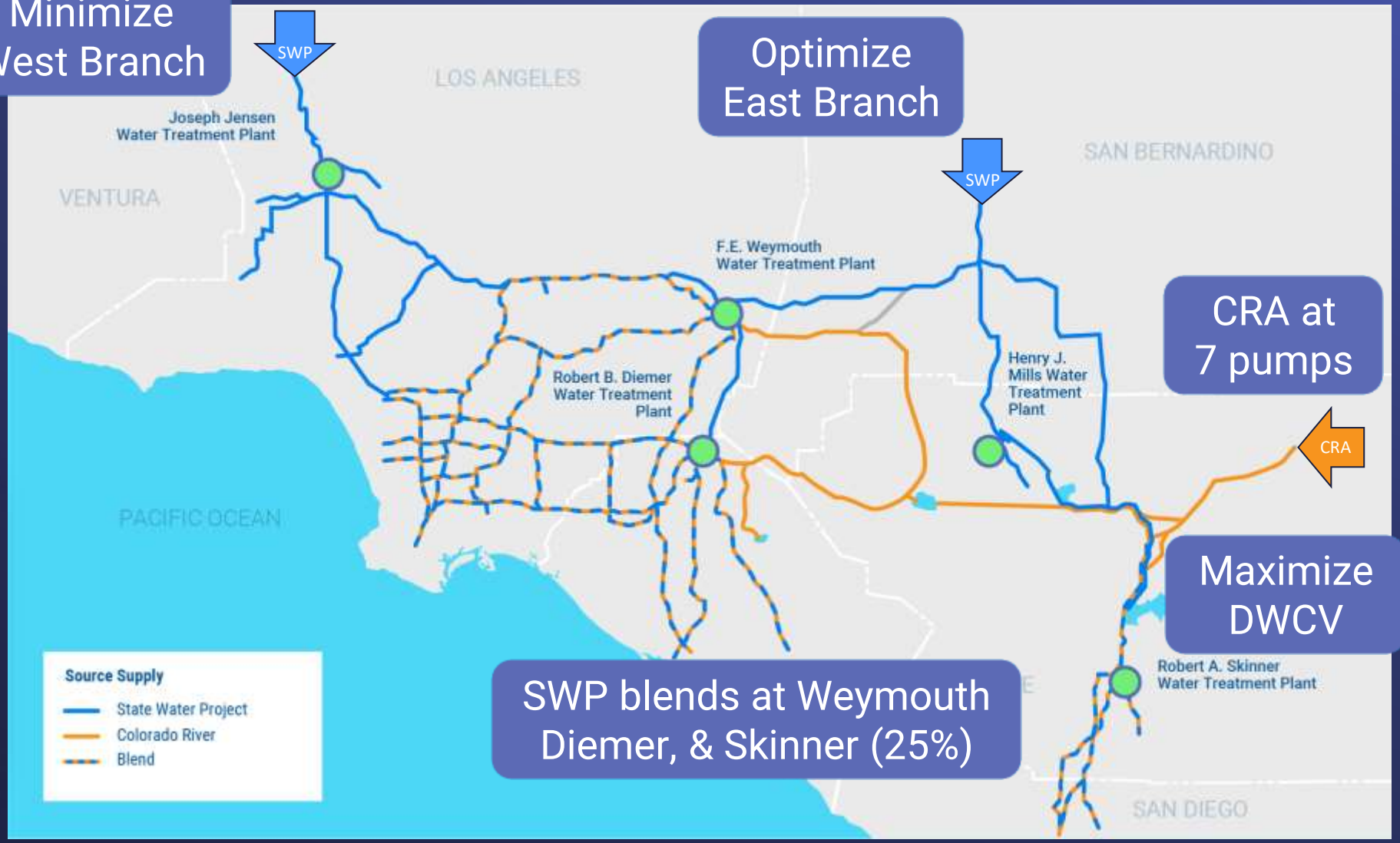
Minimize West Branch

Optimize East Branch

CRA at 7 pumps

Maximize DWCV

SWP blends at Weymouth Diemer, & Skinner (25%)



Key Shutdowns in 2024

West Valley Feeder No. 1
West Valley Feeder No. 2
Calabasas Feeder
PCCP inspection
Jan. 15 – 25, 2024

Upper Feeder (Treated)
Inspect San Gabriel Tower
Feb. 5 – 14, 2024

Diemer Treatment Plant
Repair chlorine solution line
Jan. 14 – 16, 2024

Colorado River Aqueduct
Perform CIP and O&M activities
Mar. 5 - 28, 2024

Sepulveda Feeder
PCCP rehabilitation
Mar. 18 – Apr. 14, 2024

Second Lower Feeder
PCCP rehabilitation
Dec. 15, 2023 – Apr. 23, 2024

Second Lower Feeder
PCCP inspection and replace valves
Nov. 18 – 21, 2024

Allen-McColloch Pipeline
PCCP rehabilitation
Apr. 26, 2024 – Jan. 15, 2025

Lake Mathews Facility, et al.
Perform gate exercise and geotechnical study
Mar. 12 – 13, 2024

Perris Bypass Pipeline
PCCP inspection
Oct. 25 – 31, 2024

For illustrative purposes only

Ensuring Continued System Reliability

Upper Feeder (Treated)

East Lake Skinner Bypass

Sepulveda Feeder

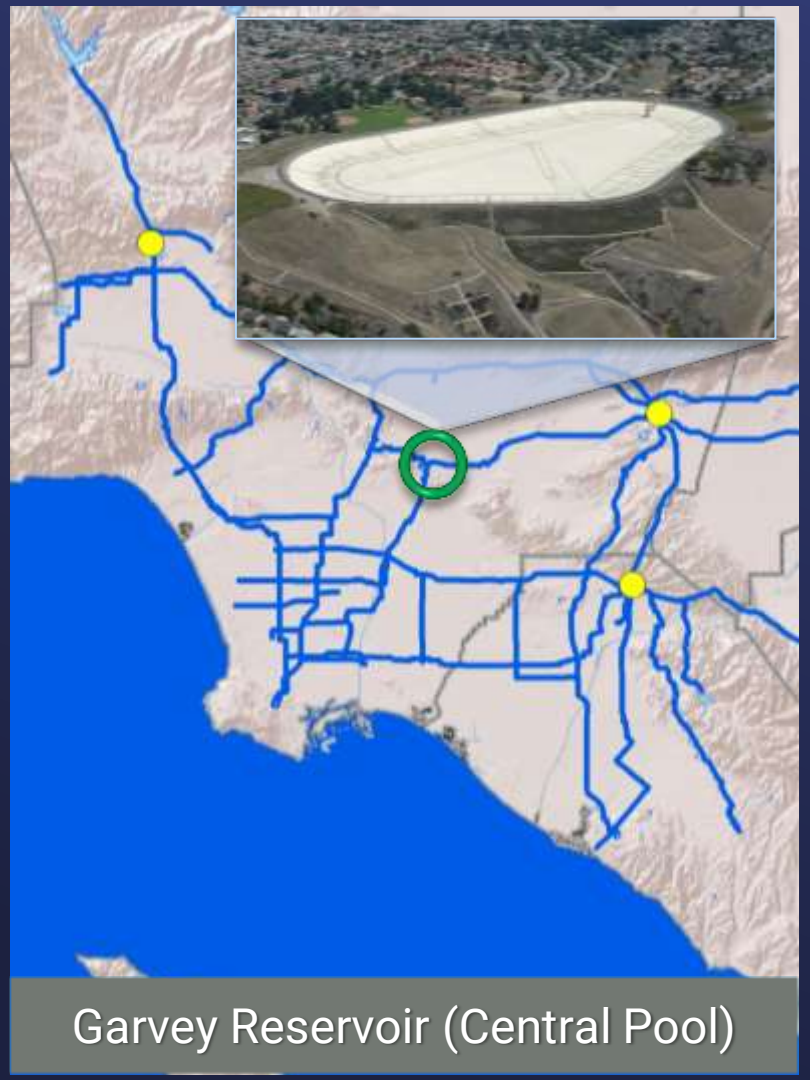
Second Lower Feeder

Colorado River Aqueduct

Perris Valley Pipeline

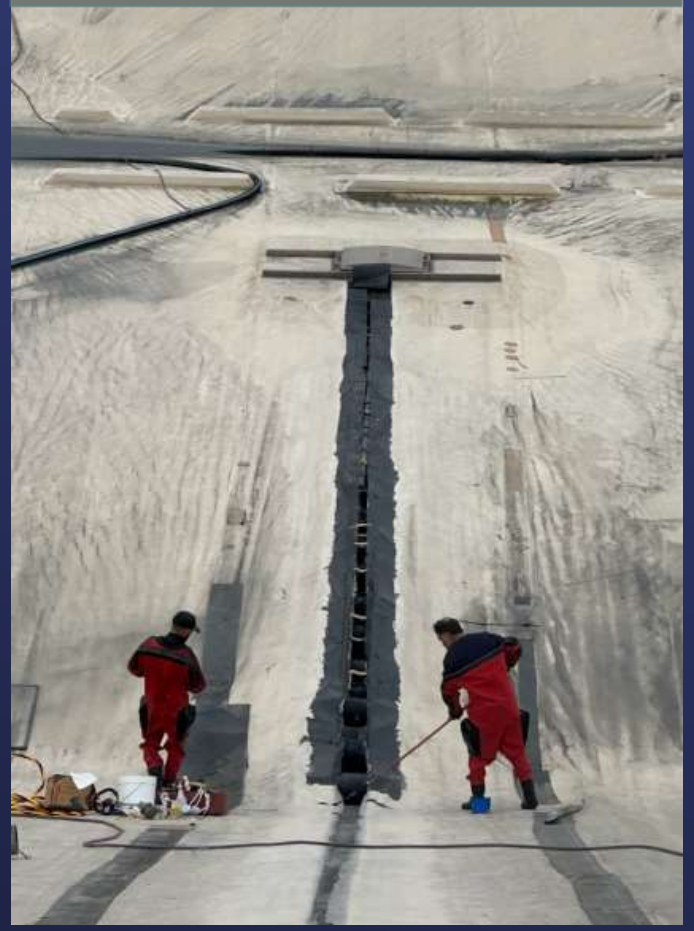
Garvey Reservoir Challenges

Maintaining reliable operations while awaiting cover replacement



Garvey Reservoir (Central Pool)

Deteriorating cover with increased need for repairs



Partially inaccessible for maintenance

Degraded cover material

Increased discharge of ponded water

Information Technology

IT Disaster Recovery Exercise

The Information Technology Group successfully conducted an annual Disaster Recovery Exercise between the primary datacenter and the Backup (DR) datacenter between October 19,2024 to October 27, 2024.

During this Exercise:

- Enterprise and Business Critical Applications were switched to DR datacenter to validate the system and business continuity.
- During this period all the applications were functional, and business continued as normal from the secondary datacenter.
- This exercise demonstrated the IT Infrastructure resiliency and validated IT disaster recovery planning.


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928