

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

Engineering, Operations, and Technology Committee - Final

Meeting with Board of Directors *

August 14, 2023

9:30 a.m.

Agendas, live streaming, meeting schedules, and other board materials are available here: <https://mwdh2o.legistar.com/Calendar.aspx>. A listen-only phone line is available at 1-877-853-5257; enter meeting ID: 862 4397 5848. Members of the public may present their comments to the Board on matters within their jurisdiction as listed on the agenda via in-person or teleconference. To participate via teleconference 1-833-548-0276 and enter meeting ID: 815 2066 4276 or click <https://us06web.zoom.us/j/81520664276pwd=a1RTQWh6V3h3ckFhNmduUWpKR1c2Zz09>

Monday, August 14, 2023 Meeting Schedule

09:30 a.m. EOT
09:30 a.m. EIA
11:30 a.m. LRAC
01:30 p.m. Break
02:00 p.m. OWS

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

Teleconference Locations:

2936 Triunfo Canyon • Agoura Hills, CA 91301

Cedars Sinai Medical Center • 8700 Beverly Blvd • Los Angeles, CA 90048

Covina Irrigating Company • 146 E. College Street • Covina, CA 91723

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

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

2. **SUBCOMMITTEE REPORTS**

NONE

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

3. **CONSENT CALENDAR OTHER ITEMS - ACTION**

- a. Approval of the Minutes of the Engineering, Operations, and Technology Committee for July 10, 2023 (Copies have been submitted to each Director, Any additions, corrections, or omissions) [21-2388](#)

Attachments: [08142023 EOT 3a \(07102023\) Minutes](#)

4. CONSENT CALENDAR ITEMS - ACTION

- 7-1 Award an \$1,962,691 contract to Structural Preservation Systems for urgent relining of three pipe segments on the Sepulveda Feeder; and authorize an increase of: (1) \$280,000 to an agreement with HDR Engineering Inc., for a new not-to-exceed amount of \$15,780,000; and (2) \$240,000 to a land lease agreement with Los Angeles Community College District for a new not-to-exceed amount of \$1,090,000; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA [21-2546](#)

Attachments: [08152023 EOT 7-1 B-L](#)
[08152023 EOT 7-1 Presentation](#)

- 7-2 Authorize an agreement with Nth Generation Computing, Inc. in an amount not to exceed \$367,448 for the Datacenter Backup Infrastructure Upgrade; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA [21-2549](#)

Attachments: [08152023 EOT 7-2 B-L](#)
[08142023 EOT 7-2 Presentation](#)

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

5. OTHER BOARD ITEMS - ACTION

- 8-2 Authorize an agreement with Computer Aid Incorporated in an amount not to exceed \$1,750,000 to provide staff augmentation support services for the operation and maintenance of the Metropolitan Cybersecurity Operations Center for a period of up to one year; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA [Consultation with Metropolitan Director of Info Tech Services, Information Technology, Jacob Margolis, or designated agents on threats to public services or facilities; may be heard in closed session pursuant to Gov. Code Section 54957(a)] [21-2550](#)

Attachments: [08152023 EOT 8-2 B-L](#)
[08142023 EOT 8-2 Presentation](#)

6. BOARD INFORMATION ITEMS

NONE

7. COMMITTEE ITEMS

- a. Update on use of Alternative Project Delivery for Metropolitan Projects [21-2547](#)

Attachments: [08142023 EOT 7a Presentation](#)

- b. Update on Colorado River Aqueduct Electrical Upgrades [21-2548](#)

Attachments: [08142023 EOT 7b Presentation](#)

- c. Reservoir Management Update [21-2553](#)

Attachments: [08142023 EOT 7c Presentation](#)

- d. Emergency Management Program Update [21-2552](#)

Attachments: [08142023 EOT 7d Presentation](#)

8. MANAGEMENT REPORTS

- a. Water System Operations Manager's Report [21-2389](#)

Attachments: [08142023 EOT 8a Presentation](#)

- b. Engineering Services Manager's Report [21-2390](#)

Attachments: [08142023 EOT 8b Presentation](#)

- c. Information Technology Manager's Report [21-2391](#)

Attachments: [08142023 EOT 8c Presentation](#)

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

July 10, 2023

Vice Chair of the Board Camacho called the meeting to order at 8:30 a.m.

Members present: Directors Alvarez, Camacho, Dennstedt (entered after rollcall), Faessel, Fong-Sakai, Lefevre (entered after rollcall), McMillan, Miller, Morris, Petersen (AB 2449, entered after rollcall), Peterson (entered after rollcall), and Seckel.

Members absent: Directors Chacon, Erdman, Quinn, and Smith.

Other Board Members present: Directors Armstrong, Bryant, Dick, Goldberg, and Kurtz.

Director Petersen indicated he is participating under AB 2449 “just cause” regarding illness.
Director Petersen appeared by audio and on camera.

Committee staff present: Bednarski, Chaudhuri, Eckstrom, Lahouti, Parsons, and Upadhyay.

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))

None

2. SUBCOMMITTEE REPORTS

- a.** Subject: Report from Subcommittee on Pure Water Southern California and Regional Conveyance

Presented by: Vice Chair of the Board Camacho

Subcommittee had presentations on

- State Water Project Dependent Areas Drought Mitigation Actions
- Pure Water Southern California Quarterly Report

Directors Lefevre, and Peterson entered the meeting..

Vice Chair Camacho confirmed the Quorum.

CONSENT CALENDAR ITEMS -- ACTION

3. CONSENT CALENDAR OTHER ITEMS - ACTION

- A.** Approval of the Minutes of the Engineering, Operations, and Technology Committee for June 12, 2023

4. CONSENT CALENDAR ITEMS – ACTION

- 7-1** Subject: Authorize an increase of \$950,000 in change order authority for the contract with W.A. Chester LLC to terminate 6.9 kV power cables at all five Colorado River Aqueduct pumping plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA.
- Presented by: Prudencio Alonso, Engineer, Engineering Services
- Motion: Authorize an increase of \$950,000 in change order authority for the contract with W.A. Chester LLC to terminate 6.9 kV power cables at all five CRA pumping plants.

The following Directors provided comments or asked questions.

1. Miller
2. Dick

Staff responded to the Directors questions and comments.

- 7-2** Subject: Authorize an increase of \$2 million to an agreement with Jacobs Engineering Group, Inc. for a new not-to-exceed total amount of \$2.65 million for final design of the first stage of security upgrades for the Colorado River Aqueduct Region; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA.
- Presented by: None; no presentation requested
- Motion: Authorize an increase of \$2 million to an existing agreement with Jacobs Engineering Group Inc., for a new not-to-exceed amount of \$2.65 million for final design of the first stage of security upgrades at all five CRA pumping plants and the Camino Electrical Switching Station.
- 7-3** Subject: Award a \$452,886 contract to Best Contracting Services, Inc. for replacement of the administration and warehouse building roofs at the Lake Mathews site; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA.
- Presented by: None; no presentation requested

Motion: Award a \$452,886 contract to Best Contracting Services Inc. to replace the roofs of the administration and warehouse buildings at the Lake Mathews site.

7-4 Subject: Award a \$349,527.80 procurement contract to TechnoFlo Systems Inc. for 50 magnetic flowmeters to comply with surface water diversion regulations on Metropolitan's Delta Island properties; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Presented by: Russ Ryan, Senior Engineer, Bay Delta Initiatives

Motion: Award a \$349,527.80 procurement contract to TechnoFlo Systems Inc. for 50 flow meters to comply with surface water diversion regulations on Metropolitan's Delta Island properties.

The following Directors provided comments or asked questions.

1. Miller
2. Seckel
3. Fong-Sakai
4. Morris
5. Peterson

Staff responded to the Directors questions and comments.

Directors Dennstedt and Petersen entered the meeting.

After completion of the presentations, Director Peterson made a motion, seconded by Director Faessel, to approve the consent calendar consisting of items 3A, 7-1, 7-2, 7-3, and 7-4.

The vote was:

Ayes: Directors Alvarez, Camacho, Dennstedt, Faessel, Fong-Sakai, Lefevre, McMillan, Miller, Morris, Petersen, Peterson, and Seckel.

Noes: None

Abstentions: Alvarez (Item 3a)

Absent: Directors Chacon, Erdman, Quinn, and Smith.

The motion for Item 3a passed by a vote of 11 ayes, 0 noes, 1 abstention, and 4 absent.

The motion for Items 7-1, 7-2, 7-3, and 7-4 passed by a vote of 12 ayes, 0 noes, 0 abstentions, and 4 absent.

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

5. OTHER BOARD ITEMS ACTION

8-1 Subject: Award a \$3,740,792 contract to M.S. Construction Management Group, Inc. for replacement of a portion of the existing fire sprinkler system's piping and network components at Metropolitan's Headquarters Building; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA.

Presented by: Jeany Wong, Senior Engineer, Engineering Services Group

Motion: Award a \$3,740,792 contract to M.S. Construction Management Group Inc. to replace a portion of the existing fire sprinkler system's piping and network components at Metropolitan's Headquarters Building.

The following Directors provided comments or asked questions.

1. Miller
2. Fong-Sakai

Staff responded to Directors' questions and comments.

Director Petersen announced before the vote that no one was in the room with him 18 years of age or older.

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

The vote was:

Ayes: Directors Alvarez, Camacho, Dennstedt, Faessel, Fong-Sakai, Lefevre, McMillan, Miller, Morris, Petersen, Peterson, and Seckel.

Noes: None

Abstentions: None

Absent: Directors Chacon, Erdman, Quinn, and Smith.

The motion for Item 8-1 passed by a vote of 12 ayes, 0 noes, 0 abstentions, and 4 absent.

- 8-3** Subject: Award a \$16,490,000 contract to J. F. Shea Construction Inc. to replace equipment storage buildings at three Colorado River Aqueduct pumping plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA [ADDED SUBJECT 7/6/2023]
- Presented by: Howard Lum, Section Manager, Engineering Services Group
- Motion: Award a \$16,490,000 contract to J. F. Shea Construction Inc. for furnishing and installation of pre-engineered storage buildings at the Hinds, Eagle Mountain, and Iron Mountain pumping plants.

The following Directors provided comments or asked questions.

1. Camacho
2. Miller
3. Faessel
4. Dennstedt
5. Peterson
6. Armstrong
7. Seckel

Staff responded to Directors' questions and comments.

Director Petersen announced during roll call that no one was in the room with him 18 years of age or older.

After completion of the presentation, Director Morris made a motion, seconded by Director Dennstedt, to approve item 8-3

The vote was:

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

The motion for Item 8-3 passed by a vote of 12 ayes, 0 noes, 0 abstentions, and 4 absent.

6. BOARD INFORMATION ITEMS

NONE

7. COMMITTEE ITEMS

- a. Subject: Update on Water Quality Laboratory Upgrades
- Presented by: Paul Rochelle, Section Manager, Water Quality, Water System Operations
Steven Burkhead, Team Manager, Program Management, Engineering Services

Mr. Rochelle and Mr. Burkhead reported on the following:

- Updates on project including background, design, cost, and schedule
- Current and future needs for Water Quality Laboratory
- Building limitations and space planning efforts
- Site visits workshops, and design renderings

Vice Chair of the Board Camacho asked to forgo questions in lieu of time.

- b. Subject: Emergency Management Program Update

Item 7b was deferred.

8. MANAGEMENT REPORTS

- a. Subject: Water System Operations Manager's Report
- Presented by: Mickey Chaudhuri, Water System Operations, Interim Group Manager

Mr. Chaudhuri reported on the following:

- Current operations and managing the State Water Project surplus supply
- Managing multiple cyanobacterial blooms in reservoirs
- Annual Water Quality Report
- Member Agency Nitrification Workshop
- Water Quality Coop Program with Cal Poly Foundation

- b. Subject: Engineering Services Manager's Report

Presented by: John Bednarski, Group Manager, Engineering Services

Mr. Bednarski reported on the following:

- Potential integration of Pure Water and Operation Next conveyance systems
- Press event in Carson for USEPA Grant for site remediation of the Pure Water treatment plant site
- 2023 Engineering Services Group College Intern Program

- c. Subject: Information Technology Manager's Report
- Presented by: Charles Eckstrom, Information Technology Group Manager
- No report given

9. FOLLOW-UP ITEMS

None

10. FUTURE AGENDA ITEMS

None

The next meeting will be held on August 14, 2023.

Meeting adjourned at 10:35 am.

Michael Camacho
Vice Chair of the Board



Board of Directors

Engineering, Operations, and Technology Committee

8/15/2023 Board Meeting

7-1

Subject

Award a \$1,962,691 contract to Structural Preservation Systems for urgent relining of three pipe segments on the Sepulveda Feeder; and authorize an increase of: (1) \$280,000 to an agreement with HDR Engineering Inc. for a new not-to-exceed amount of \$15,780,000; and (2) \$240,000 to a land lease agreement with Los Angeles Community College District for a new not-to-exceed amount of \$1,090,000; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA

Executive Summary

The Prestressed Concrete Cylinder Pipe (PCCP) Rehabilitation Program is a comprehensive, long-term effort to manage the rehabilitation of Metropolitan's PCCP feeders. An electromagnetic inspection conducted in early 2023 as part of the regular PCCP monitoring effort identified three locations with increasing wire breaks on the Sepulveda Feeder. This action: (1) awards a construction contract to perform urgent relining of three PCCP segments on the Sepulveda Feeder; (2) authorizes an amendment to an existing professional services agreement with HDR Engineering Inc. for engineering support during this construction contract; and (3) authorizes an amendment to an existing property lease agreement with Los Angeles Community College District for construction staging and pipe storage associated with additional ongoing PCCP rehabilitation projects.

Details

Background

In response to several PCCP failures experienced within the water industry, Metropolitan's Board authorized the PCCP Rehabilitation Program in September 2011 to develop a comprehensive, long-term plan for replacing or relining Metropolitan's at-risk PCCP lines. Metropolitan's strategy for maintaining PCCP reliability under this program consists of four coordinated elements: (1) continued assessment and monitoring of PCCP lines; (2) monitoring of stray currents near PCCP lines and installation of cathodic protection as necessary; (3) near-term repair of individual PCCP segments as needed; and (4) long-term comprehensive rehabilitation of priority pipelines.

The Sepulveda Feeder is an 84-inch to 96-inch diameter treated water pipeline stretching 40 miles from the Jensen Plant in Granada Hills south to an intertie with the Second Lower Feeder near the boundary between the city of Torrance and the city of Los Angeles. It was constructed in the early 1970s and supplies water through six service connections to Los Angeles, Santa Monica, Torrance, and the West Basin Municipal Water District. This line is included in the PCCP Rehabilitation Program as one of five priority PCCP pipelines slated for comprehensive rehabilitation. While designs for the rehabilitation are currently underway at various stages of completion, recent pipeline inspections have identified three pipe segments on the feeder that need urgent relining.

In February 2023, electromagnetic inspections of the 10.29-mile-long North Reach of Sepulveda Feeder identified three distressed PCCP segments with up to 20 breaks of prestressing wires in each segment. Pipe segments with this level of distress, exhibited by wire breaks, warrant prompt repair to avoid a potential structural failure of the segment. The three segments are located approximately three miles apart, in the Van Nuys, Sherman Oaks, and Brentwood neighborhoods of the city of Los Angeles.

Carbon fiber reinforced polymer (CFRP) internal lining will be used to reinforce the three pipe segments. Metropolitan has successfully used this approach in the past, and the use of this approach will allow rehabilitation

of the feeder to be completed expeditiously so that the feeder can be returned to service promptly and take advantage of high State Water Project supplies. Implementation of urgent relining on an as-needed basis is consistent with Metropolitan's overall approach to conducting the overall PCCP Rehabilitation Program. Urgent repairs of this nature have been conducted as recently as 2016 on the Second Lower Feeder. CFRP lining is a cost-effective and efficient manner to rehabilitate short sections of PCCP and is usually limited to applications involving only a few segments of pipe as in this application on the Sepulveda Feeder.

Final design for the urgent relining of the three Sepulveda Feeder locations was completed under an existing professional services agreement with HDR Engineers for design of Sepulveda Feeder PCCP Rehabilitation projects, as discussed below. Staff recommends proceeding with construction to reline the three segments of PCCP to reduce the risk of pipeline failure, minimize repair costs, and prevent unplanned shutdowns.

Budget Impact

In accordance with the April 2022 action on the biennial budget for fiscal years 2022/23 and 2023/24, the General Manager will authorize staff to proceed with the actions described below, pending board award of the construction contract. Based on the current Capital Investment Plan (CIP) expenditure forecast, funds for the work to be performed pursuant to this action during the current biennium are available within the CIP Appropriation for Fiscal Years 2022/23 and 2023/24 (Appropriation No. 15525). This project anticipates an expenditure of approximately \$3,700,000 in capital funds. All costs will be incurred in the current biennium. This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP Evaluation Team to be included in the PCCP Reliability Program.

Sepulveda Feeder PCCP, Urgent Relining – Construction

The scope of the contract includes lining three PCCP segments with CFRP that will accommodate full internal and external pressures on the line. Each PCCP segment is 96 inches in diameter, with lengths varying from 18 to 24 feet long. The work also includes installing and removing temporary traffic controls and pipe ventilation fans and disinfection of the pipeline upon completion. Access to the segments will be through existing maintenance holes on the feeder.

Metropolitan forces will perform pipeline shutdown work, including isolation and dewatering of the pipe in preparation for the contractor's work and refilling of the pipeline. The planned shutdown for a portion of the Sepulveda Feeder extends from late November through mid-December 2023.

A total of \$3.7 million is required for this work. In addition to the amount of the construction contract described below, other funds allocated for professional services include \$199,000 for submittal review and preparation of record drawings; \$280,000 for engineering support during construction by HDR Engineers Inc., as described below, and \$25,000 for community outreach services by Alliance Outreach LLC, under an existing board authorized agreement. Allocated funds for Metropolitan staff include \$510,000 for Metropolitan force work, as described above; \$370,000 for construction management and inspection; \$121,000 for contract administration, environmental support, and project management; and \$232,209 for remaining budget.

Award of Construction Contract (Structural Preservation Systems)

Specifications No. 2088 for urgent PCCP relining on the Sepulveda Feeder was advertised for bids on June 23, 2023. Due to the specialized nature of this rehabilitation work, three general contractors were prequalified prior to the advertisement of the bidding documents to ensure qualified contractors performed the work during the specified shutdown durations. As shown in **Attachment 2**, two bids were received and opened on July 25, 2023. The apparent low bidder requested to be released from its bid in accordance with the Public Contract Code due to an inadvertent clerical error made during the bidding process, which materially changed its bid. The second low bid from Structural Preservation Systems in the amount of \$1,962,691 complies with the requirements of the specifications. The engineer's estimate was \$1,570,000. Staff investigated the difference between the engineer's estimate and the low bid. The key differences are attributed to increased costs for the greater-than-expected staffing level required to complete construction simultaneously at three sites within the shutdown window and the limited contractors capable of performing this highly specialized work. Due to the urgent nature of the work, no Small Business Enterprise (SBE) participation level was established for this work.

Metropolitan staff will perform construction management and inspection. Engineering Services' performance metric target range for construction management and inspection of projects with construction less than \$3 million is 9 to 15 percent. For this project, the performance metric goal for inspection is 15 percent of the total construction cost. The total cost of construction for this project is \$2,472,691, which includes the cost of the contract (\$1,962,691) and Metropolitan force construction (\$510,000).

Design and Construction Support (HDR Engineering Inc.) – Amendment to Existing Agreement

HDR Engineering Inc. (HDR) prepared the final design of the Sepulveda Feeder urgent relining through an existing agreement for PCCP rehabilitation of the Sepulveda Feeder. As the engineer of record, HDR is recommended to provide engineering support during construction. This support includes review of submittals received from the contractor, responding to requests for information, advising the inspectors on technical issues as they may arise, and preparing record drawings.

This action authorizes an increase of \$280,000 to the existing agreement with HDR for a new not-to-exceed amount of \$15.78 million to provide engineering design, construction, and post-construction services to rehabilitate PCCP portions of the Sepulveda Feeder. The increase in the HDR agreement covers costs for design of the urgent repair and technical support during construction. For this agreement, Metropolitan has established an SBE participation level of 25 percent. HDR has agreed to meet this level of participation. The planned subconsultants for this work are Cotton, Shires and Associates Inc.; DRP Engineering; and Simpson Gumpertz & Heger.

Land Lease Agreement (Los Angeles Community College District) – Amendment to Existing Agreement

This action authorizes an amendment to an existing land lease agreement with the Los Angeles Community College District that will increase the not-to-exceed amount payable by \$240,000, from \$850,000 to \$1,090,000 and extend the terms of the lease by 19 months, from February 2025 to August 2026. This amount is based on a \$12,000 per month lease with a CPI-based escalation starting the second year of the lease. All other terms of the previously authorized agreement remain in place, including use restrictions and property maintenance requirements. This property is currently being used for construction trailers and equipment storage for the Second Lower Feeder PCCP Rehab Reach 3B project, which will be completed in June 2025, and is planned to be used for construction of the Sepulveda Feeder PCCP Rehab Reach 2 project, which will be the subject of a future board action. No additional funds are required for this action as funds exist within the PCCP Reliability Program.

Alternatives Considered

Staff evaluated two alternatives for relining of the three distressed PCCP segments. The first alternative would be to reline the existing PCCP pipe segments with new steel segments. With this option, several large shafts would be required to reline the PCCP segment with a new steel segment. As a result, an extended design phase and permitting to identify and possibly relocate existing utilities near the large shafts necessary for a pipe segment replacement would be required. It would also result in a longer shutdown of the feeder. The extended shutdown of the feeder would significantly hamper Metropolitan's ability to move the currently abundant State Water Project supplies into the distribution system. This alternative would also generate more significant construction impacts on the communities due to the large equipment required for this type of construction. Under this approach, these communities would then be impacted a second time when long-term rehabilitation of the feeder takes place in the future.

The selected alternative will instead utilize CFRP technology to reline the distressed pipe segments. This technology requires no excavations and minimizes impact on the local communities. All work can be performed through existing maintenance access locations along the pipe alignment. The selected approach allows the rehabilitation work to be completed in a relatively short time, thereby ensuring the early return to service of the feeder. The CFRP has been demonstrated to provide a structurally competent solution for these types of urgent repairs. Finally, the selected alternative is a cost-effective approach for rehabilitation of short pipe segments that minimizes community impacts and service interruptions to member agencies. This alternative is consistent with the objectives of Metropolitan's PCCP Rehabilitation Program and will enhance the reliability of Metropolitan's distribution system. In the future, these CRRP rehabilitated sections will be lined with a new steel pipe liner when the work on lining this portion of the PCCP Sepulveda Feeder takes place in the 2026 to 2030 timeframe.

Summary

This action: (1) awards a \$1,962,691 construction contract to Structural Preservation Systems to reline three PCCP pipe segments within the Sepulveda Feeder; (2) authorizes a \$280,000 increase to an existing agreement with HDR Engineering Inc. for a new not-to-exceed amount of \$15,780,000; and (3) authorizes a \$240,000 increase to an existing land lease agreement with Los Angeles Community College District for a new not-to-exceed amount of \$1,090,000. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, and **Attachment 3** for the Location Map.

Project Milestone

December 2023 – Completion of the urgent PCCP relining of three locations on the Sepulveda Feeder

Policy

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

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 48801, dated September 13, 2011, the Board authorized initiation of the PCCP Rehabilitation Program.

By Minute Item 50699, dated January 10, 2017, the Board certified the Final PEIR for the PCCP Rehabilitation Program, and approved the program for the Second Lower Feeder, Sepulveda Feeder, Calabasas Feeder, Rialto Pipeline, and AMP for the purposes of CEQA.

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

By Minute Item 52790, dated April 12, 2022, the Board appropriated a total of \$600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

By Minute Item 52936, dated August 16, 2022, the Board authorized a \$6 million increase to an agreement with HDR Engineering Inc. for a new not-to-exceed amount of \$12.5 million to rehabilitate PCCP and steel portions of the Sepulveda Feeder.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed actions to award a construction contract and to amend the existing agreement for engineering design, construction, and post-construction services for relining of the Sepulveda Feeder are exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed actions involve the urgent repair of existing pipelines with the same purpose and capacity. Accordingly, the proposed actions qualify under a statutory exemption (Section 21080(b)(2) and (4) of the California Public Resources Code and Section 15269 of the State CEQA Guidelines).

Additionally, the acquisition of the land lease agreement was authorized by the Board on 1/14/2020, and any environmental impacts were determined to have been addressed under the Prestressed Concrete Cylinder Pipe Program Environmental Impact Report approved by the Board on 1/10/2017. No additional or expanded use will occur with this proposed amendment to the land lease agreement. Accordingly, no further CEQA documentation is necessary for the Board to act on this proposed action.

CEQA determination for Option #2:

None required

Board Options

Option #1

- a. Award a \$1,962,691 contract to Structural Preservation Systems for urgent relining of Sepulveda Feeder;
- b. Authorize a \$280,000 increase to a professional services agreement with HDR Engineering Inc. for a new not-to-exceed amount of \$15,780,000; and
- c. Authorize a \$240,000 increase to an existing land lease agreement with Los Angeles Community College District for a new not-to-exceed amount of \$1,090,000.

Fiscal Impact: Expenditure of \$3,700,000 in capital funds. All costs will be incurred in the current biennium.

Business Analysis: This option will reduce the risk of PCCP pipeline failure, minimize repair costs, and prevent unplanned shutdowns.

Option #2

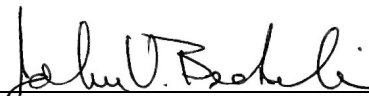

Do not proceed with this project at this time.

Fiscal Impact: None

Business Analysis: This option would reduce system reliability and operational flexibility within this portion of Metropolitan's distribution system and may result in higher repair costs.

Staff Recommendation

Option #1

| | |
|--|-------------------|
|  _____ John V. Bednarski Manager/Chief Engineer Engineering Services | 7/27/2023 Date |
|  _____ Adel Hagekhalil General Manager | 7/31/2023 Date |

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Location Map

Ref# ES12690664

Allocation of Funds for Sepulveda Feeder Urgent Relining

| | Current Board Action (Aug. 2023) |
|---|---|
| Labor | |
| Studies & Investigations | \$ - |
| Final Design | - |
| Owner Costs (Program mgmt., envir. monitoring) | 121,000 |
| Submittals Review & Record Drwgs. | 199,000 |
| Construction Inspection & Support | 370,000 |
| Metropolitan Force Construction | 500,000 |
| Materials & Supplies | - |
| Incidental Expenses | 10,000 |
| Professional/Technical Services | |
| HDR Engineering Inc. | 280,000 |
| Alliance Outreach LLC | 25,000 |
| Right-of-Way | - |
| Equipment Use | - |
| Contracts | |
| Structural Preservation Systems | 1,962,691 |
| Remaining Budget | 232,309 |
| Total | \$ 3,700,000 |

The total amount expended for Sepulveda Feeder CFRP Urgent Relining is approximately \$410,000. The total estimated cost to complete this project, including funds spent to date and funds allocated for the work described in this action, is \$4.11 million.

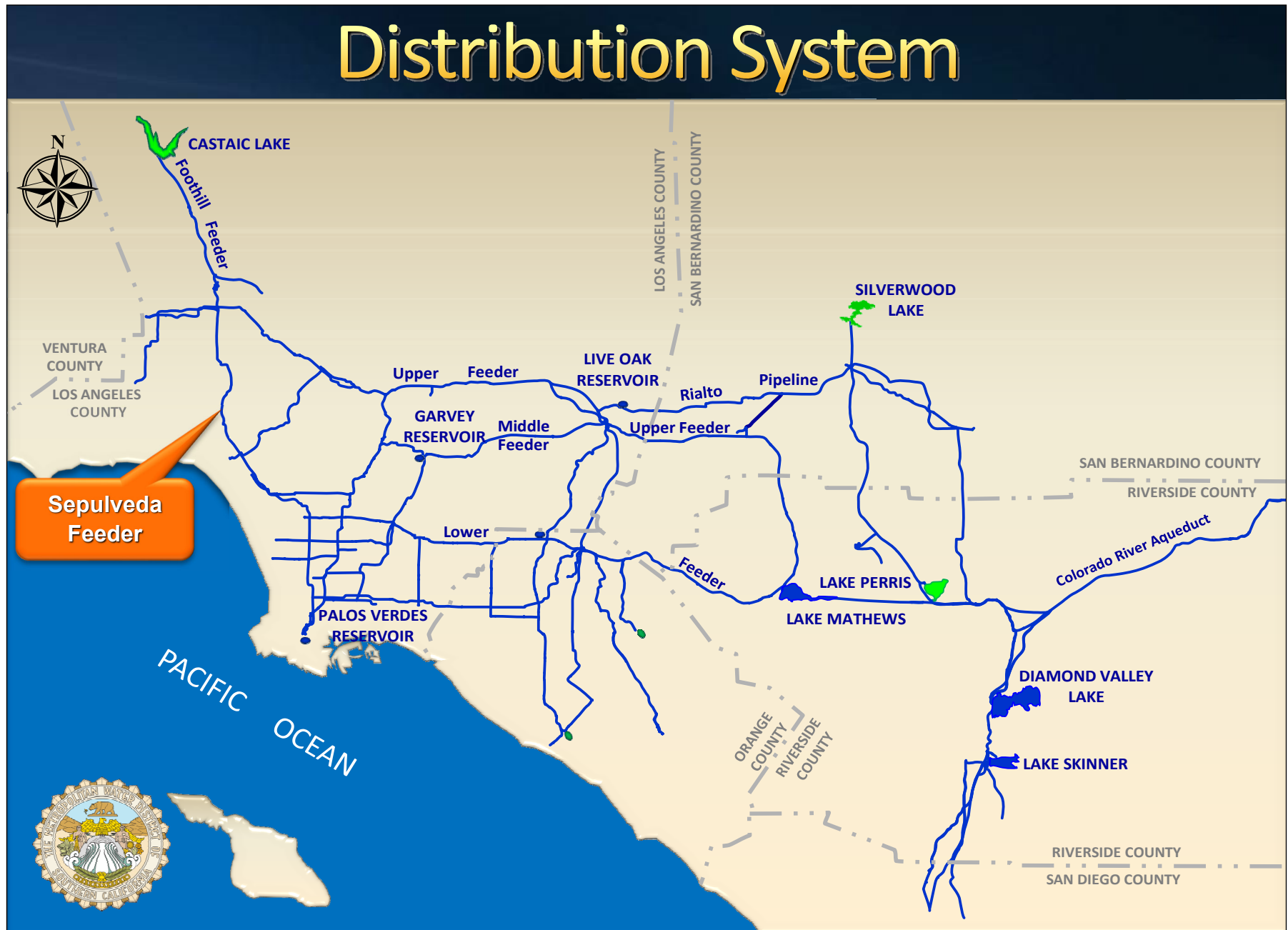
The Metropolitan Water District of Southern California**Abstract of Bids Received on July 25, 2023, at 2:00 P.M.****Specifications No. 2088
Sepulveda Feeder Urgent Relining**

The work includes relining of three 24-foot-long prestressed concrete cylinder pipe (PCCP) segments with carbon fiber reinforced polymer, including disinfecting the pipeline, controlling traffic, and abating hazardous materials¹.

Engineer's estimate: \$1,570,000

| Bidder and Location | Total |
|--|--------------------|
| Insituform Technologies LLC Santa Fe Springs, CA ² | \$890,673 |
| Structural Preservation Systems Anaheim, CA | \$1,962,691 |

1. Due to the urgent nature of the work, no Small Business Enterprise participation level was established for this work.
2. Insituform Technologies LLC requested to be released from its bid in accordance with the Public Contract Code due to an inadvertent clerical error made during the bidding process, which materially changed its bid.





Engineering, Operations, & Technology Committee

Sepulveda Feeder PCCP Urgent Relining

Item 7-1

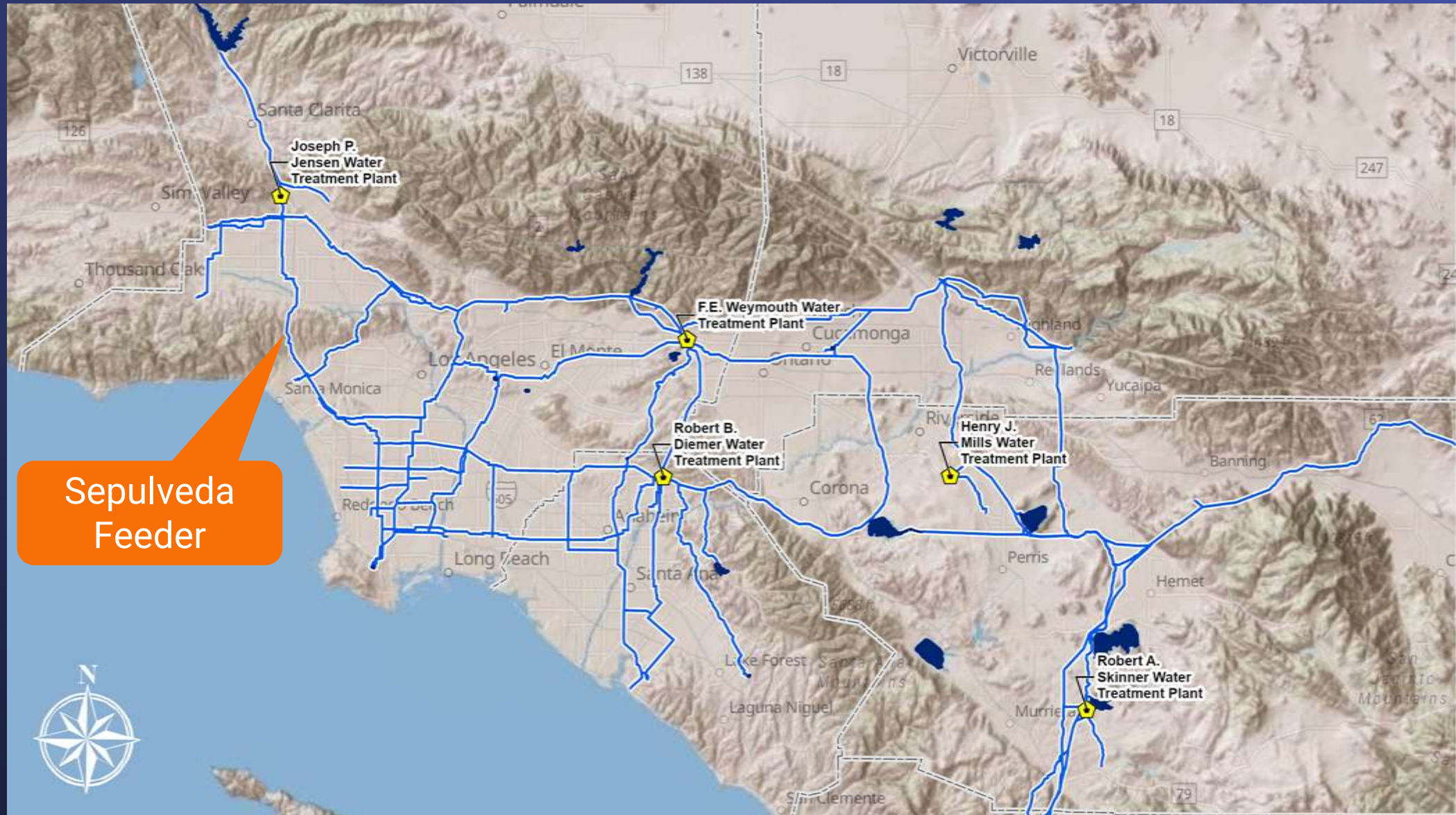
August 14, 2023

Sepulveda
Feeder PCCP
Urgent
Relining

Current Action

- Award a \$1,962,691 contract to Structural Preservation Systems for urgent relining of three pipe segments on the Sepulveda Feeder
- Authorize an increase of \$280,000 to an existing agreement with HDR Engineering Inc. for technical services
- Authorize an increase of \$240,000 to an existing land lease agreement with Los Angeles Community College District

Distribution System



Elements of PCCP Rehab Program

- The comprehensive strategy of the program has four components:
 - Continue inspection & monitoring
 - Limit corrosion by installing cathodic protection where appropriate
 - Perform individual urgent segment repairs (such as this action)
 - Plan & execute long-term rehabilitation in a cost-effective manner

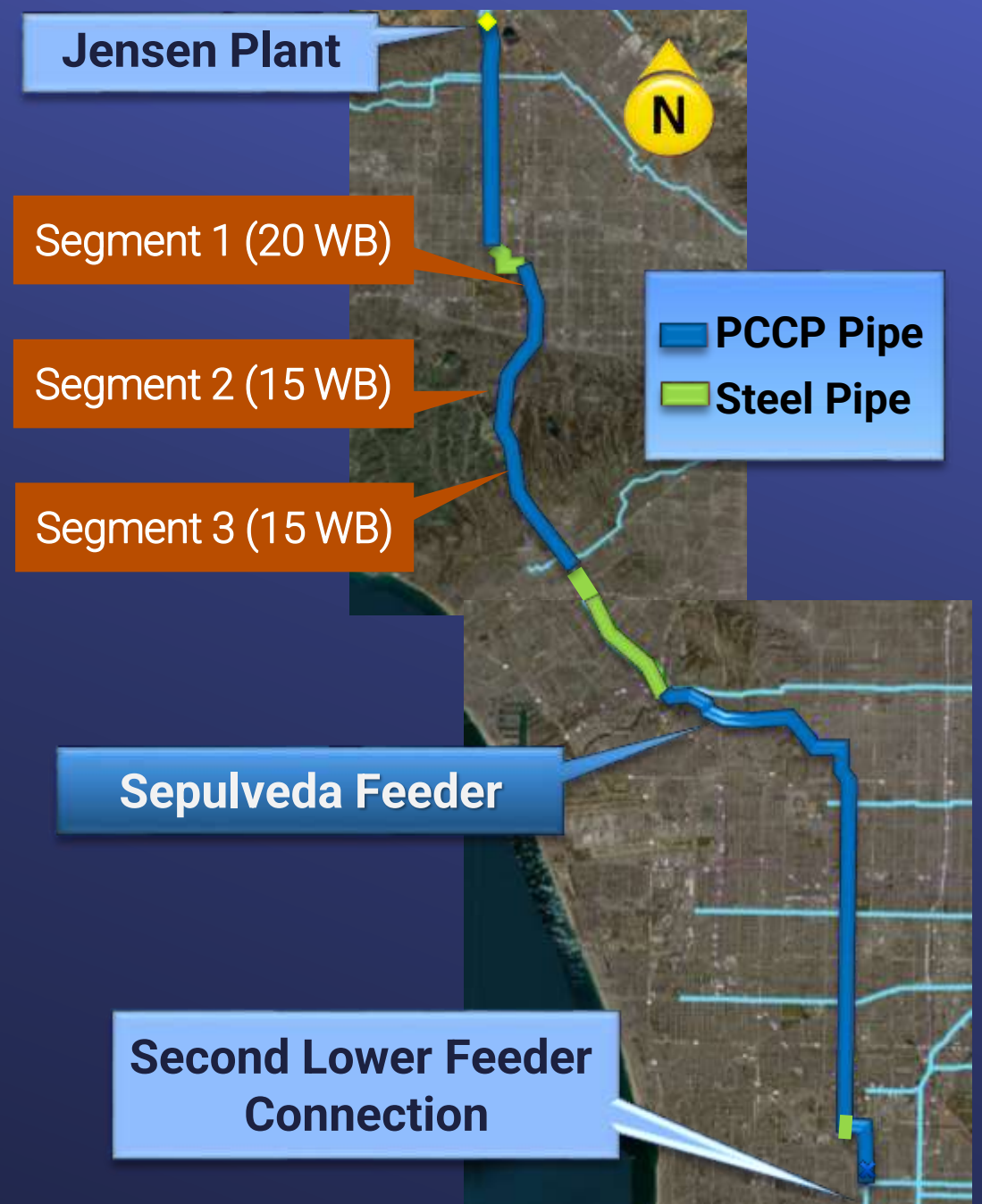


Previous Carbon Fiber Repair
Second Lower Feeder

Background

- February 2023 – electromagnetic inspection performed
- Report delivered in March 2023
- Three distressed segments identified with significant wire breaks which require prompt rehabilitation
- Design is complete & construction contract is recommended at this time

WB= wire breaks



Sepulveda
Feeder PCCP
Urgent
Relining

Alternatives Considered

- Staff investigated replacing distressed PCCP with steel segments
 - Requires excavation of large shafts
 - Possible relocation of existing utilities
 - Requires extensive permitting & longer shutdown
- Selected Option – Use carbon fiber lining
 - Work can be performed through existing maintenance access holes
 - Requires less permitting & shorter shutdown
 - Allows Metropolitan to move more SWP supplies within distribution system

Bid Results

Specifications No. 2088

| | |
|---------------------------|---------------------------------|
| Bids Received | July 25, 2023 |
| No. of Bidders | 2 |
| Lowest Responsible Bidder | Structural Preservation Systems |
| Low Bid | \$1,962,691 |
| Other Bid | \$890,000** |
| Engineer's Estimate | \$1,570,000 |

*Due to the urgent nature of the work, no Small Business Enterprise participation level was established for this work.

**Other bidder requested to be released from its bid in accordance with the Public Contract Code due to an inadvertent clerical error made during the bidding process, which materially changed its bid

Sepulveda
Feeder PCCP
Urgent
Relining

Metropolitan Scope

- Construction management & inspection
- Contract admin., outreach & PM
- Force Construction
 - Pipeline shutdown including isolation, dewatering & refilling pipeline

Sepulveda
Feeder PCCP
Urgent
Relining

HDR Engineering Inc. – Agreement Amendment

- Engineer of record
- Provide technical support during construction
 - Review submittals & respond to requests for information
- Increase of \$280,000 for a new NTE amount of \$15.78 M
- SBE participation level: 25%

Land Lease to Support PCCP Program– Agreement Amendment

- Property leased from Los Angeles Community College District
 - 12-acre site
 - Area for pipe storage & contractor staging
 - Supports multiple PCCP contracts
 - 19-month lease extension recommended
 - February 2025 – August 2026
 - Estimated cost of lease extension – \$240,000
 - New total lease amount not to exceed \$1,090,000
- Site currently being used for construction of Second Lower Feeder Reach 3B
- No additional funding required



Storage Site with
Steel Pipe Liners

Allocation of Funds

Sepulveda Feeder PCCP Urgent Relining

Metropolitan Labor

| | |
|--|------------|
| Owner Costs (Proj. Mgmt., Contract Admin.) | \$ 121,000 |
| Submittals Review, Tech. Support, Record Dwgs. | 199,000 |
| Construction Inspection & Support | 370,000 |
| Metropolitan Force Construction | 510,000 |

Professional/Technical Services

| | |
|---|---------|
| HDR Engineering Inc. | 280,000 |
| Alliance Outreach LLC (Public Outreach) | 25,000 |

| | |
|--|-----------|
| Contract – Structural Preservation Systems | 1,962,691 |
|--|-----------|

| | |
|------------------|---------|
| Remaining Budget | 232,309 |
|------------------|---------|

| | |
|-------|--------------|
| Total | \$ 3,700,000 |
|-------|--------------|

Project Schedule



Board Options

- Option #1
 - a. Award a \$1,962,691 contract to Structural Preservation Systems for urgent relining of Sepulveda Feeder;
 - b. Authorize a \$280,000 increase to a professional services agreement with HDR Engineering Inc. for a new not-to-exceed amount of \$15,780,000; and
 - c. Authorize a \$240,000 increase to an existing land lease agreement with Los Angeles Community College District for a new not-to-exceed amount of \$1,090,000.
- Option #2
 - Do not proceed with this project at this time.

Staff Recommendation

- Option #1





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

8/15/2023 Board Meeting

7-2

Subject

Authorize an agreement with Nth Generation Computing, Inc. in an amount not to exceed \$367,448 for the Datacenter Backup Infrastructure Upgrade; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Metropolitan's Information Technology Group will need to deploy a faster and cloud-compatible backup infrastructure to support and safeguard the backup of all applications. Backup is a critical service that provides the ability to restore enterprise business and water systems in case of a disaster or a major outage. The new backup infrastructure will provide a robust solution to reduce both the risk of backup failure and to improve the restoration of critical IT systems in case of a major outage and business data loss.

Timing and Urgency

The current solution is at end-of-life and very slow. Due to the ever increasing volume of business data, it is getting slower with each passing week and taking a considerable time to complete each backup job. The long execution time to complete the backup increases the risk of job failures. All job failures require the restart of the backup, further aggravating the risk to all business-critical applications.

Details

Background

The current backup infrastructure at Metropolitan relies on outdated and obsolete magnetic tape technology. Metropolitan is gradually moving applications from its on-premises data centers to Microsoft, Oracle, and other cloud infrastructure providers. The existing backup solution is unable to support the backup function for cloud technologies.

The benefits of replacing the existing backup infrastructure are:

- Eliminating risk due to dependence on an outdated magnetic tape medium
- Reducing data security risk by adapting new data protection methods
- Reducing backup duration which will provide savings from reduction in infrastructure utilization, restoration time, cybersecurity breach risks, and human effort
- Enabling Metropolitan in the handling of both the current data volume and future growth of Metropolitan data
- The new solution will cater to the backup of cloud-hosted applications

Award a Contract (\$367,448)

A Request for Proposals (RFP), RFP-RB-408231, for Datacenter Backup Infrastructure Upgrade was issued on August 4, 2022. There were six respondents in the competitive procurement process. The small and/or disabled veteran business enterprise goal designated for this solicitation was twenty-five percent. Proposals were reviewed

and short listed. The short-listed firms were evaluated, and Nth Generation Computing Inc. is recommended to be awarded a contract in the total amount not to exceed \$367,448.

Summary

This action authorizes \$772,605 for the Datacenter Backup Infrastructure Upgrade project. The total project budget is \$772,605 and includes funds for awarding a new contract with Nth Generation Computing Inc. for \$367,448 for professional and technical services. Other costs included are \$334,920 for labor costs by Metropolitan staff, including project management, and \$70,237 for remaining budget.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2022/23 capital expenditure plan. See **Attachment 1** for the Financial Statement.

Project Milestones

Project kickoff and planning – Sep 2023

Complete build and test backup solution for Secondary Data Center (DC) – Nov 2023

Complete deployment of backup solution for Secondary DC – End of Jan 2024

Complete build and test backup solution for Primary DC, US HQ, communication hub and small sites – Feb 2024

Complete deployment of backup solution for Primary DC and all remaining sites – April 2024

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

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

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of \$600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA (Section 15061(b)(3) of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an agreement with Nth Generation Computing Inc. in an amount not to exceed \$367,448 for the Datacenter Backup Infrastructure Upgrade.

Fiscal Impact: Expenditure of \$772,605 in capital funds

Business Analysis: This option will replace an outdated data center backup solution with newer and faster backup and storage technology. The upgrade will reduce the risk of backup failure and support the future growth of Metropolitan data volumes.

Option #2

Do not proceed with this project at this time

Fiscal Impact: No additional expenditure of capital funds

Business Analysis: Dependence on outdated system that increases data security and data recovery risks.

Delays in data recovery and restore time for business-critical applications like SCADA and Oracle Financials in case of loss of data due to data center interruptions or a disaster.

Staff Recommendation

Option #1



Charlie Eckstrom
Group Manager, Information Technology

7/25/2023

Date



Adel Hagekhalil
General Manager

7/30/2023

Date

Attachment 1 – Financial Statement

Ref# it126859735973

Allocated Funds for Datacenter Backup Infrastructure Upgrade

| | Current Board Action (Aug. 2023) |
|-----------------------------------|---|
| Labor | |
| Studies & Investigations | \$ - |
| Final Design | 334,920 |
| Owner Costs (Program mgmt.) | - |
| Submittals Review & Record Drwgs | - |
| Construction Inspection & Support | - |
| Metropolitan Force Construction | - |
| Materials & Supplies | - |
| Incidental Expenses | - |
| Professional/Technical Services | 367,448 |
| Equipment Use | - |
| Contracts | - |
| Remaining Budget | 70,237 |
| Total | \$ 772,605 |

The total amount expended to date for the Datacenter Backup Infrastructure upgrade is approximately \$0.



Engineering, Operations and Technology
Committee

IT Datacenter Backup Infrastructure Upgrade

Item 7-2

August 14, 2023

Current Action

Authorize an agreement with Nth Generation Computing, Inc. in an amount not to exceed \$367,447 for the Datacenter Backup Infrastructure Upgrade project

Background

The current backup infrastructure at MWD relies on outdated and obsolete magnetic tape technology. IT is gradually moving applications from its on-premise datacenter to Microsoft, Oracle and other cloud infrastructure providers. The existing backup solution is unable to support the backup function for cloud technologies.

MWD has 300+ applications with approximately 400 terabytes of data. Applications data is backed up daily, weekly and monthly. These backups are used to recover applications/files when necessary.

IT Customer support gets a couple of requests every month to recover and restore accidentally deleted or corrupted files.

Reasons for Replacement

- Eliminate risk due to dependence on an outdated magnetic tape medium
- Reduce data security risk by adapting new data protection methods
- Reduce backup duration, restoration time, cyber security breach risks and human effort
- Enable the handling of both the current data volume and future growth of Metropolitan data
- The new solution will cater to the backup of cloud hosted applications

Solicitation Process

- RFP 408231 was issued on August 4, 2022
- Qualifications-based selection
- Seven proposals received, one disqualified
- Responses were evaluated by MWD evaluation committee. Business Outreach program (SBE/DVBE & RBE) was included in the evaluation score
- Shortlisted two highest scoring respondents
- Final selection completed on June 20, 2023

Vendor Selection

Nth Generation Computing, Inc. is selected due to its offering of a robust and mature solution (already implemented and used by large number of public and private organizations) and its configuration and implementation expertise in data center backup solutions.

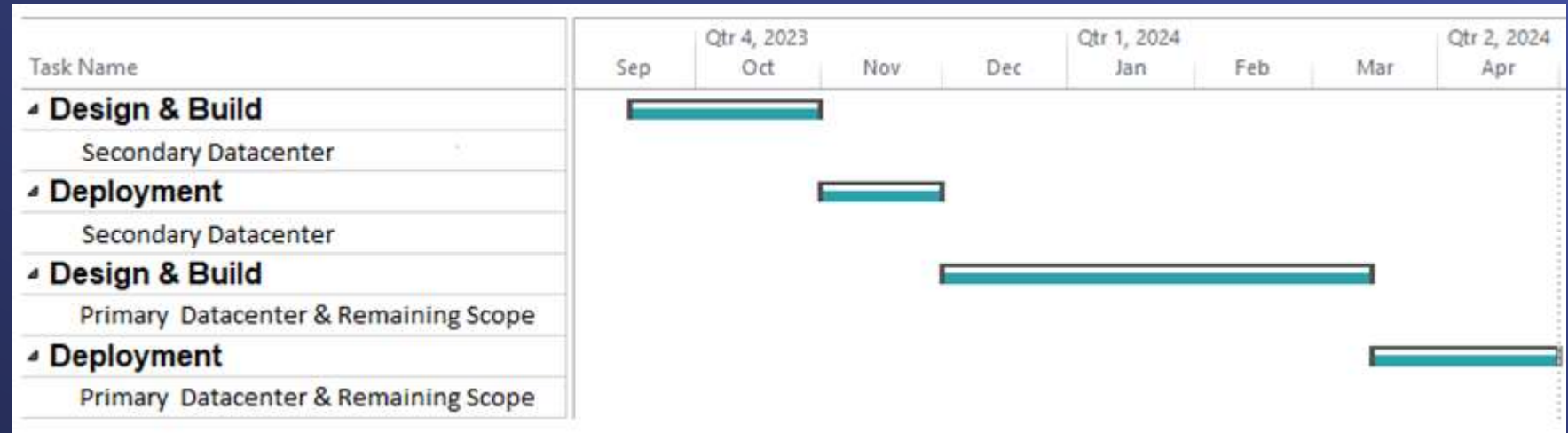
Agreement Scope

To implement the backup/restore system with infrastructure capabilities to support on-premises and cloud-based applications. The implementation includes Primary & Secondary Data Center, Union Station Headquarters Facility.

Project Cost

| Project Cost Breakdown | |
|---|-----------|
| Vendor (Nth Generation Computing, Inc.) | \$367,447 |
| MWD Staff | \$334,920 |
| Contingency | \$70,236 |
| Total Project Budget | \$772,604 |

Project Timeline



Board Options

- Option #1
 - Authorize an agreement with Nth Generation Computing, Inc. in an amount not to exceed \$367,447 for the Datacenter Backup Infrastructure Upgrade project
- Option #2
 - Do not proceed with this project at this t

Staff Recommendation

- Option #1





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

8/15/2023 Board Meeting

8-2

Subject

Authorize an agreement with Computer Aid Incorporated in an amount not to exceed \$1,750,000 to provide staff augmentation support services for the operation and maintenance of the Metropolitan Cybersecurity Operations Center for a period of up to one year; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA [**Consultation with Metropolitan Director of Info Tech Services, Information Technology, Jacob Margolis, or designated agents on threats to public services or facilities; may be heard in closed session pursuant to Gov. Code Section 54957(a)**]

Executive Summary

This action awards an agreement for operation and maintenance of Metropolitan's enterprise-wide Cybersecurity Operations Center (CSOC) for up to a one-year period. The purpose of this contract is to provide basic cybersecurity threat monitoring capability while Metropolitan republishes an RFP for a long-term cybersecurity operations center managed services contract. Metropolitan safeguards its information and operational technology infrastructure through a combination of cybersecurity services, monitoring, anti-malware technologies, next-generation firewalls, enhanced zero trust access control, and employee awareness education. The electronic security system integrates data from access control, intrusion detection, and video monitoring. The CSOC will function 24 hours per day, seven days per week, 365 days per year to detect, identify, contain, and remediate cybersecurity threats to Metropolitan's computers, data, and industrial control systems used to store, treat and deliver water.

Timing and Urgency

This action will authorize the General Manager to proceed with an agreement with Computer Aid Incorporated (CAI) to provide minimal staffing to achieve basic continuous monitoring for cyber threats while the RFP process for a more comprehensive service can be released and awarded to a vendor for a long-term managed services contract.

Details

Background

In 2018, Metropolitan started a project to design, construct and implement the operation of a CSOC. The construction of the CSOC facility was finished in March of 2023. Work was completed on the installation and configuration of the underlying technologies needed for the CSOC to perform its functions in November 2022. Prior to the CSOC, there was no ability for Metropolitan to continuously monitor for and respond to cybersecurity threats. However, Metropolitan is not staffed to operate the CSOC, nor is it feasible to hire and retain the skill sets needed under the existing job classifications and pay scales. For the CSOC to operate at the level it was intended, a contracted managed service will be required to conduct the continuous operation.

The CSOC will centrally monitor, detect, analyze, mitigate, and respond to cyber threats on the Metropolitan Enterprise Information Technology and Supervisory Control and Data Acquisition (SCADA) systems. Currently, multiple groups at Metropolitan and external parties independently gather and analyze information from data centers, the disaster recovery facility, workstation networks, physical security, supervisory control, and data acquisition (SCADA) systems, water operations systems, and field equipment. Data is also collected and analyzed from private and government agencies such as Computer Emergency Readiness Teams (CERTs) and Information

Sharing and Analysis Centers (ISACs). Correlating this data to find suspicious activity can be extremely challenging and often only occurs long after a cyber event or incident happens.

To meet this requirement, Metropolitan released a request for proposals (RFP) in October of 2022 for CSOC Co-Managed Services. The main purpose of the CSOC co-managed support services is to improve real-time situational awareness resulting in Metropolitan's improved capabilities to detect, identify and respond to cyber threats. A secondary function of the CSOC is to provide critical intelligence information to Metropolitan's member agencies to enhance the overall cybersecurity posture for Metropolitan's service area.

After going through the selection process, no contract was awarded. One vendor was selected, but the final scope of work deviated too far from the original scope of work that was detailed in the RFP, resulting in a cancellation of the RFP with a re-release of the RFP planned pending a more stringent re-write of the scope requirements. The result of this action is the current contract for staff augmentation support to provide Metropolitan with the minimum ability to continuously monitor for cyber threats while the RFP process is conducted.

The CSOC project was executed under the Capital Investment Plan (CIP). The CIP covered the procurement and implementation of the required technologies and the actual construction of the CSOC facility. CIP funding is not available for the co-managed services agreement. Funds for this action are available within Metropolitan's IT Group, Operations, and Maintenance budget for fiscal biennial 2022-2024.

Objective

CAI would be required to provide staff support for around-the-clock monitoring of CSOC systems to afford Metropolitan employees assigned to the CSOC to be free to conduct the CSOC defensive posture support such as approving cybersecurity exception requests, conduct information systems and operational technology design and upgrade support, and to conduct vulnerability scanning management activities. CAI will assist with CSOC core functions. These core functions include network monitoring and security event analysis, email security monitoring and analysis, cyber incident response and management, vulnerability assessment, security engineering, cyber intelligence support, and intrusion analysis.

The CSOC shall provide Information Technology and Operational Technology defensive posture support and is responsible for the overall security of the Metropolitan Enterprise-wide information systems and networks. The CSOC shall be established in accordance with the guiding principles of security established by the National Institute of Standards and Technology (NIST), the Metropolitan Cyber Security Program Framework, and the Metropolitan Cyber Security Policy. The CSOC is chartered to prevent, detect, contain, and eradicate cyber threats through monitoring, intrusion detection, and protective security services to Metropolitan information systems, including the Metropolitan wide area networks (WAN), local area networks (LAN), security devices, servers, and workstations. The Metropolitan CSOC also conducts vulnerability assessments, analyzes cyber threats, monitors the Metropolitan email gateway, and collects information on, investigates, and reports on all confirmed or suspected cybersecurity incidents.

Professional Services Required

Metropolitan used RFQ 1303 for Information Technology On-Call services. CAI was one of the vendors selected under the cybersecurity category under RFQ 1303.

CAI shall assist Metropolitan in staffing and monitoring its CSOC by supporting operations 24 hours per day, seven days per week, 365 days per year, with provision for on-call support during holiday periods. CAI staff will work under the direction of a CAI Service Delivery Manager, who will be providing services at the direction of the Metropolitan CSOC Team Manager and Office of Enterprise Cybersecurity.

Work shall be performed at the primary Metropolitan CSOC facility. CAI personnel shall operate from the Metropolitan CSOC facilities. Metropolitan will coordinate clearance for and grant physical access by qualified and cleared personnel into the CSOC premises and facilities and into other Metropolitan sites.

This action authorizes \$1,750,000 for CAI to provide staff augmentation services for the operation and maintenance of the CSOC. The total project budget includes funds for awarding a new contract with CAI for a nine-month period for \$1,312,500 with an option to extend month to month at \$145,833.33 per month up to a total one-year period. See **Attachment 1** for the Financial Statement.

Project Milestones

September 1, 2023 – Onboarding

October 1, 2023 – Conducting CSOC Monitoring

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

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

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of \$600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because it involves continuing administrative activities, such as general policy and procedure making, which will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment (Section 15378(b)(2) of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an agreement with Computer Aid Incorporated in an amount not to exceed \$1,750,000 to provide staff augmentation support services for the operation and maintenance of the Metropolitan Cybersecurity Operations Center for a period of up to one year.

Fiscal Impact: Expenditure of \$1,750,000 in O&M funds

Business Analysis: This option will initiate implementation of security recommendations made by internal staff and DHS and will provide minimal ability to monitor for cyber threats affecting business computer systems and SCADA systems. This approach will comprehensively strengthen Metropolitan's cybersecurity to a minimal staffing level while the RFP process is reinitiated for a permanent CSOC co-managed service.

Option #2

Do not proceed with the service at this time.

Fiscal Impact: No additional expenditure of O&M funds

Business Analysis: This option would forgo an opportunity to reduce cyber threats and increase information security risks.

Staff Recommendation

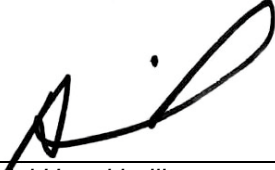
Option #1



Charlie Eckstrom
Group Manager, Information Technology

7/25/2023

Date



Adel Hagekhalil
General Manager

7/30/2023

Date

Attachment 1 – Financial Statement

Ref#it12686126

Allocated Funds for Cybersecurity Operations Center

| | Current Board Action (Aug. 2023) | |
|-----------------------------------|---|------------------|
| Labor | | |
| Studies & Investigations | \$ | - |
| Final Design | | - |
| Owner Costs (Program mgmt.) | | - |
| Submittals Review & Record Drwgs | | - |
| Construction Inspection & Support | | - |
| Metropolitan Force Construction | | - |
| Materials & Supplies | | - |
| Incidental Expenses | | - |
| Professional/Technical Services | | 1,750,000 |
| Equipment Use | | - |
| Contracts | | - |
| Remaining Budget | | - |
| Total | \$ | 1,750,000 |



Engineering, Operations, and Technology
Committee

Cybersecurity Operations Center Temporary Staffing

Item 8-2

August 14, 2023

Current Action

Authorize an agreement with Computer Aid Incorporated in an amount not to exceed \$1,750,000 for staff augmentation support services for the operation and maintenance of the Metropolitan Cybersecurity Operations Center for a period of up to one year; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA.

Background

- In 2018, Metropolitan started a project to design, construct and implement the operation of a CSOC. The construction of CSOC facility was finished in March of 2023
- Work was completed on the installation and configuration of the underlying technologies needed for the CSOC to perform its functions in November 2022
- Prior to the CSOC, there was no ability for Metropolitan to continuously monitor for and respond to cybersecurity threats

Background

- The CSOC will centrally monitor, detect, analyze, mitigate, and respond to cyber threats on the Metropolitan Enterprise Information Technology and Supervisory Control and Data Acquisition (SCADA) systems
- Metropolitan was not staffed to operate the CSOC, nor was it feasible to hire staff under the current job classifications and pay scales
- A contracted managed service would be required to conduct the continuous operation of the CSOC
- To meet this requirement, Metropolitan released a request for proposals (RFP) in October of 2022 for CSOC Co-Managed Services

Reasons for this action

- After completing the RFP the selection process, no contract was awarded. One vendor was selected, but the final scope of work deviated too far from the original scope of work that was detailed in the RFP, resulting in a cancellation of the RFP pending re-publishing with more stringent requirements
- To cover cybersecurity staffing shortages in relation to CSOC essential operational functions while a new RFP process is initiated and completed.

Reasons for this action

- Metropolitan CSOC currently tracks between 5000 and 6500 events per second
- Generated from systems critical to Metropolitan's operations
- Events require analysis for determination of threats or system misconfigurations.
- Due to staffing shortages, since January 2023, the following concerning events went uninvestigated:
 - 870 Access attempts
 - 868 reconnaissance indicators
 - 274 potential vulnerability exploits
- In all, the CSOC systems recorded 756 million events since January 2023, the vast majority of which are benign, but repeated series of events such as those listed above require further investigation.

| Category Name | Offense Count | Local Destination Count | Source Count | Event/Time Count | First Offense | Last Updated |
|------------------------|---------------|-------------------------|--------------|------------------|--------------------------|--------------------------|
| Access | 870 | 94,119 | 0 | 702,676,138 | Jan 16, 2023, 3:40:47 AM | Jul 12, 2023, 9:32:57 PM |
| Access Denied | 868 | 91,285 | 0 | 701,853,032 | Jan 16, 2023, 3:40:47 AM | Jul 12, 2023, 9:32:57 PM |
| Access Denied | 11 | 2 | 0 | 2,211 | Jan 31, 2023, 9:30:00 PM | Jul 12, 2023, 9:32:57 PM |
| ACL Deny | 0 | 12,839 | 0 | 802,328 | Jan 16, 2023, 3:40:47 AM | Jul 12, 2023, 9:32:57 PM |
| Firewall Permit | 4 | 38 | 0 | 17,580 | Jan 12, 2023, 10:17:00 | Jul 11, 2023, 9:40:33 AM |
| Access Permitted | 2 | 4 | 0 | 19 | Jan 19, 2023, 9:15:00 | Jan 19, 2023, 9:15:19 AM |
| Denial | 868 | 9,040 | 0 | 25,045 | Jan 14, 2023, 3:40:47 AM | Jul 12, 2023, 9:32:57 PM |
| Network Denial | 868 | 9,040 | 0 | 25,045 | Jan 14, 2023, 3:40:47 AM | Jul 12, 2023, 9:32:57 PM |
| Network Denial | 111 | 0 | 0 | 440 | Jan 15, 2023, 10:17:00 | Jul 12, 2023, 7:07:10 PM |
| Web Proxy Denial | 0 | 0 | 0 | 30 | Jul 29, 2023, 9:08:04 AM | Jul 12, 2023, 9:32:57 PM |
| Potential Exploit | 274 | 429 | 0 | 5,419 | Jan 14, 2023, 3:40:47 AM | Jul 12, 2023, 9:32:57 PM |
| Potential Worm Act. | 258 | 347 | 0 | 3,388 | Jan 31, 2023, 8:30:00 PM | Jul 12, 2023, 9:32:57 PM |
| Potential Web Exploit | 13 | 1 | 0 | 27 | Jan 16, 2023, 3:40:47 AM | Jul 12, 2023, 9:32:57 PM |
| Potential Denial Cc. | 3 | 3 | 0 | 26 | Jan 14, 2023, 3:40:47 AM | Jul 12, 2023, 9:32:57 PM |
| Potential Buffer Use | 1 | 0 | 0 | 1 | Mar 5, 2023, 12:15:15 PM | Jul 12, 2023, 9:32:57 PM |
| Authentication | 15 | 55 | 0 | 1,802,568 | Jan 24, 2023, 8:30:00 PM | Jul 12, 2023, 9:32:57 PM |
| General Authentication | 11 | 15 | 0 | 7,878,597 | Jan 31, 2023, 8:30:00 PM | Jul 12, 2023, 9:32:57 PM |
| User Login Failure | 0 | 10 | 0 | 8,071 | Mar 25, 2023, 1:21:29 AM | Jul 12, 2023, 9:32:57 PM |
| General Authentication | 0 | 13 | 0 | 7,154 | Mar 29, 2023, 1:21:29 AM | Jul 12, 2023, 9:32:57 PM |
| Admin Login Success | 1 | 1 | 0 | 403 | Jan 31, 2023, 8:30:00 PM | Jul 12, 2023, 9:32:57 PM |
| Computer Account | 1 | 1 | 0 | 403 | Jan 31, 2023, 8:30:00 PM | Jul 12, 2023, 9:32:57 PM |
| Application | 12 | 0 | 0 | 28 | Jul 7, 2023, 8:15:15 PM | Jul 12, 2023, 9:32:57 PM |
| HTTP in Progress | 12 | 0 | 0 | 28 | Jul 7, 2023, 8:15:15 PM | Jul 12, 2023, 9:32:57 PM |
| Suspicious Activity | 12 | 0 | 0 | 58,524 | Jan 14, 2023, 3:40:47 AM | Jul 12, 2023, 9:32:57 PM |
| Suspicious Pattern | 7 | 0 | 0 | 29 | Jan 31, 2023, 8:30:00 PM | Jul 12, 2023, 9:32:57 PM |
| Suspicious DNS Mail | 3 | 0 | 0 | 1,963 | Jan 14, 2023, 3:40:47 AM | Jul 12, 2023, 9:32:57 PM |
| Suspicious Activity | 2 | 0 | 0 | 55,228 | Jan 31, 2023, 8:30:00 PM | Jul 12, 2023, 9:32:57 PM |
| Information Leak | 1 | 0 | 0 | 1 | Jul 10, 2023, 3:15:24 PM | Jul 12, 2023, 9:32:57 PM |
| Web Protocol Anom. | 1 | 0 | 0 | 0 | Jul 27, 2023, 8:09:19 AM | Jul 12, 2023, 9:32:57 PM |

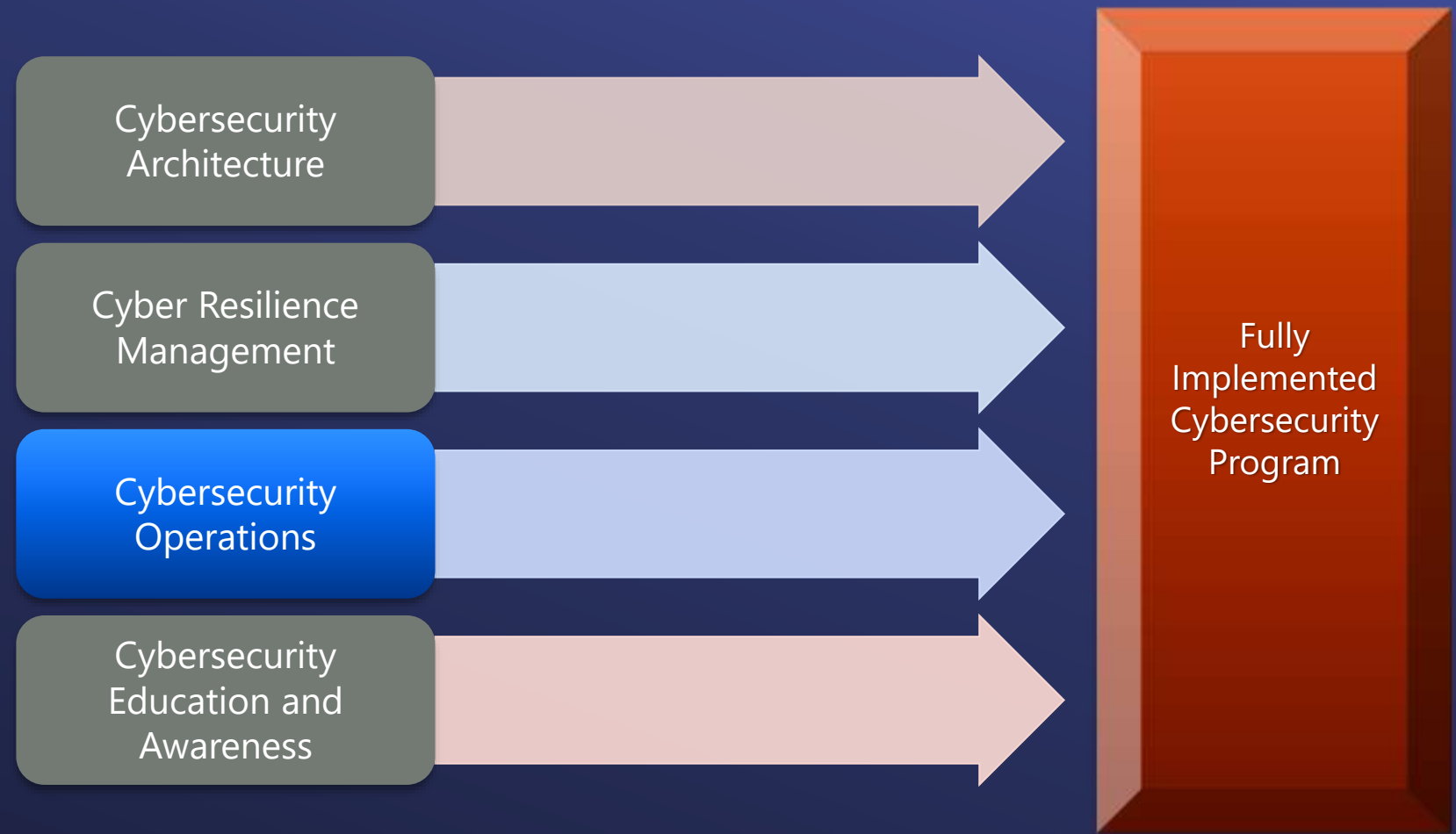
Reasons for this action

- Staff is stretched thin between legal eDiscovery requests and monitoring for cyber threats.
 - Currently 479 user objects and data on legal hold
- Currently, staff are only able to effectively engage in monitoring for attacks against employee computers (laptop and desktops), and to conduct limited investigations into phishing events.



Reasons for this action

This action is one of four pillars for the
implementation of Metropolitan's Cybersecurity
Program



Reasons for this action

- Computer Aid Incorporated will provide staff augmentation services for the CSOC core functions. These core functions include:
 - Network monitoring and security event analysis
 - Email security monitoring and analysis
 - Cyber incident response and management vulnerability assessment
 - Security engineering
 - Cyber intelligence support
 - Intrusion analysis

Vendor Selection

Computer Aid Incorporated was selected from a list of vendors pre-qualified from RFQ 1303 On-Call Information Technology Services

Vendor Selection

RFQ 1303

- 48 vendors responded to the RFQ
- Of the 48, 46 were qualified for on-call support services
- Cybersecurity is listed as Category 23
- Of the 46 vendors 15 vendors were qualified under category 23.

Vendor Selection

RFQ 1303

- CAI was chosen due to their past experience and exceptional performance on a previous cybersecurity project and their past experiences with other Metropolitan IT Projects
 - Due the short ramp up time for this effort, intimate knowledge of Metropolitan's systems was a primary consideration

Agreement Scope

- CAI will provide six (6) dedicated on-site analyst resources to directly support the Metropolitan CSOC Team and CSOC Team efforts, including monitoring for cyber threats, conducting cyber-threat hunting, and support cyber incident response activities.
- On-site analysts may be assigned to the cyber incident response team as the situation may dictate.
- Provided analyst shall staff the CSOC 24 hours per day during Metropolitan's regular operating hours and for a period after regular hours where there will be limited availability of Metropolitan counterparts. These hours are as follows:

Agreement Scope

- These hours are as follows:

| CSOC Staffing Shifts | Coverage Days | Coverage Hours |
|------------------------|-----------------|------------------|
| CSOC Day Shift | Monday - Friday | 6:00am – 2:00pm |
| CSOC Swing Shift | Monday – Friday | 2:00pm – 10:00pm |
| CSOC Evening / Morning | Monday - Friday | 10:00pm – 6:00am |
| Holidays (weekdays) | Monday - Friday | On Call |
| Holidays (weekends) | Sat - Sun | On Call |

Agreement Scope

- Analyst will provide subject matter expertise, advice, and action on the following items:
 - Vulnerability Assessment
 - Intrusion Prevention and Detection System (IPS/IDS)
 - Host Intrusion Prevention and Host Detection System (HIPS/HIDS)
 - Access Control and Authorization
 - Policy Enforcement
 - Application Security
 - Protocol Analysis
 - Penetration Testing
 - Web Application Firewalls
 - Firewall Management
 - Incident Response
 - Secure Web Gateways
 - Endpoint Detection and Response (EDR), Network Detection and Response (NDR), Extended Detection and Response (XDR)

Project Cost

| | |
|---|-------------|
| Nine Months of Staff Augmentation Services | \$1,312,500 |
| Month-to-Month Rate (Months 10, 11, and 12) | \$145,833 |
| Contract Not to Exceed Total | \$1,750,000 |

Project Timeline

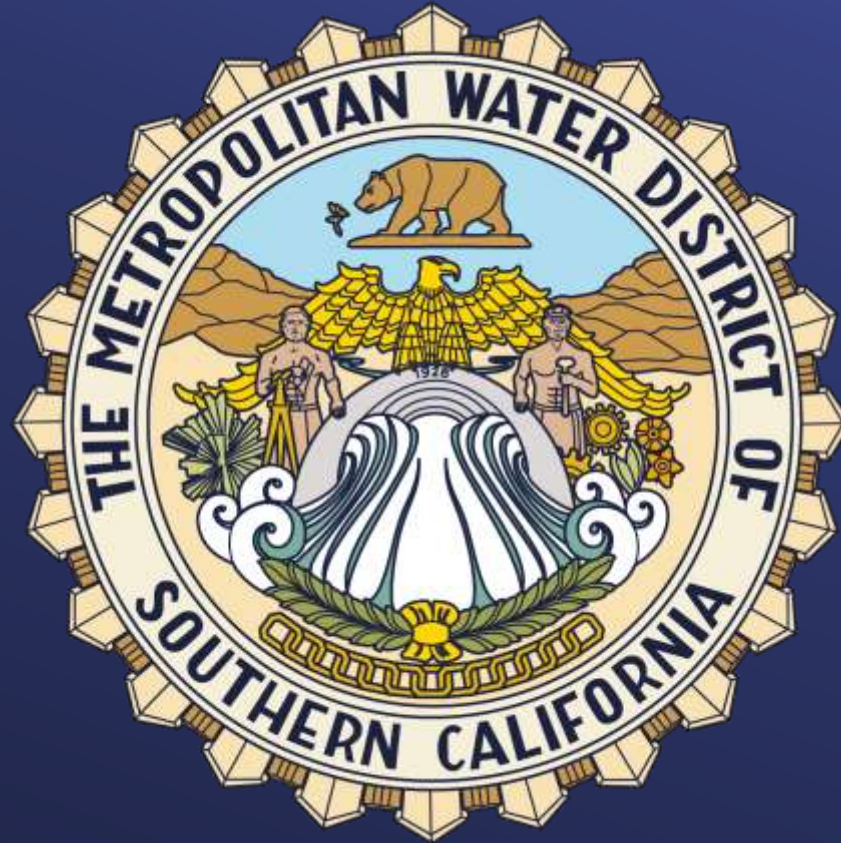


Board Options

- Option #1
 - Authorize an agreement with Computer Aid Incorporated in an amount not to exceed \$1,750,000 to provide staff augmentation support services for the operation and maintenance of the Metropolitan Cybersecurity Operations Center for a period of up to one year.
- Option #2
 - Do not proceed with the service at this time.

Staff Recommendation

- Option #1





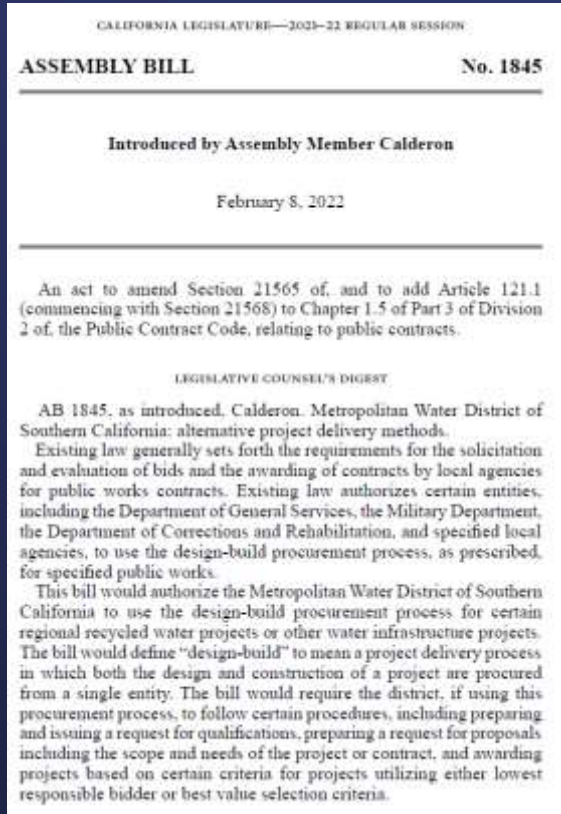
Engineering, Operations, & Technology Committee

Update on use of Alternative Project Delivery for Metropolitan Projects

Item 7a

August 14, 2023

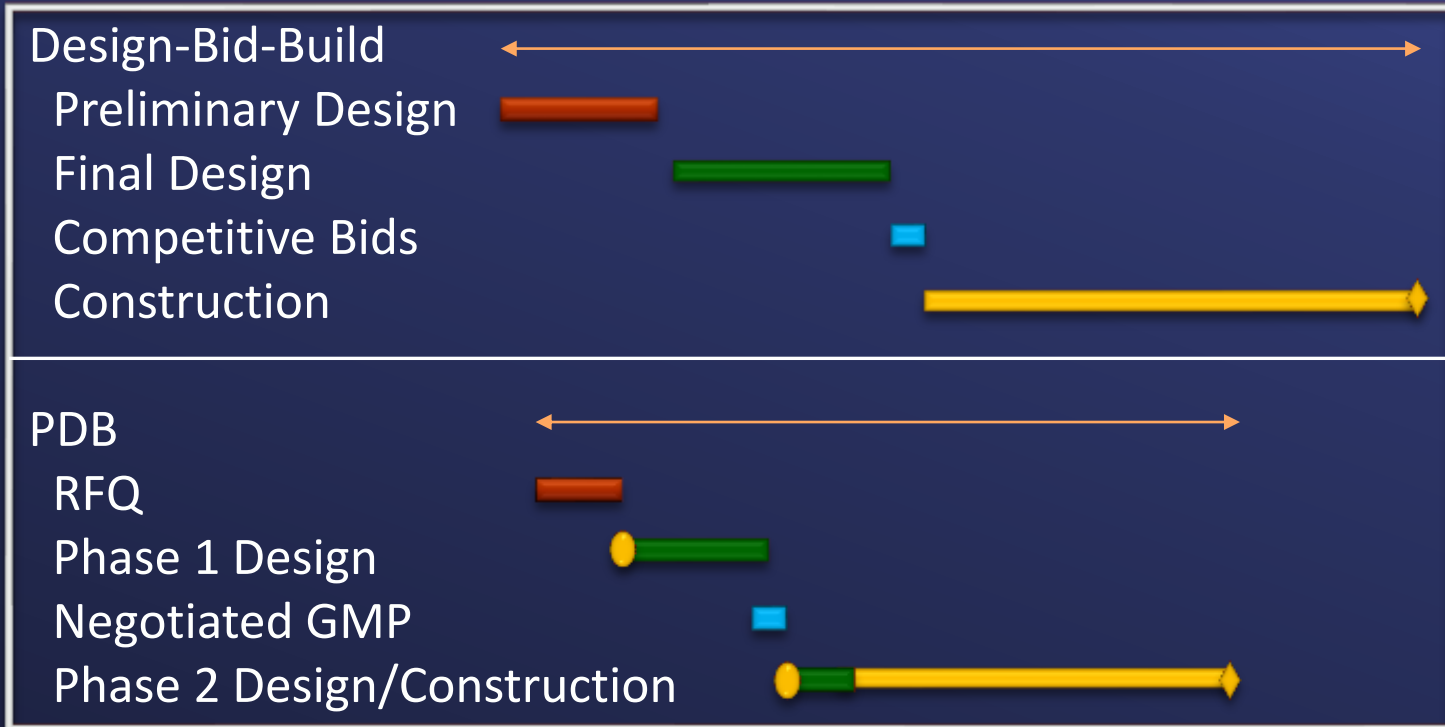
Background



AB 1845

- Assembly Bill 1845 (Calderon)
 - Legislation allows Metropolitan to utilize Alternative Delivery for drought & Pure Water projects
 - Alternative delivery options: Design Build, Progressive Design Build, & CM/GC
- Senate Bill 991 (Newman)
 - Allows local water/waste agencies to utilize progressive design build for projects over \$5 M
- Both bills passed Legislature in August 2022 & signed by Governor Newsom in September

Progressive Design Build (PDB) Process



- **PDB Advantages**

- Overlaps design and construction activities reducing overall schedule
- Construction input early in design
- Price determined earlier
- One contract to administer
- Design-Builder selected by qualifications only
- Owner and design-builder collaborate on basis of design

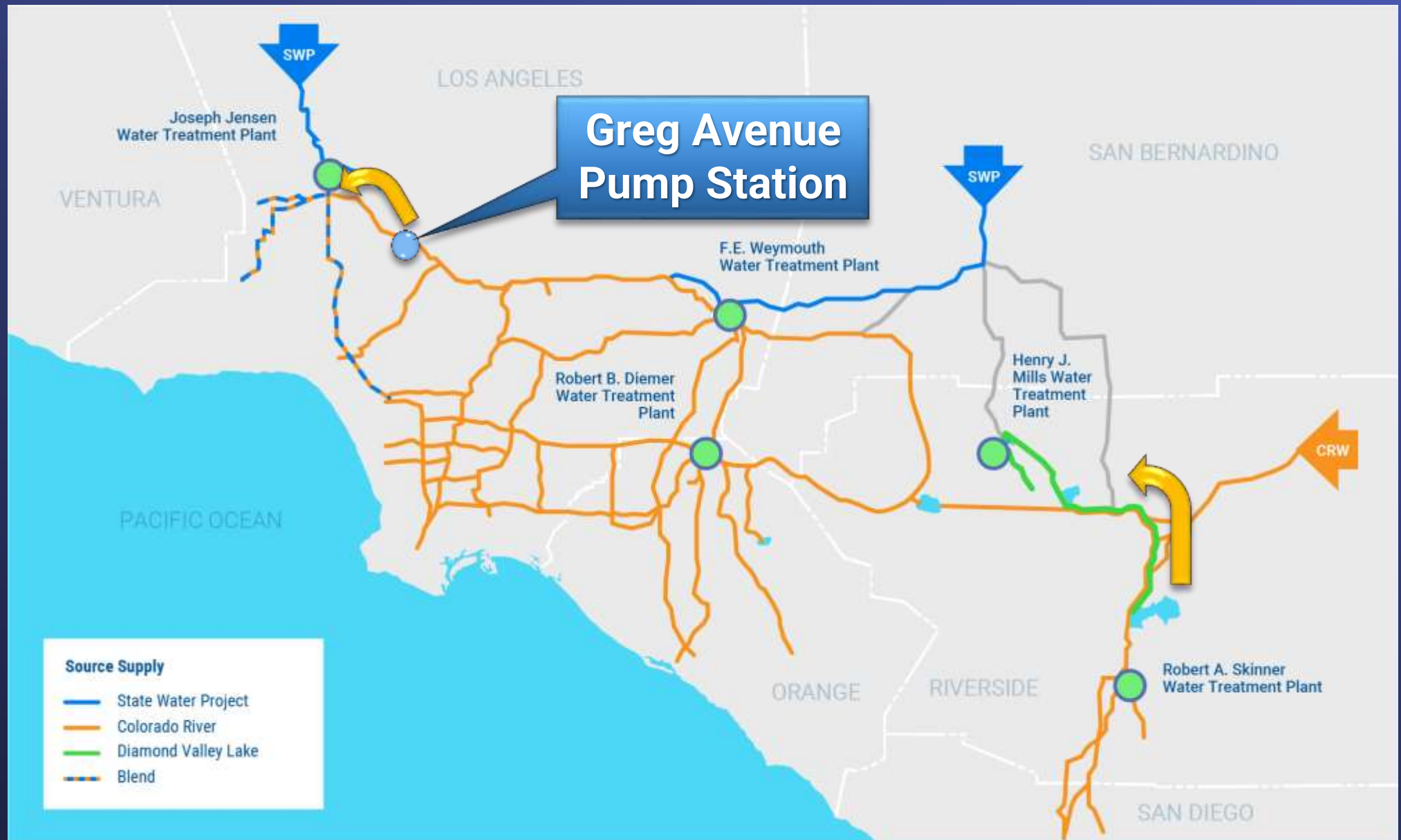
- **PDB Disadvantages**

- First for Metropolitan
- Needs the right people on the project
- May not result in lowest cost

Delivering State Project Water



Managing through Droughts



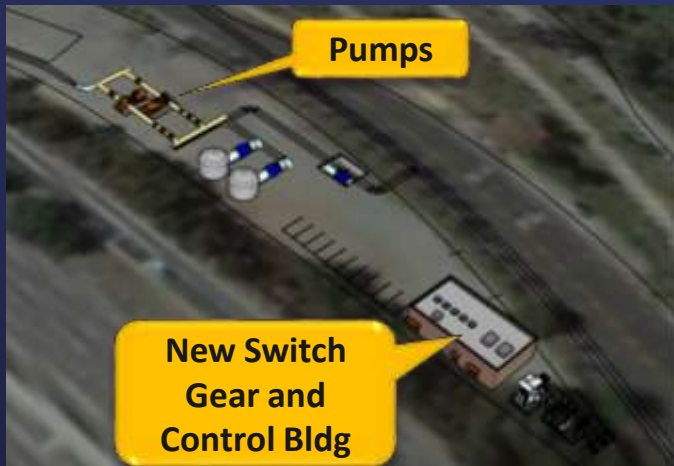
Improving Infrastructure

Sepulveda Canyon Pump Station

Venice Pump Station



Sepulveda Feeder Pump Stations



Sepulveda Canyon Pumping Plant

Scope of Work

- Two new pumping plants on the Sepulveda Feeder
 - Initial capacity of 30 cfs
- Project components
 - Pumps, motors, & interconnection piping
 - Mechanical eqpt. for surge protection
 - Electrical modifications, switchgear
 - Electrical & control buildings & valve structures
- Est. Online Date
 - Mid 2026



Authorization to RFQ

- September 2022 – Board authorized amendment to Carollo Engineers, Inc. agreement to provide owner's advisor services
- November 2022 – MetWorks webinar announced adoption of PLA & Metropolitan's use of alternative project delivery
- **January 2023 – AB 1845 and SB 991 effective date**
- February 2023 – MetWorks Industry Day for Pure Water & Sepulveda Feeder Pumping Plant projects
- March 2023 – Board authorized Administrative Code modifications to implement alternative project delivery
- March 2023 – MWD issued RFQ 1340 to select design-build entity

Accomplishments



Looking Forward



Venice Pumping Plant

- **Recent Activity**
 - May 18, 2023 – Opened three Statements of Qualifications
 - June 27/28, 2023 – Interviewed the three respondents
 - Initiated negotiations with selected respondent
- **Next Steps**
 - Finalize negotiations
 - Board action in September to authorize agreement for Phase 1 pre-construction activities
 - Return to the Board in Mid-2024 to authorize an amendment for Phase 2 design

Other Opportunities



- AB 1845
 - Pure Water Southern California
 - Additional drought initiatives projects



- SB 991
 - Lake Mathews Forebay Rehabilitation







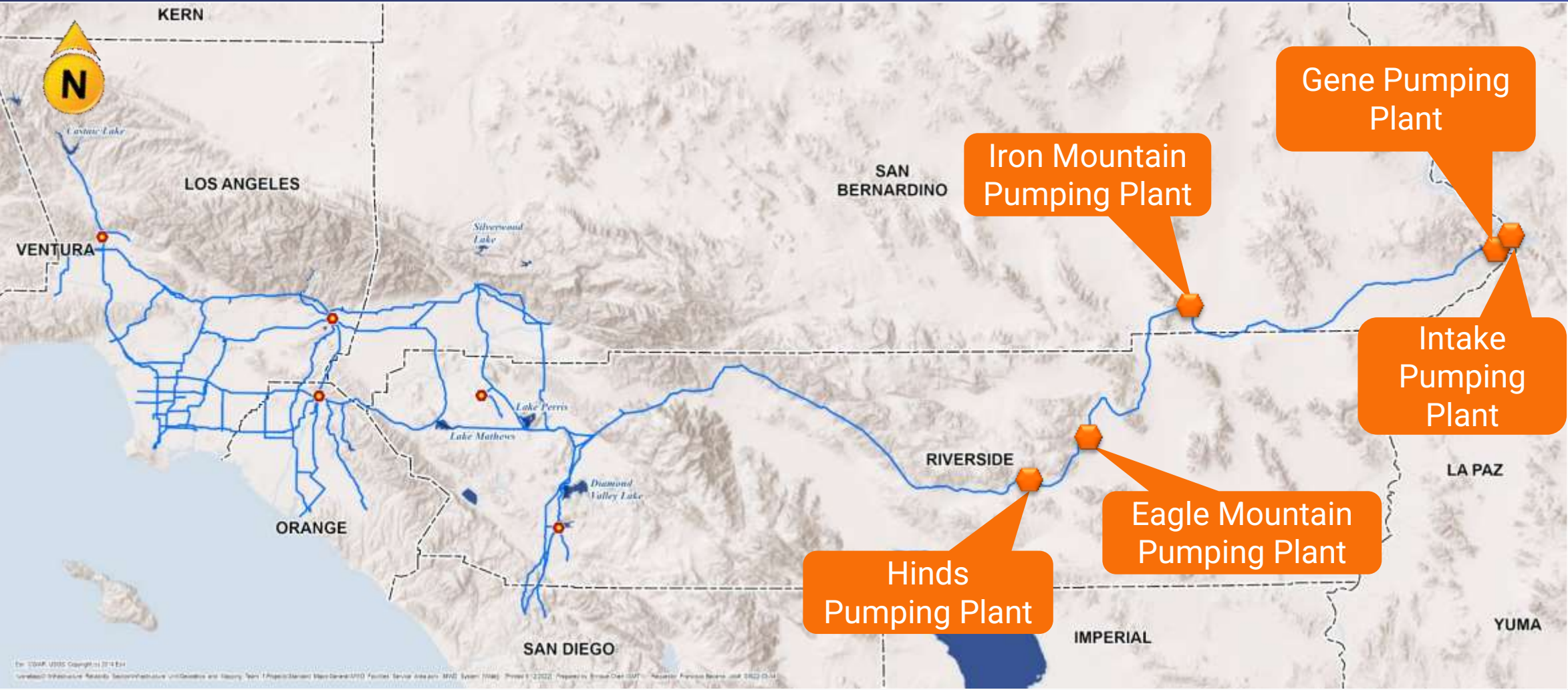
Engineering, Operations & Technology Committee

Update on Colorado River Aqueduct Electrical Upgrades

Item 7b

August 14, 2023

Location Map



Colorado River Aqueduct Electrical Reliability Update

CRA Electrical Reliability Goals

- Maintain reliability of CRA System
- Minimize single-point-of-failure risks
- Execute electrical capital improvements in cost-effective manner with minimal disruption to aqueduct operations
- Incorporate appropriate technology to enable cost-effective maintenance

Electrical Power System



Colorado River Aqueduct Electrical Reliability Update

Major Accomplishments

- High-Voltage System
 - Disconnect switches
 - Circuit breakers
 - Current limiting reactors
 - Lightning arresters
 - Protective relays
 - Transmission tower foundation rehabilitation



230 kV Circuit Breaker

Colorado River Aqueduct Electrical Reliability Update

Planned Work

- Medium & Low-Voltage Systems
 - 2.3 kV & 480 V switchgear
 - 2.3 kV Standby Generators at Iron Mtn., Gene & Intake PP's
 - Black Metal Mountain 2.3 kV
 - Gene communications
 - 6.9 kV Circuit Breakers
 - Auxiliary Power Systems
- Transformer Replacements



Typical Power Panel

1. Background – Switchracks Replacement

- 2.3 kV Switchracks built in 1939
- Central distribution center for low & medium voltage
 - Cooling, portable, & fire water pumps
 - Lubricating oil for pumps
 - Station lighting
 - Village housing
- Circuit breakers & protection relays – spare parts not available
- Unsheltered equipment difficult to maintain due to weather conditions



Existing 2.3 kV Switchrack (Iron Mtn.)

1. Improvements – Switchracks Replacement

- New climate-controlled concrete buildings
- Double-ended power system
- Replace 2.3 kV with 4.16 kV
- Meet current standards
- Basement with cable tray system



Conceptual Rendering

2. Background – Main Transformers Replacement

- Installed from 1939 to 1959
 - 35 Transformer Units
- Power source for all CRA pumping plants
- Exceeded typical life expectancy of 50-75 years



2. Improvements – Main Transformers Replacement

- Replace Transformers (Metropolitan Furnished Equipment)
 - Single-phase
 - Air-cooled
 - Less flammable K-class fluid
- Seismic upgrades to foundation
- Secondary containment structures
- Replacement of cranes & cart system
- Provide security enhancements



3. Background – Black Metal Mtn. Electrical Power Upgrades

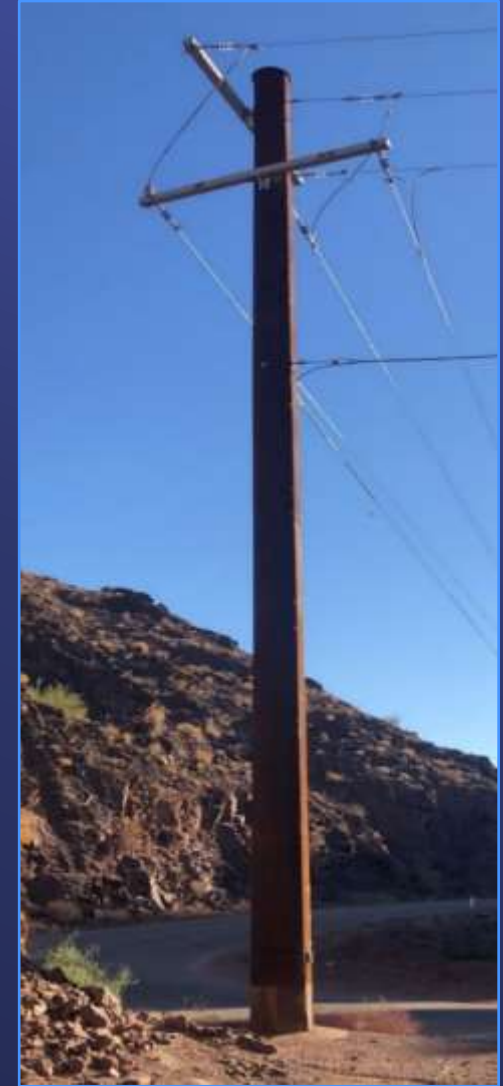
- Installed in the 1970s
- Critical link for Metropolitan's desert facilities
- Site leased to other government agencies
 - San Bernardino County Sheriff's & Fire Departments
 - California Highway Patrol
 - Caltrans
 - Federal Aviation Administration
- Increased power demand requires upgrades



Black Metal Mountain

3. Improvements – Black Metal Mtn. Electrical Power Upgrades

- Install one-mile-long power line
 - New steel poles
 - New larger electrical conductors
- Improve site access & power line maintenance roads
 - Reduce/stabilize road slopes
 - Improve drainage
 - Pave parts of the roadway for traction
 - Install guardrails



Light Duty Steel Pole

Colorado River Aqueduct Electrical Reliability Update

Upcoming Board Actions

| Project | Action |
|--|---|
| Gene Communication System Upgrades | Award of Construction Contract |
| CRA 69 kV & 230 kV Transformer Replacement | Award of a Procurement Contract & Award of Agreement for Final Design |
| Iron Mtn. PP 2.3 kV Switchrack Replacement | Award of Agreement for Final Design |
| Black Metal Mtn. 2.4 kV Power Upgrades | Award of Agreement for Final Design |
| Intake, Gene, Eagle Mtn. & Hinds PPs 2.4 kV Switchrack replacement | Award of Agreement for Preliminary Design |

Colorado River Aqueduct Electrical Reliability Update

CRA Electrical Reliability

- Conclusion
 - Total expenditures since 2002: \$130 M
 - Planned work through 2035: \$280 M (approx.)
 - Benefits of following a long-term strategy
 - Flexibility to adjust schedules based on priorities & shutdown opportunities
 - Minimizes impacts to aqueduct operations
 - Proactive identification of work reduces risk of outages
 - Cost-effective project delivery
 - Integration of sustainability within future projects





Engineering, Operations, & Technology Committee

Reservoir Management Update

Item 7c

August 14, 2023

Large Regional Source Water Reservoirs

Metropolitan Reservoirs

Dept. Water Resources

Bureau of Reclamation



Common Reservoir Challenges

Water quality
issues can reduce
operational
flexibility

Water Quality Issues

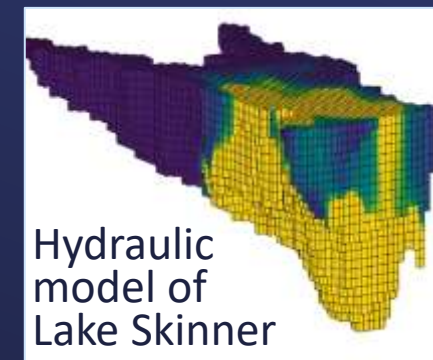
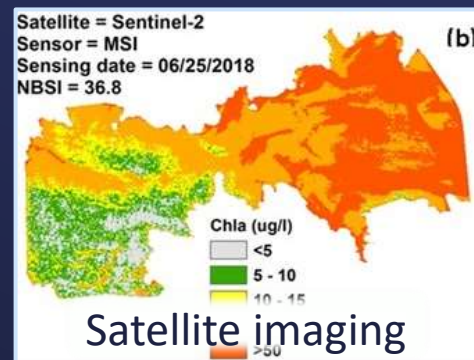
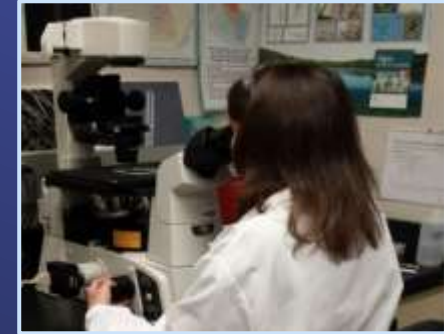
- **Cyanobacteria** “blooms”
 - Taste & odor (T&O) production
 - Toxin production
 - New *Planktothrix* bloom
- **Anoxia** (low dissolved oxygen)
 - Elevated manganese
 - Hydrogen sulfide production
- **Invasive quagga mussels**
 - Restricts delivery options for infested CRW



Comprehensive Reservoir Monitoring Program

Suite of Monitoring Tools

- Routine field sampling and laboratory analyses
- SCUBA diving
- Remote water quality sensors/probes
- Satellite monitoring of lake conditions
- Remotely operated vehicles (ROV)
- Water quality models



Reservoir Management Toolbox

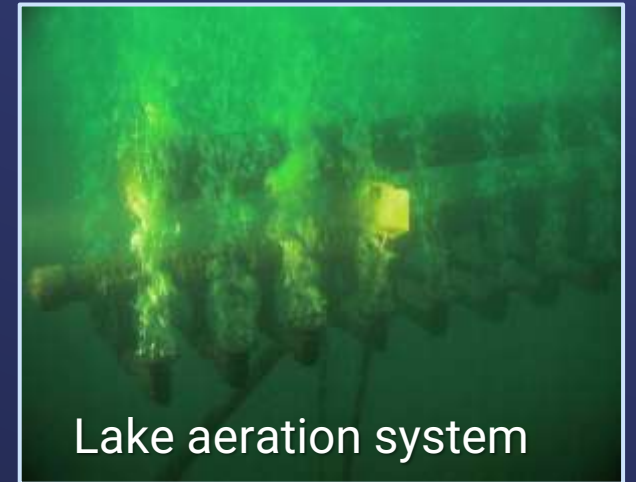
Managing lakes to
ensure continued
reliable water
supply

Lake Management Actions

- Cyanobacteria “blooms”
 - Tier change to **avoid** problem
 - Ozone at plants to **reduce** problem
 - Copper sulfate to **eliminate** problem
- Low dissolved oxygen (anoxia)
 - Aeration to **mix** water column
 - Deep water **oxygenation** (future)
- Quagga mussels (CRW)
 - **Control** through chlorination, cleaning, and controlled discharges



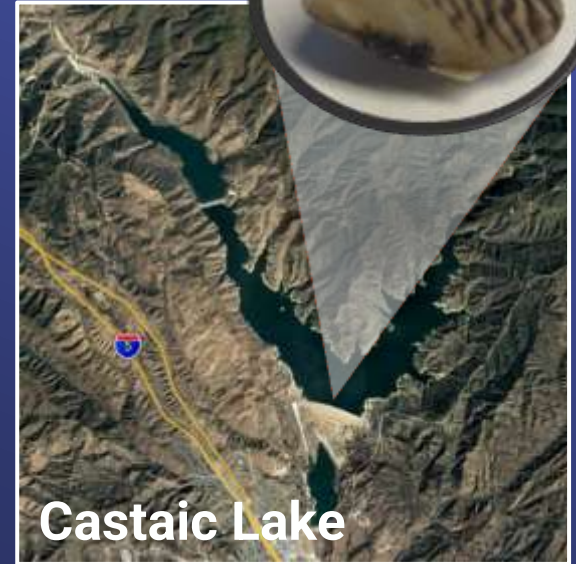
Copper sulfate treatment
of cyanobacteria bloom



Lake aeration system

Quagga Mussel Discoveries in the State Water Project

- A few invasive quagga mussels discovered in WB-SWP
 - Pyramid Lake- December 2016
 - Castaic Lake- August 2021
- January 2023 – Metropolitan detected a single veliger (larvae) at Foothill Feeder PCS immediately downstream of Castaic Lake
 - DWR and Member Agencies notified
 - First evidence of quagga mussel reproduction in SWP
 - No additional veligers detected since January
- No evidence of widespread infestation
- Currently no impact on water system operations



Cyanobacteria Blooms 2023

- Geosmin is not harmful
- Aesthetic issue only
- Consumers can detect geosmin at 5 to 10 ng/L in treated water

Lake Skinner Taste and Odor

- Cyanobacterial bloom increased rapidly in late June
- Produced geosmin (taste & odor)
 - Up to 43 ng/L leaving lake; 13 ng/L on July 2
 - Skinner plant effluent: 3 - 6 ng/L
- Lake operational changes
 - 50% lake bypass
 - Closed tier 3 and used only the deepest tier 4
 - Turned off lake aerator to avoid mixing
- Skinner plant using ozone and peroxide treatment
- Successfully treated with copper sulfate on July 7



Cyanobacteria Blooms 2023

Diamond Valley Lake Cyanotoxin Bloom

- Late June/early July: Rapidly developing cyanobacterial bloom producing cyanotoxins
- A recreational water issue only
- Drinking water not impacted
 - Water not being withdrawn from DVL for previous operational reasons
- Followed the state's voluntary guidance for monitoring and posting recreational advisories
 - No regulatory requirements
- Warning signs posted on July 5



Climate Impacts: Wet Years

Implications for Water Quality



Storm runoff entering the State Water Project

- Elevated turbidity
- Regulated contaminants
- Pathogens



Extended period of low alkalinity (snowmelt)

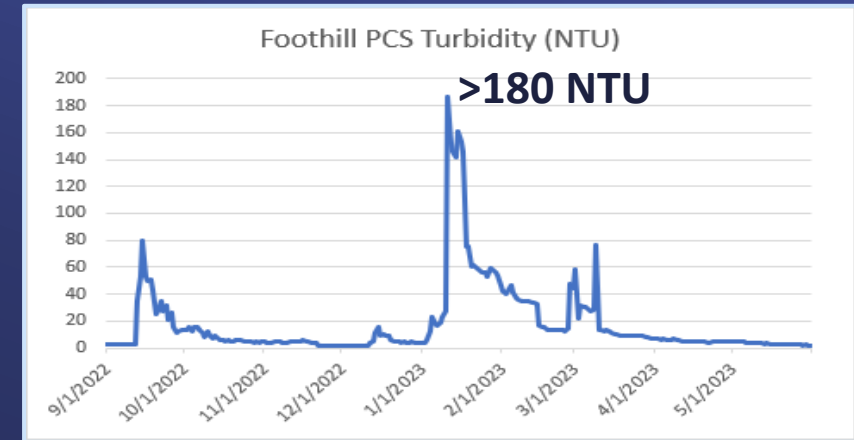
- Modify treatment processes
- Blend SWP supply with higher alkalinity sources

Castaic Lake Turbidity Events 2022-2023



Steep watershed topography makes Castaic Lake susceptible to turbidity events

Jensen Plant Impact and Response



Managed high turbidity by optimized chemical use and solids handling



Silverwood Lake Storm Impacts March 15



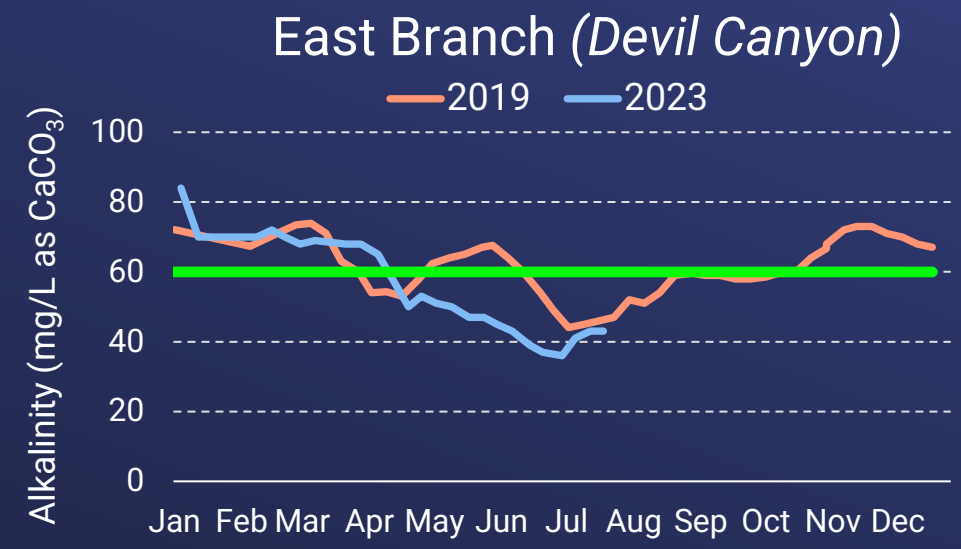
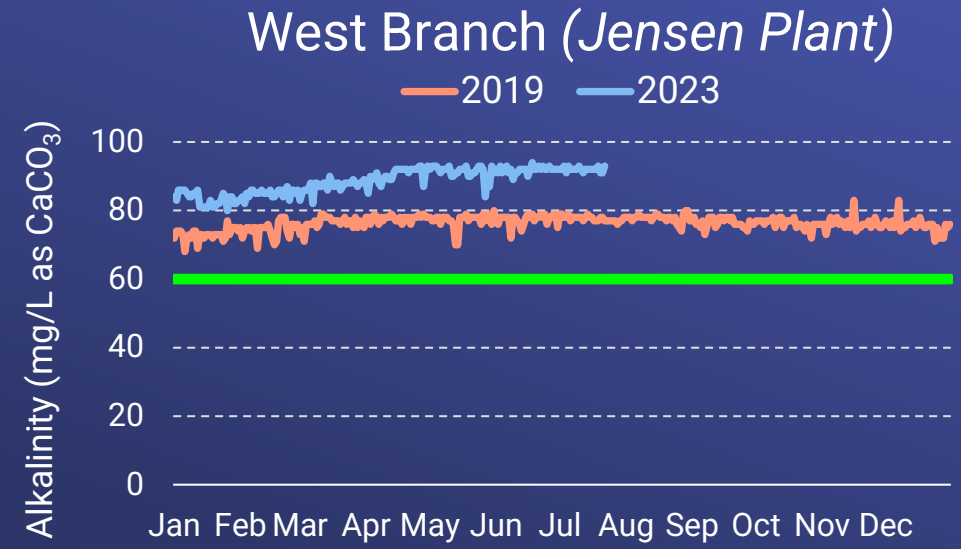
Responding to Watershed Runoff and Spill Event

- Increased flow overwhelmed Houston Creek WWTP
- Approx. 15,000 gallons of partially treated wastewater flowed into creeks towards Silverwood Lake
- Increased raw water turbidity from runoff
- Metropolitan response actions
- Elevated raw water pathogens for 4 weeks – **None detected in plant effluents**
- All compliance requirements met with no impacts to treated water deliveries

Low Alkalinity Water during Surplus Conditions

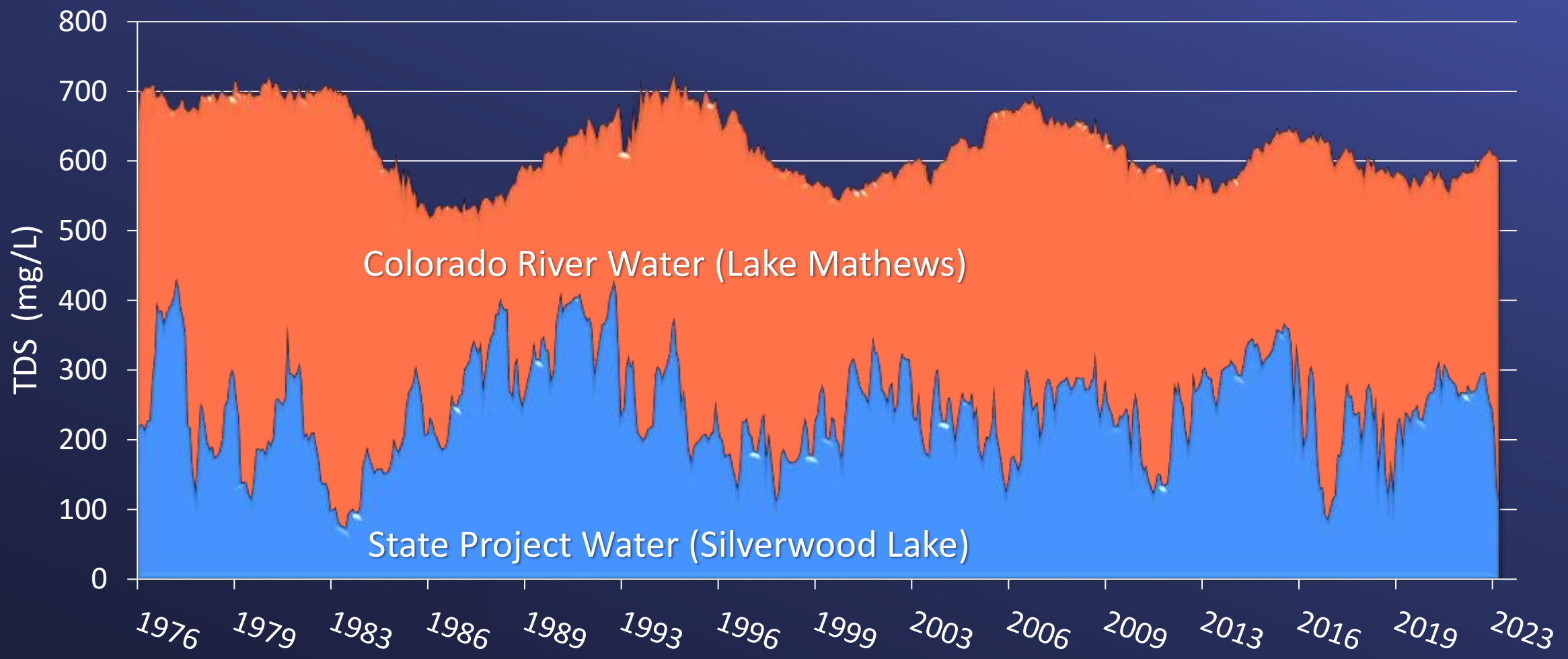


- Historical Alkalinity Level (median, 2003-2023)
- SWP West Branch: 83 mg/L
 - SWP East Branch: 76 mg/L
 - Colorado River Aqueduct: 132 mg/L

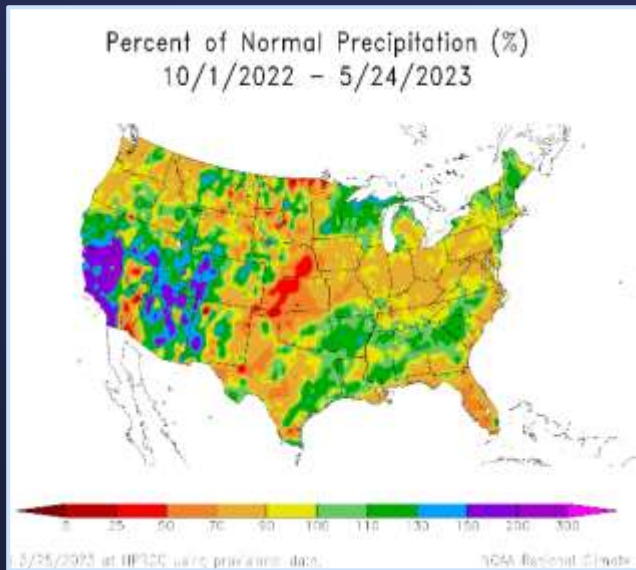


Salinity in Metropolitan Supplies

Historical Trends



Looking into the Future



Adapting to Climate Change

- Recent climate extremes might continue
 - Three years of drought followed by wet year – climate whiplash
 - Long term drought on the Colorado River continues
- Potential for increased water quality issues
 - Low alkalinity
 - Contaminants brought by flood waters
 - Increased turbidity from wildfires and storm erosion
 - More frequent cyanobacterial blooms

Climate volatility highlights need for enhanced flexibility and requires innovation in managing lakes

The Future of Reservoir Management



Innovation and Vigilance

- Forefront of reservoir management science
- Enhance monitoring of source water quality
- Improve and expand remote sensing
- Increase modeling and prediction capabilities
- Prepare for climate impacts on water quality
- Continue adapting lake operations to ensure reliable delivery and increase resiliency





Engineering, Operations and Technology Committee

Emergency Management Program Update

Item 7d

August 14, 2023

Emergency Management Program Update

Presentation Outline

- Program Overview
 - Authority
 - Response
 - Recovery
 - Planning/Preparedness
- Real-World Responses
- Future Actions



Authority



Operating Policy A-06

- Addresses how Metropolitan organizes and deploys resources to manage emergencies and ensure continuity of operations and critical business processes
- General Manager delegates authority for:
 - Emergency Management Program
 - IT Disaster Recovery
 - Business Continuity Program
- Metropolitan maintains shops and supplies to respond to two emergency line breaks simultaneously

Emergency Response Organization

Response

Incident Command Posts (ICPs)

- Diemer
- Jensen
- Mills
- Skinner
- Weymouth
- Western Distribution
- Eastern Distribution
- Desert Distribution
- Lake Mathews

Emergency Operations Center (EOC)

EOC
Duty
Officer

Headquarters
ICP

Water
Quality ICP

IT
ICP

Manages District-wide emergencies

Follows State and Federal guidelines



Fixed-site, remote, virtual, hybrid

Brings key managers and staff together

Response Emergency Operations Center



Response Incident Command Posts

- Manage local incidents
- 12 located throughout Metropolitan
- Follow State and Federal guidelines

External
Agencies

Metropolitan
Management

Response

EOC Duty Officer



EOC Duty Officer

Member
Agencies

Metropolitan
Staff

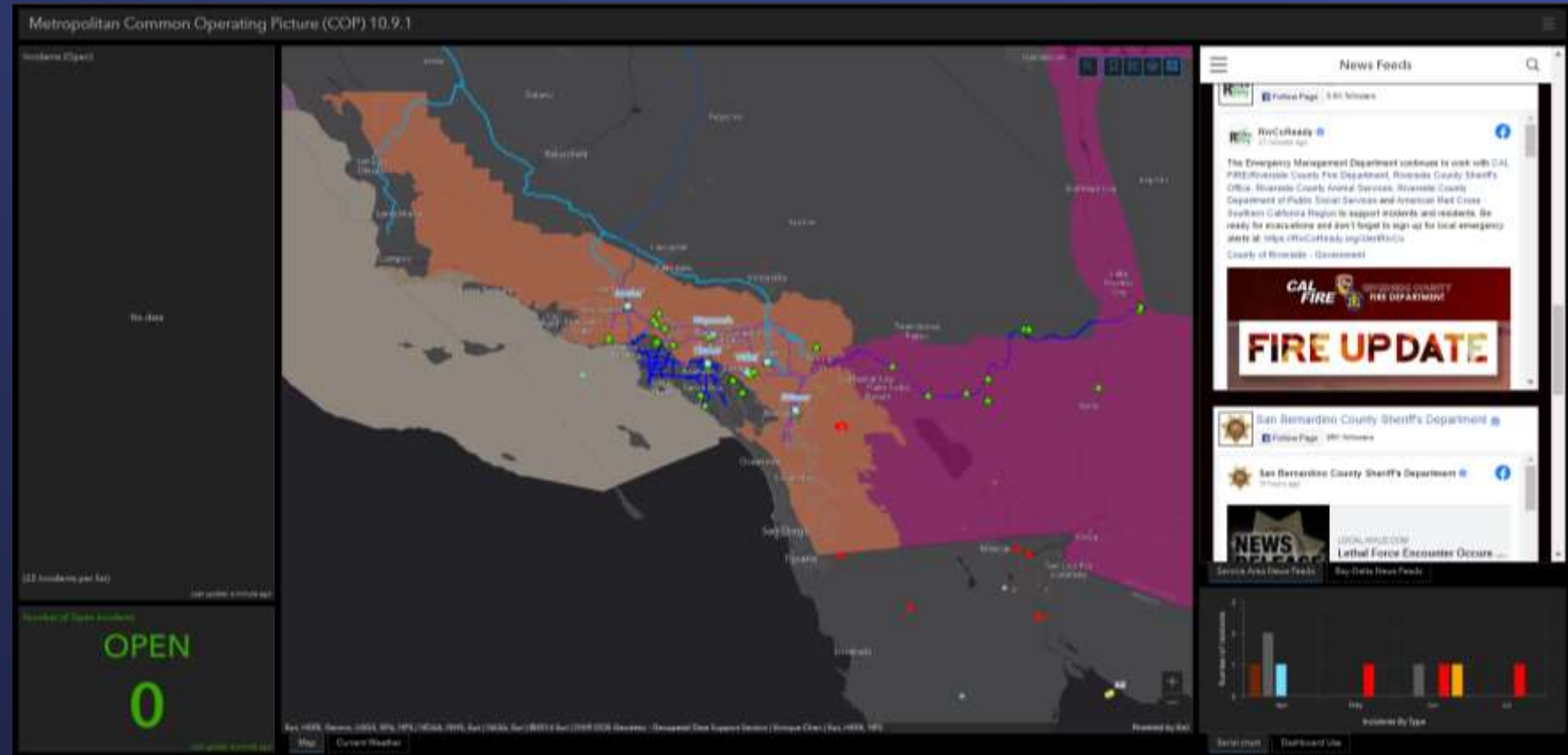
- On Call 24/7
- Covers EOC when not activated
- Monitors potential threats
- Connects all Metropolitan groups
- One-stop emergency point of contact

Response

Everything in One Place

- Weather alerts
- Duty Officer updates
- Earthquakes
- Fire thermal imagery
- Fire cameras
- Aqueducts
- Member Agency boundaries

Common Operating Picture Map



| Exercise - 2022 Shake Out Exercise Ian Whyte | | Metropolitan EOC Events | |
|---|--|---|--|
| <input type="text"/> Search <input type="button" value="Clear"/> <input type="button" value="All ICPs"/> | | | |
| High Originator: Ric Johnston Location: Weymouth Position: Incident Commander Event Type: Earthquake Subject: Weymouth ICP Active - Earthquake Entered: 10-20-22 08:58 Updated: 10-21-22 06:58 | | Shake Out Exercise Completed. Weymouth Plant ICP Deactivated. Weymouth - Incident Commander - Ric Johnston at 06:58:27 on 10/21/2022 Weymouth - ICP Staff - Sam Phan at 10:57:43 on 10/20/2022 re opened Weymouth - ICP Staff - Christopher Riley at 10:57:21 on 10/20/2022 Expand Return View | |
| Medium Originator: Thomas Dennis Location: Weymouth Position: ICP Staff Event Type: Other Subject: Chemicals Inventory at 254 mgd empty date report Entered: 10-20-22 10:42 Updated: 10-20-22 11:58 | | Operation return to normal. closing report Weymouth - ICP Staff - Thomas Dennis at 11:58:53 on 10/20/2022 Erni Fujii reported all supply lines open Weymouth - ICP Staff - Thomas Dennis at 11:58:06 on 10/20/2022 Chorine - 12/31/22 - 70 days left Ammonia - 11/09/22 - 21 days left Expand Return View | |
| High Originator: Thomas Dennis Location: Weymouth Position: ICP Staff Event Type: Earthquake Subject: Emergency Chlorine Update Entered: 10-20-22 10:14 Updated: 10-20-22 11:56 | | Ozone back ON, two hour overlap timer started Weymouth - ICP Staff - Thomas Dennis at 11:56:54 on 10/20/2022 CT verify by WQ. Weymouth - ICP Staff - Sam Phan at 11:35:50 on 10/20/2022 CT Ratio is greater or equal at 2.0 at Flocc. Effluent. Weymouth - ICP Staff - Sam Phan at 10:14:21 on 10/20/2022 Expand Return View | |
| Low Originator: Harold Wagner Location: Weymouth Position: ICP Staff Event Type: Pipe Break/Water Leak Subject: Alum feed Rapid Mix 7/8 Entered: 10-20-22 10:27 Updated: 10-20-22 11:56 | | System repaired, Alum sump clean Weymouth - ICP Staff - Harold Wagner at 11:56:41 on 10/20/2022 10:50 AM Pumps put in the sumps. Alum and rinse water pumped into totes. Totes taken to the haz-waste yard. Weymouth - ICP Staff - Harold Wagner at 10:58:15 on 10/20/2022 Alum feed line broke to Rapid Mix 7/8. Containment overflowing. Haz mat notified. Rapid Mix Station 7/8 removed from service and Weymouth - ICP Staff - Thomas Dennis at 10:32:18 on 10/20/2022 Expand Return View | |
| Medium Originator: Thomas Dennis Location: Weymouth Position: ICP Staff Event Type: Earthquake Subject: Critical Chemical Requirements Entered: 10-20-22 10:28 Updated: 10-20-22 11:56 | | Operations report process returned to normal conditions Weymouth - ICP Staff - Thomas Dennis at 11:56:08 on 10/20/2022 WQ Liaison directives Weymouth - ICP Staff - Thomas Dennis at 11:02:59 on 10/20/2022 Weymouth - ICP Staff - Sam Phan at 10:33:13 on 10/20/2022 Expand Return View | |

Example from 2022 ShakeOut Exercise

Response

Metropolitan's WebEOC System

- Connects the EOC to the ICPs in real-time
- Separate from Metropolitan's business network
- Can track multiple events at once
- Customized to meet the needs of Metropolitan
- Can incorporate Member Agency updates as well

Response Training and Exercises



Ensuring Emergency Readiness

- Standardized training
- Minimum of 3 exercises per unit, per year
 - Over 40 exercises annually
- Recent exercises include:
 - ShakeOut 2022
 - Diemer Full-Scale Exercise 2022
- Monthly communication drills



Response Partners

Partnering with Member and External Agencies

California Utilities Emergency Association (CUEA)

- Link between utilities in the State and the California Office of Emergency Services (Cal OES)

California Water/Wastewater Agency Response Network (Cal WARN)

- Links multiple water agencies in the State

Member Agency Response System

- Allows member agencies to assist each other during an emergency

Pursuing Damage Recovery Funding After Emergencies

Recovery



*Whitewater Erosion Control Structure Damage
- 2019*

- Seeking public assistance and reimbursement
 - FEMA and Cal OES
- Coordinating with outside partners
- Transitioning from Response to Business Continuity

Planning / Preparedness



Comprehensive Overall Emergency Response Plan

- Metropolitan's Emergency Response Plan meets criteria set in the 2018 American Water Infrastructure Act (AWIA)
- The plan follows a multi-hazard approach, and lays out how Metropolitan will respond to an emergency
- Requires Risk and Resilience Assessment, as well as Emergency Response Plan
- Updated plan is due mid-2025

New Plans Under Development

Planning / Preparedness



Diamond Valley Lake, west dam

- Local Hazard Mitigation Plan
 - Identifies potential hazards and mitigation strategies
 - Provides framework for future project funding
- Dam Emergency Action Plans
 - Approved by Cal OES
 - Requires outreach to local jurisdictions
 - Requires annual exercises and updates

Coordination Required for Effective Plan Implementation

Planning /
Preparedness



- Emergency Response Plan
- Local Hazard Mitigation Plan
- Dam EAPs
- Safety and Regulatory Plans
- Business Continuity Plans
- Crisis Communications Plan

Real-World Responses

- September 5-11, 2022
- Near Diamond Valley Lake and Skinner Plant
- 28,307 acres burned

Fairview Fire

- Metropolitan EOC, Eastern C&D and Skinner ICPs activated
- Metropolitan sent staff to Fire Command Post
- Supported fire suppression operations



January 2023 Storms

Real-World Responses

- High turbidity into Jensen Plant due to heavy rains over Castaic watershed
- Jensen ICP activated
- Effectively managed high solids loading
- Met all water quality compliance goals



Castaic Lake Boat Ramp (Jan 12, 2023)



Real-World Responses



Malibu Earthquake

- Magnitude 4.2 earthquake offshore near Malibu
- ShakeCast alerted of possible damage
- Outreach to local Member Agencies
- Patrollers responded, confirmed no damage



From USGS

Real-World Responses



Preparing for Wildfires

- Planning ahead with firefighting agencies
- Actively monitoring fires in the region
- Sending alerts to staff for unhealthy air quality
- Coordinating with YLWD to build helicopter hydrant at Diemer Plant



Future Actions



Next Steps

- Enhance EOC/ICP operations, including mobile response capabilities
- Expand planning and exercises with first responders and other partners to improve readiness
- Participate in planning for 2028 Olympics







Engineering, Operations, & Technology Committee

Water System Operations Manager's Report

Item 8a

August 14, 2023

Current Operational Conditions



Diamond Valley Lake
August 1, 2023

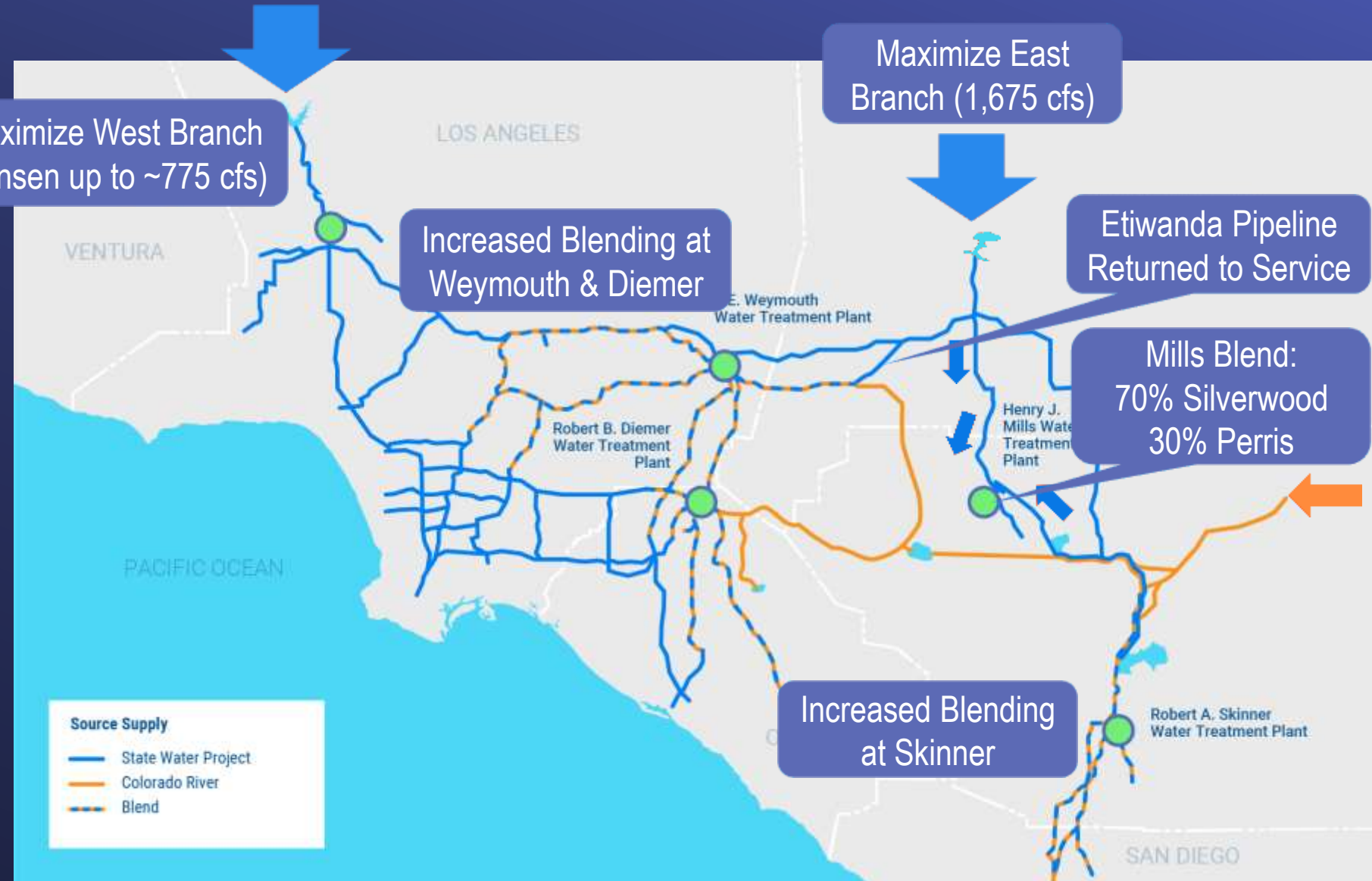
Managing Surplus Conditions

- 2023 SWP Allocation at 100%
- CRA at 5-pump flow
- SWP blend targets are 75% at Weymouth and Diemer; Skinner blend currently 60%
- Maximizing Colorado River water delivery to DWCV storage
- July 2023 deliveries of 113 TAF were 38 TAF lower than July 2022; lowest July demand on record

Maximizing SWP Supplies

Current Surplus Operations

*Balancing water supply,
quality, and system
constraints*



Etiwanda Pipeline Shutdown

October 2022 - July 2023

Etiwanda Pipeline Returned to Service

- Multi-stage lining repairs complete
 - Stage 3: 2.5 miles of polyurethane coating and 1,200 feet of new steel liner
- Shutdown accelerated two months allowing additional 17 TAF of SWP use
- Increased system flexibility to manage SWP supply

Testing electric flatbed truck during shutdown



August 14, 2023

Demo of mortar lining



Welding steel pipe



Final coating of pipe after lining repair



PFAS and CERCLA

*Additional PFAS
under Consideration*

*PFBS, PFHxS, PFNA, GenX,
PFBA, PFHxA, PFDA,
and precursors of
PFOA and PFOS*

U.S. EPA Proposed Designation as CERCLA Hazardous Substances (Part II)

- April 2023 – EPA requested feedback on whether to designate certain PFAS as hazardous substances
- May expose water agencies to potential liability for PFAS contamination
- July 2023 – Metropolitan sent two letters to Congress requesting an exemption under CERCLA
- Metropolitan comments to EPA due August 11
 - **Premature; consider updated UCMR 5 occurrence data**
 - **Need reliable methods for PFAS precursors**
 - **Follow “Polluter Pays” principle**

*Comments due to
SWRCB on September 8*

Direct Potable Reuse



Proposed DPR Regulations Released

- Updated draft DPR criteria released on July 20
 - Proposed Regulations & Initial Statement of Reasons
 - SWRCB Workshop on September 7
- Staff collaborating with industry partners to review proposed regulations and share feedback
- Metropolitan will advocate for a stronger “alternatives” clause
 - Greater flexibility in proposing alternative treatment, monitoring, and compliance options
- Discussion of DPR regulations at Pure Water & Regional Conveyance Subcommittee in September

Congratulations Class of 2023!

Apprenticeship Completion Ceremony

July 12, 2023



August 14, 2023

Engineering, Operations, & Technology Committee

Slide 7

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Engineering, Operations, & Technology Committee

Engineering Services Manager's Report

Item 8b

August 14, 2023

Construction and Procurement Contracts June 2023

Construction and Procurement Contracts Through June 2023

| | |
|---|----------|
| Number of Active Contracts at end of month | 54 |
| Total Bid Amount of Contracts in Progress at end of month | \$594 M |
| Contracts Awarded in month | 4 |
| Contracts With Notice To Proceed Issued in month | 3 |
| Contracts Completed in month | 1 |
| Contract Gross Earnings in month | \$17.7 M |

Significant Pipeline Rehabilitations



Orange County Feeder Lining Replacement – Background

- 11 miles of welded steel pipe
 - 36" to 39" diameter
- Originally commissioned in 1942
- Existing coal tar lining is deteriorating



Internal Corrosion



Installing Closure Piece



Final Inspection

Orange County Feeder – Rehabilitation Strategy

- Stage 1 – Completed 2017
 - Replaced 3 miles of lining
- Stage 2 – Completed 2019
 - Replaced 4 miles of lining
- Stage 3 – Essentially complete
 - Replaced 4 miles of lining
 - Replaced deteriorated valves
 - Improved access locations
 - Sites restoration ongoing
- Total contract value for all 3 stages is approx. \$47 M



Etiwanda Pipeline - Background

- 144-inch diameter welded steel pipe
- Constructed in 1993
- Pressure fluctuations in pipe due to power plant operation
- 40% of mortar lining fallen/delaminated



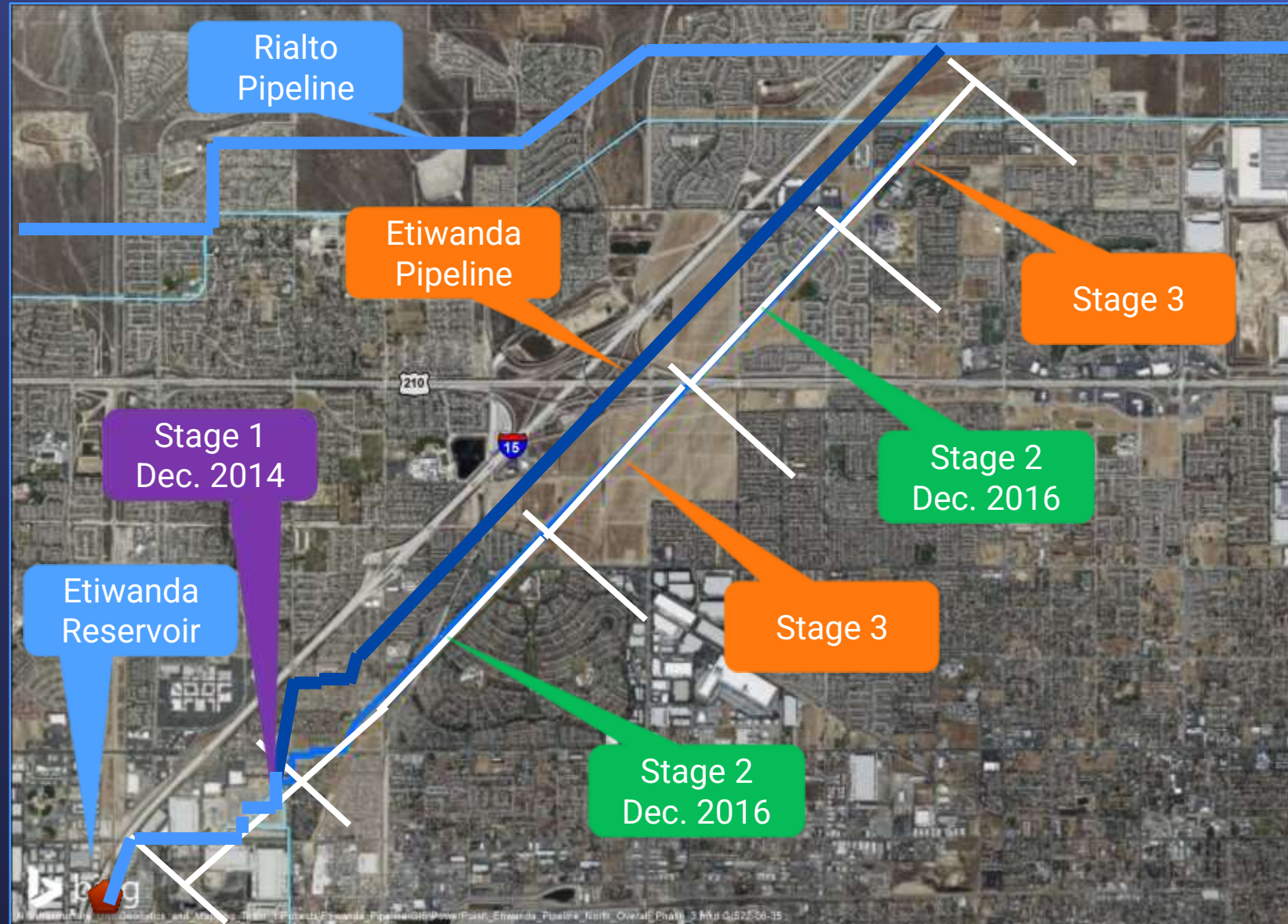
Heavy Corrosion



Final Product

Staged Approach to Pipeline Rehabilitation

- Rehab 5.5 miles
- Stage 1 Dec. 2014
 - 0.5 mile - pilot phase, various repair methods used
- Stage 2 Dec. 2016
 - 2.5 miles - Polyurethane lining
- Stage 3 Aug. 2023
 - 2.5 miles - Polyurethane lining, additional steel liner
- Total contract value for all 3 stages is approx. \$49 M



Lakeview Pipeline Stage 2 Relining

- 3.6 miles of pipeline
- Conveys SWP from Devil Canyon to San Diego Canal
- Pipeline has had numerous leaks due to excessive pipe deformation
- Pipe Procurement:
 - 12,500 feet of 114" & 117" diameter pipe
 - January 2024 board action
- Construction:
 - Installation of MWD-furnished pipe
 - July 2024 board action



Lakeview Pipeline Stage 1
Relining Bernasconi Tunnel

Inland Empire Industry Day

- Date: September 14, 2023
- In-Person Event
- Location: Moreno Valley, CA



2022 Event at Carson, CA

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
PRESENTS
METWORKS
CONTRACTING INFORMATION STRAIGHT FROM THE SOURCE

**INLAND EMPIRE INDUSTRY DAY:
IN-PERSON EVENT**

September 14, 2023
8 a.m. to 11:30 a.m.
Moreno Valley Conference & Recreation Center
14075 Frederick Street
Moreno Valley, CA 92552

Learn About:

- Lake Mathews Pressure Control Structure and Bypass Project - \$150M Progressive Design Build Project
- Upcoming Metropolitan Contracting and Consulting Opportunities and Successful Contracting Testimonials

Highlight Upcoming Contracting Opportunities from Member Agencies:

- Inland Empire Utilities Agency
- Western Municipal Water District
- Eastern Municipal Water District

[Click here](#)
or scan the QR
code to register
for the event

For more
information on
METWORKS



2023 EOT Inspection Trip

- Date:
 - Tuesday
November 7, 2023
- Locations to be visited:
 - La Verne
 - Water Quality Laboratory
 - Weymouth Water Treatment Plant
 - La Verne Shops
 - Lake Mathews
 - Perris Valley Pipeline project



2022 Inspection Trip





Engineering, Operations, and Technology Committee

IT Manager's Report

Item 8c

August 14, 2023

Background



Telecomm Usage Evaluation

- Currently have 10 Telco carriers with hundreds of field sites that have to be reviewed
- Goal was to eliminate unused and redundant wired and wireless lines, and reduce cost
- Partnered with consultant, Procure America, to evaluate, make recommendations, and realize savings
- No direct cost to MWD - 15% savings paid to consultant for five years

Current Status

Cost Savings to Metropolitan

- Identified Savings To Date:
 - \$58,000 per month; \$696K annual
- Further Savings Under Evaluation:
 - \$ 20,000 Per month; \$240K annual
- Potential Annual Savings: \$936K

