



#### **E&O Committee**

T. Smith, Chair  
Vacant, Vice Chair  
R. Apodaca  
S. Blois  
M. Camacho  
D. De Jesus  
L. Dick  
S. Faessel  
R. Lefevre  
J. Morris  
J. Murray Jr.  
G. Peterson  
H. Repenning  
H. Williams

#### **Engineering and Operations Committee - Final - Revised 1**

Meeting with Board of Directors \*

**September 13, 2021**

**10:30 a.m.**

Live streaming is available for all board and committee meetings on our [mwdh2o.com](http://mwdh2o.com) website ([Click to Access Board Meetings Page](#))

**Public Comment Via Teleconference Only:** Members of the public may present their comments to the Board on matters within their jurisdiction as listed on the agenda via teleconference only. To participate call (404) 400-0335 and use Code: 9601962.

#### **Monday, September 13, 2021 Meeting Schedule**

09:30 a.m. - F&I  
10:30 a.m. - E&O  
12:30 p.m. - WP&S  
02:00 p.m. - C&L  
03:00 p.m. - OP&T

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

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

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

#### **\*\* CONSENT CALENDAR OTHER ITEMS -- ACTION \*\***

### **2. CONSENT CALENDAR OTHER ITEMS - ACTION**

- A. Approval of the Minutes of the Adjourned Meeting of the Engineering and Operations Committee held August 16, 2021

[21-426](#)

**Attachments:** [09132021 EO 2A Minutes](#)

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

- 7-1** Authorize an increase of \$185,000 to an agreement with Rincon Consultants, Inc. for a new not-to-exceed amount of \$1 million for services related to the preparation of a Climate Action Plan and CEQA documentation; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-405**

**Attachments:** [09142021 EO 7-1 B-L.pdf](#)  
[09142021 EO 7-1 Presentation.pdf](#)

- 7-2** Award an \$11,604,521 contract to Ameresco, Inc. for construction of battery energy storage systems at the Joseph Jensen and Robert A. Skinner Water Treatment Plants; and authorize increase of \$550,000 to an agreement with Stantec Inc. for engineering services for a new not-to-exceed total of \$1,450,000; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-406**

**Attachments:** [09142021 EO 7-2 B-L.pdf](#)  
[09142021 EO 7-2 Presentation.pdf](#)

- 7-3** Authorize an agreement with HDR Engineering, Inc., in an amount not to exceed \$635,000 for engineering design services to upgrade the 2.4 kV power line that serves the Black Metal Mountain communications site; the General Manager has determined that this proposed action is exempt or otherwise not subject to CEQA **21-407**

**Attachments:** [09142021 EO 7-3 B-L.pdf](#)  
[09142021 EO 7-3 Presentation.pdf](#)

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

**4. OTHER BOARD ITEMS - ACTION**

None

**5. BOARD INFORMATION ITEMS**

None

**6. COMMITTEE ITEMS**

- a.** Capital Investment Plan Quarterly report for the period ending June 2021 and Budget Development Process. [Subject Updated on 9/8/2021] **21-445**

**Attachments:** [09132021 EO 6a Report](#)  
[09132021 EO 6a Presentation.pdf](#)

- b. Regional Recycled Water Program Update [21-442](#)

**Attachments:** [09132021 EO 6b Presentation.pdf](#)

- c. Salinity Management Update [21-443](#)

**Attachments:** [09132021 EO 6c Presentation.pdf](#)

## 7. MANAGEMENT REPORTS

- a. Water System Operations Manager's report [21-440](#)

**Attachments:** [09132021 EO 7a Presentation.pdf](#)

- b. Engineering Services Manager's report [21-441](#)

**Attachments:** [09132021 EO 7b Presentation.pdf](#)

## 8. FOLLOW-UP ITEMS

None

## 9. FUTURE AGENDA ITEMS

## 10. ADJOURNMENT

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

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

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

# **THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA**

## **MINUTES**

### **ADJOURNED ENGINEERING AND OPERATIONS COMMITTEE**

**August 16, 2021**

Chair Smith called the teleconference meeting to order at 10:30 a.m.

Members present: Chair Smith, Directors Apodaca, Blois, Camacho (entered after roll call), Dick, Faessel, Lefevre, Morris, Peterson, and Williams

Members absent: Directors De Jesus, Repenning

Other Board members present: Directors Abdo, Ackerman, Atwater, Dennstedt, Erdman, Fellow, Goldberg, Hogan, Jung, Kurtz, McCoy, Murray, Quinn, Record

Committee staff present: Bednarski, Burrola, Chaudhuri, Hagekhalil, ,Parsons, Scully, and Upadhyay

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

None

#### **CONSENT CALENDAR OTHER ITEMS – ACTION**

#### **2. CONSENT CALENDAR OTHER ITEMS – ACTION**

- A. Approval of the Minutes of the meeting of the Engineering and Operations Committee held July 12, 2021.

#### **3. CONSENT CALENDAR ITEMS – ACTION**

7-2            Subject:            Award a \$492,440 procurement contract to Royal Industrial Solutions for equipment to upgrade the ozone control system at the Henry J. Mills Water Treatment Plant and authorize an agreement with Suez Treatment Solutions, Inc. in an amount not to exceed \$430,000 for specialized technical assistance to support the upgrade, The General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Presented by:    Arya Ahang, Engineering Services Group/Program Management Section, Engineer



- Motion:
- a. Award a \$492,440 procurement contract to Royal Industrial Solutions for the ozone control system equipment for the Mills plant; and
  - b. Authorize an agreement with Suez Treatment Solutions, Inc. for a not-to-exceed total of \$430,000 for specialized technical support of the upgrade

The following Directors provided comments or asked questions:

- 1. Faessel
- 2. Erdman

Director Smith stated that Agenda Item 7-3 involves authorizing an agreement that includes a subcontract with Black & Veatch and as he currently owns Black & Veatch stock, is recusing himself from Agenda Item 7-3.

Chair Smith turned meeting over to Director Blois.

- 7-3      Subject:      Authorize an agreement with CDM Smith, Inc., in an amount not to exceed \$2.75 million, for support of engineering and technical studies at the advanced water treatment demonstration facility; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA
- Presented by:      Joyce Lehman, Water System Operations/Water Quality Section, Interim Team Manager
- Motion:      Authorize an agreement with CDM Smith Inc., in an amount not to exceed \$2.75 million for support of engineering and technical studies at the advanced water treatment demonstration facility.

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

The vote was:

- Ayes:      Directors Apodaca, Blois, Dick, Faessel, Lefevre, Morris, Murray, Peterson, Smith, and Williams
- Noes:      None
- Recusal:      Smith (Item 7-3)
- Abstentions:      None
- Absent:      Directors De Jesus, Repenning.

The motion for Items 2A, 7-2 passed by a vote of 10 ayes, 0 noes, 0 abstentions, and 2 absent.

The motion for item 7-3, passed by a vote of 9 ayes, 0 noes, 1 Recusal, and 2 absent

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

Director Blois returned the meeting to Chair Smith

#### **4. OTHER BOARD ITEMS – ACTION**

None

#### **5. BOARD INFORMATION ITEMS**

None

#### **6. COMMITTEE ITEMS**

- a.           Subject:           Update on Emerging Water Quality Issues  
Presented by:   Paul Rochelle, Water Quality Section Manager

Dr. Rochelle reported on the following:

- Background on emerging contaminants and Metropolitan's role in addressing emerging water quality issues
- Background, impacts and consequences, and regulatory/legislative activities for the following emerging constituents: Per-and Polyfluoroalkyl Substances (PFAS), Microplastics, and Cyanotoxins
- Future areas of water quality research and focus, including recycled water development and laboratory improvements

The following Directors provided comments or asked questions:

1. Dick
2. Blois

- b.           Subject:           Developments in Coatings and Materials Selection for  
Metropolitan's Projects

Presented by:   Armen Kutyan, Engineering Services Group, Engineer

Mr. Kutyan reported on the following:

- Services provided and condition assessment examples
- Developments in testing for the Regional Recycled Water Project, hydrophilic resin injections, and regulatory changes

## **7. MANAGEMENT REPORTS**

- a.           Subject:           Water System Operations Manager's report

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

Mr. Chaudhuri reported on the following:

- Current Operational Conditions
- CRA 8-Pump Operations
- Extraordinary Drought Actions through LADWP Operational Shift
- DWR Seepage Repair on California Aqueduct

- b.           Subject:           Engineering Services Manager's report

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

Mr. Bednarski reported on the following:

- Construction and Procurement Contracts June 2021
- Gene Wash Reservoir Discharge Valve Replacement project status
- CRA – Pumping Plant Sump Rehabilitation project
- On-going Work at Headquarters Building
- 2021 E&O Inspection Trip
- Women Leaders in Water Forum

## **8. FOLLOW-UP ITEMS**

Director Faessel requested an overview of ozone system upgrades with respect to costs and schedule at a future meeting.

**9. FUTURE AGENDA ITEMS**

None

Next meeting will be held on September 13, 2021.

Meeting adjourned at 12:00 p.m.

Tim Smith  
Chair



- Board of Directors  
*Engineering and Operations Committee*

9/14/2021 Board Meeting

7-1

## Subject

Authorize an increase of \$185,000 to an agreement with Rincon Consultants, Inc. for a new not-to-exceed amount of \$1 million for services related to the preparation of a Climate Action Plan and CEQA documentation; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

## Executive Summary

In October 2018, Metropolitan's Board of Directors awarded an agreement to Rincon Consultants, Inc. for the preparation of a Climate Action Plan (CAP) and associated California Environmental Quality Act (CEQA) documentation. Staff has provided periodic updates to the Board as various milestones were reached, including oral reports on the results of a comprehensive emissions inventory and forecast of future emissions based on data from the 2015 Urban Water Management Plan (UWMP) forecasts, a recommended emissions quantification and tracking protocol, and recommended near-term and long-term emissions targets. Staff has drafted the CAP and Program Environmental Impact Report (PEIR); however, preparation of these documents has taken longer than initially expected. New forecast numbers from the 2020 UWMP adopted earlier this year, and more recent emissions data are now available. In addition, due to an increase in public interest in Metropolitan's draft CAP, additional public outreach to non-governmental organizations (NGOs) and peer review is recommended. This letter requests authorization to increase the agreement with Rincon Consultants, Inc. to an amount not to exceed \$1 million to update the draft CAP and PEIR with current forecast and emissions data and to support additional public outreach and engagement efforts.

## Details

### Background

In October 2018, Metropolitan's Board of Directors authorized the development of a CAP. The CAP would streamline CEQA greenhouse gas (GHG) analysis and substantially reduce costs to Metropolitan from project-by-project GHG mitigation through a comprehensive programmatic document that identifies energy and GHG reduction actions from past, current, and future conservation programs and other activities to offset GHG emissions from future projects, such as the proposed Regional Recycled Water Program. Under CEQA, a qualified CAP must include:

- An emissions inventory (Completed).
- A forecast of future emissions (Completed).
- A GHG reduction target (Completed).
- Actions to reduce or eliminate an agency's GHG emissions (Completed).
- Adoption of the CAP in a public process (Future action).

In addition, a CEQA document that analyzes the impacts of CAP implementation must be prepared and certified by the Board along with the adoption of the CAP.

The CAP and PEIR have been drafted; however, since the initial preparation, additional emissions data have been certified and reported to the Climate Registry, and the 2020 UWMP was adopted by the Board, which changes the forecast for future emissions in the CAP. Staff recommends updating the CAP with the new emissions numbers and forecast data to ensure the document that is released for public review as part of the CEQA review process contains the most recent information available.

In addition, Metropolitan has received several recent inquiries about the CAP from interested parties and stakeholders. During the public review period for the Notice of Preparation (NOP) of the draft PEIR, a public workshop was held to solicit comments to be addressed in the draft document, as required by CEQA. Few parties attended the online meeting, and only a few comments were received during the NOP comment period. Due to the recent interest, staff recommends a workshop for NGOs to introduce the CAP, ensure stakeholder engagement, and receive feedback before the plan is released for public review as part of the CEQA process. In addition, a peer review of the draft CAP by sustainability officers from a select group of local agencies within Metropolitan's service area is also recommended prior to public review to ensure a robust review process. Feedback from the peer review and workshop will be incorporated, as appropriate, into draft documents prior to release for CEQA public review. Following the public review, staff will respond to comments, finalize the documents, and present both to the Board for review and approval.

Staff is requesting an increase of \$185,000 to the existing Rincon Consultants, Inc. agreement to update the draft CAP with current forecast and emissions data, support the workshop and peer review, and incorporate revisions to the draft CAP and PEIR resulting from the additional outreach prior to public release of these documents.

#### **Amendment to an Agreement for Environmental Support (Rincon Consultants, Inc.)**

In October 2018, the Board authorized a new agreement with Rincon Consultants, Inc. for environmental support to develop the CAP and associated CEQA document. Rincon Consultants, Inc. has completed the majority of the scope of work identified under the agreement, including development of a CAP and supporting CEQA document, which includes a baseline inventory of current GHG emissions, quantification of planned project emissions, identification and evaluation of GHG reduction measures, a business-as-usual emissions forecast, and an implementation and monitoring strategy. Additional services required of the consultant at this time include support for: (1) additional outreach to the public, including a workshop and peer review, and incorporation of feedback; and (2) an update of the draft CAP and PEIR with current emissions and forecast data. These activities were not anticipated under the original scope of work.

This action authorizes an increase of \$185,000 to an existing agreement with Rincon Consultants, Inc. for a new not-to-exceed total of \$1 million for environmental services associated with additional public outreach and incorporation of current data into the CAP and CEQA document. For this agreement, Metropolitan established a Small Business Enterprise participation level of 25 percent; Rincon Consultants, Inc. has agreed to meet this level of participation. The subconsultants for this agreement are Ascent Environmental, Inc., Katz & Associates, Inc., and Carollo Engineers, Inc.

#### **Alternatives Considered**

In developing the recommended approach, staff considered the use of in-house resources instead of amending the consultant agreement. This work is highly specialized, however, and Metropolitan has insufficient in-house technical staff to complete the scope of work. In addition, staff would have to shift current workloads, potentially resulting in delays to other critical projects. The use of in-house staff would be inefficient when compared to the use of the consultant team, as in-house staff would need to familiarize themselves with the project and outstanding issues. For these reasons, staff recommends amending the current agreement so that the consultant can perform the activities associated with the revised scope.

#### **Conclusion**

This action ensures that Metropolitan's CAP incorporates the most recent data before it is released to the public for review and comment and that additional stakeholder engagement occurs to ensure the preparation and adoption of a comprehensive CAP that outlines a path for Metropolitan to reduce its GHG emissions and reinforce its commitment as a leader in climate action planning and the protection of local, statewide, and worldwide resources from the effects of climate change.

#### **Next Steps**

Staff will concurrently hold a workshop to encourage public participation in the public review process and distribute the draft CAP for peer review. Following the workshop and peer review, staff will update the draft CAP and PEIR to incorporate workshop and peer review feedback, as appropriate, as well as recent forecast and

emissions data. After public review of the draft CAP and PEIR, staff will prepare responses to all comments received and make any changes to the draft CAP and/or draft CEQA document, as necessary. Staff will return to the Board to adopt the CAP and certify the PEIR.

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## Policy

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 51350, dated October 9, 2018, the Board awarded an \$815,000 agreement to Rincon Consultants, Inc. for specialized environmental support to develop the CAP and associated CEQA document.

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## California Environmental Quality Act (CEQA)

### CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA (Public Resources Code Section 21065, State CEQA Guidelines Section 15378) because the proposed action involves fiscal decisions that will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. In addition, the proposed action is not defined as a project under CEQA because it involves continuing administrative activities, such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines) and other government fiscal activities, which do not involve any commitment to any specific project, or which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines). Finally, where it can be seen with certainty that there is no possibility that the proposed action in question may have a significant effect on the environment, the proposed action is not subject to CEQA (Section 15061(b)(3) of the State CEQA Guidelines).

### CEQA determination for Option #2:

None required

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## Board Options

### Option #1

Authorize an increase of \$185,000 to an agreement with Rincon Consultants, Inc. for a new not-to-exceed amount of \$1 million for services related to the preparation of a Climate Action Plan and CEQA documentation.

**Fiscal Impact:** Expenditure of \$185,000 in operations and maintenance funds, which is a budgeted expenditure in the current biennial budget period.

**Business Analysis:** Approval will allow staff to host a workshop to further engage the public, conduct peer review, update the draft CAP and CEQA document with current data and feedback received, and release both documents for public review, which will allow Metropolitan to leverage existing and planned water, energy, and other conservation measures to help offset GHG impacts from future capital projects and mitigate the effect of GHG-related climate change.

### Option #2

Do not authorize an increase in the maximum amount payable under this agreement with Rincon Consultants, Inc.

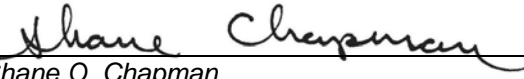
**Fiscal Impact:** None

**Business Analysis:** Metropolitan would release the draft CAP and CEQA document with outdated numbers and without stakeholder engagement, which could increase the likelihood of legal challenge, jeopardize the adoption of the CAP, and forego an opportunity to leverage existing and planned water, energy, and other conservation measures to help offset GHG impacts from future capital projects.

## Staff Recommendation

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Option #1

  
Shane O. Chapman  
Chief Administrative Officer

8/24/2021  
Date

  
Adel Hagekahlil  
General Manager

9/1/2021  
Date

Ref# cao12680521





# Authorize an Increase to Climate Action Plan Professional Services Agreement

Engineering and Operations Committee

Item 7-1

September 13, 2021

# Current Action

- Authorize an increase of \$185,000 to an agreement with Rincon Consultants, Inc. for a new not-to-exceed amount of \$1 million for services related to the preparation of a Climate Action Plan and CEQA documentation



# Background

- Metropolitan's Board awarded an agreement to Rincon Consultants, Inc. to prepare a Climate Action Plan (CAP) and associated CEQA documentation
- New data from the recently adopted Urban Water Management Plan (UWMP) and more recent greenhouse gas (GHG) emissions data are now available
- Outreach to non-governmental organizations (NGOs) and peer review is recommended

# Additional Consultant Scope of Work

- Update emissions forecast with 2020 UWMP projections and current GHG emissions data
- Support planned public outreach prior to release of the draft CAP for public review
- Incorporate comments from public outreach and peer review
- Revise CAP and CEQA documents to comply with the Americans with Disabilities Act (ADA)



# Rincon Consultants, Inc. Agreement Amendment

- Selected under RFQ 1143
- Additional scope of work
  - Update forecast and GHG emissions data
  - Support public outreach
  - Incorporate comments
  - ADA compliance
- SBE participation level – 15%
- Amendment amount – \$185,000
- NTE amount – \$1,000,000

# Project Schedule



Preparation



Board Action



Completion

# Board Options

- Option #1

- Authorize an increase of \$185,000 to an agreement with Rincon Consultants, Inc. for a new not-to-exceed amount of \$1 million for services related to the preparation of a Climate Action Plan and CEQA documentation.

- Option #2

- Do not authorize an increase in the maximum amount payable under this agreement with Rincon Consultants, Inc.

# Staff Recommendation

- Option #1







- Board of Directors  
*Engineering & Operations Committee*

9/14/2021 Board Meeting

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7-2

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## Subject

Award an \$11,604,521 contract to Ameresco, Inc. for construction of battery energy storage systems at the Joseph Jensen and Robert A. Skinner Water Treatment Plants; and authorize increase of \$550,000 to an agreement with Stantec Inc. for engineering services for a new not-to-exceed total of \$1,450,000; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

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## Executive Summary

The planned storage system (BESS) facilities at the Jensen and Skinner plants will enhance the efficiency of Metropolitan's long-term power use, provide a hedge against projected electricity price increases, and improve the resiliency of the electric supply at these facilities. Moving forward with the construction of BESS facilities, at this time, is necessary to ensure Metropolitan receives the California Public Utilities Commission's enhanced incentives for microgrid-capable BESS. The incentive agreement stipulates specific project completion timelines. Metropolitan submitted applications to the incentive program in May 2020. The applications have been accepted, and a total of \$6 million has been conditionally reserved for the two projects. Award of the construction contract at this time will allow this project to be completed within the prescribed incentive timelines.

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## Details

### Background

In 2010, Metropolitan's Board adopted Energy Management Policies intended to contain energy costs and reduce exposure to price volatility through the implementation of cost-effective alternative energy projects. The policy objectives directly related to battery energy storage development include:

- Contain costs and reduce exposure to energy price volatility.
- Increase operational reliability by providing system redundancy.
- Provide a revenue stream to offset energy costs.
- Move Metropolitan toward energy independence.

Prior to the adoption of the Energy Management Policies, Metropolitan implemented a 540-kilowatt solar facility at the Center for Water Education at Diamond Valley Lake in 2006 and a one-megawatt solar facility at the Skinner Water Treatment Plant in 2009. Guided by the Board-adopted Energy Management Policies, Metropolitan added three megawatts of solar generation at the Weymouth plant in 2016 and one megawatt of solar generation at the Jensen plant in 2018.

In 2020, Metropolitan completed the Energy Sustainability Plan effort to identify new projects and initiatives within the Energy Management Policies' framework. The Energy Sustainability Plan combined an analysis of Metropolitan's electricity charges and a holistic multi-criteria decision analysis framework, in which potential projects were vetted against a range of future scenarios based upon historical water and power demands and time-of-use tariff updates. Through this effort, BESS facilities at the Jensen, Skinner, and Weymouth plants and at OC-88 Pumping Plant were recommended for near-term implementation. The projects will provide electricity cost savings and improve operational flexibility and resiliency at these critical facilities.

**Self-Generation Incentive Program Available for Jensen, Skinner, Weymouth, and OC-88**

The Self-Generation Incentive Program (SGIP) is a California Public Utilities Commission (CPUC) program that provides enhanced rebates for installing battery energy storage systems at critical facilities serving low-income/disadvantaged communities, or that are located within a CPUC-designated high fire threat district.

In May 2020, Metropolitan submitted four applications to the SGIP for a combined total of \$10.3 million in incentives for the Jensen, Skinner, Weymouth, and OC-88 facilities. In August 2020, Metropolitan received conditional reservation letters for \$3 million in incentives for the Jensen BESS project, \$3 million in incentives for the Skinner BESS project, and \$1.75 million in incentives for the OC-88 BESS project applications. The Weymouth BESS project application was placed on the waitlist. The SGIP incentive will be paid to Metropolitan in phases: 50 percent at project completion, with the remaining 50 percent paid equally over five years upon annual proof of 5 kgCO<sub>2</sub>/kWh reduction in greenhouse gas emissions.

In October 2020, the Board amended the biennial Capital Investment Plan (CIP) for Fiscal Years 2020/21 and 2021/22 to include BESS facilities at the Jensen, Skinner, and Weymouth plants, and at OC-88 Pumping Plant. Preliminary design was completed in January 2021 for BESS facilities at these four locations. Significant cost increases to meet new requirements from the Orange County Fire Authority for the OC-88 project were identified in preliminary design. These cost increases negated the potential financial benefits of the project as originally described in the October 2020 board action. Metropolitan subsequently withdrew its application with SGIP for a BESS facility at OC-88, cancelled the project, and received reimbursement of the \$87,546 application fee.

In May 2021, Metropolitan received confirmation for \$2.125 million in incentives for the Weymouth BESS application. Final design for the Weymouth BESS project was started in June 2021, and staff plans to return to the Board to award a construction contract for Weymouth BESS facilities in February 2022.

In accordance with the April 2020 action on the biennial CIP budget for Fiscal Years 2020/21 and 2021/22 and the October 2020 board action to include this project in the CIP plan, the General Manager will authorize staff to proceed with construction of BESS facilities at the Jensen and Skinner plants, pending board award of the construction contract described below. Based on the current CIP expenditure forecast, funds for the work to be performed pursuant to this action during the current biennium are available within the CIP Appropriation for Fiscal Years 2020/21 and 2021/22 (Appropriation No. 15521). Funds required for work to be performed pursuant to the subject contract after Fiscal Year 2021/22 will be budgeted within the Capital Investment Plan Appropriation for Fiscal Years 2022/23 and 2023/24. 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 Cost Efficiency and Productivity Program.

**Jensen and Skinner Battery Energy Storage Systems - Construction**

The scope of work for the construction contract includes: (1) site grading and paving; (2) furnishing and installation of BESS equipment, unit substation, conduits, and cables to the power substation and appurtenant electrical equipment; (3) construction of equipment pads; (4) furnishing, installing, and programming of monitoring and control systems with microgrid capability; and (5) access road improvements at the Skinner site to meet requirements from the Riverside Fire Department. Metropolitan force construction includes installation of a 300-foot-long electrical duct bank at the Skinner plant, cyber security protection systems, and network infrastructure; control and protection modifications to the electrical switchgear at the Jensen plant; and supervisory control and data acquisition programming. Also, for each site, a contract for fiber optic cable installation will be awarded under the General Manager's administrative code authority to award contracts under \$250,000 or less.

A total of \$16.4 million has been budgeted for this work. Besides the amount of the contract, other allocated funds include: \$1,278,000 for construction management and inspection; \$125,000 for Metropolitan force activities as described above; \$614,000 for Metropolitan staff to review contractor's design package and submittals and to support testing and commissioning of the BESS system; \$550,000 for construction support by Stantec as described below; \$709,000 for contract administration, environmental monitoring, incentive program administration, utilities interconnection agreement applications, and project management; \$460,000 for fiber optic

cable installations at the Jensen and Skinner plants; \$258,000 for communication equipment, materials, and fees; and \$801,479 for remaining budget.

#### **Award of Construction Contract (Ameresco, Inc.)**

Specifications No. 1998 to furnish and construct BESS facilities at the Jensen and Skinner plants was advertised for bids on June 1, 2021. As shown in **Attachment 2**, three bids were received and opened on July 29, 2021. Two bidders did not submit materials at the time of bid in compliance with the requirements outlined in the bid documents. These two bids were deemed to be non-responsive. The bid from Ameresco, Inc., in the amount of \$11,604,521, complies with the requirements of the specifications. The engineer's estimate was \$7,650,000. Staff investigated the difference between the engineer's estimate and the low bid. The key differences are attributed to increased costs for specialized battery and electrical equipment such as transformers, programmable logic controllers, and switchgear; the high volume of construction currently underway in the region, which limited subcontractor bids; and the greater than expected contractor staffing level required to complete construction at two sites within the term of the SGIP milestones. Metropolitan established a Small Business Enterprise (SBE) participation level of at least 5 percent of the bid amount. Ameresco, Inc. has committed to meet this level of participation. The subcontractors for this contract are listed in **Attachment 3**.

This action awards a \$11,604,521 contract to Ameresco, Inc. to construct BESS facilities on the grounds of the Jensen and Skinner plants. The total cost of construction for this project is \$12,447,521, which includes the amount of the contract (\$11,604,521), fiber optic cable installation (\$460,000), material and supplies (\$258,000), and Metropolitan force activities (\$125,000). Engineering Services' goal for inspection of projects with construction greater than \$3 million is 9 to 12 percent. For this project, the anticipated cost of inspection is approximately 10.3 percent of the total construction cost.

#### **Alternatives Considered**

In light of the higher bid than expected bids, staff considered cancelling the project. However, even with the higher bid, the net present value of the project ranged from \$2.6 million to \$3.5 million in energy cost savings over 10 years. The payback period for the project now ranges from five to six years, compared to a three-year payback under the original assumptions. In addition, the recently completed Energy Sustainability Plan identified additional project benefits that include reducing Metropolitan's greenhouse gas emissions (GHG) and supporting the Climate Action Plan's proposed GHG reduction target, increasing operational flexibility and resiliency at critical facilities, and contributing to regional power resilience in southern California by reducing demands on the grid during critical peak periods.

Staff also considered several alternatives in order to meet the SGIP construction completion milestone. Initially, staff sought to include all work for the BESS project in a single contract. However, critical construction activities were reviewed, and risks identified that could impact the construction schedule. Work was then identified that can be performed by Metropolitan forces to minimize delay risks and avoid multiple plant shutdowns. Metropolitan forces will install a new electrical duct bank at the Skinner plant in advance of the contract so that the contractor can expeditiously connect the BESS to the plant electrical system. At the Jensen plant, control and protection modifications to the electrical switchgear will also be performed by Metropolitan forces in advance of the construction contract. This approach will take advantage of a planned plant shutdown for the Jensen Electrical Upgrade project.

Staff also considered issuing separate contracts for each of the BESS sites, instead of combining the two sites into one contract. With the current approach to project implementation, Metropolitan will benefit from economies of scale on the cost of the BESS equipment. In addition, by having the same BESS design and manufacturer for both Skinner and Jensen plants, the operation and maintenance of the BESS will be more efficient due to standardized spare parts requirements and staff training.

#### **Technical Support During Construction (Stantec Inc.) – Amendment to Agreement**

Stantec Inc. performed final design of the BESS facilities at the Jensen and Skinner sites. Stantec was prequalified via Request for Qualifications No. 1215 and was selected to provide engineering services for the BESS facilities based on their specialized expertise. As the engineer of record, Stantec is recommended to provide technical support during construction. This support includes review of the contractor-supplied systems

and equipment, review of shop drawing submittals, and responding to requests for information from the contractor; advising staff on technical issues that may arise, and preparing record drawings. The estimated cost for Stantec to provide these services is \$550,000. For this agreement, Metropolitan has established an SBE participation level of 5 percent. Stantec has agreed to meet this level of participation. The planned subconsultants for this agreement are Project Line Technical Services, Inc. and Integrated Engineering Management.

This action authorizes an increase of \$550,000 to the existing agreement with Stantec Inc., for a new not-to-exceed total of \$1,450,000, to provide technical support during construction of the BESS facilities.

### **Summary**

This action awards a \$11,604,521 contract to Ameresco, Inc. to construct BESS facilities at the Jensen and Skinner plants. This action also authorizes an amendment to an existing agreement with Stantec Inc. to provide technical consulting services during construction. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, **Attachment 3** for the listing of Subcontractors for Low Bidder, and **Attachment 4** for the Location Map.

### **Project Milestones**

December 2022 - Completion of construction and commissioning of BESS facilities at the Jensen and Skinner plants

January 2023 - Filing of incentive claim with the SGIP

### **Policy**

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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 51963, dated April 14, 2020, the Board appropriated a total of \$500 million for projects identified in the Capital Investment Plan for Fiscal Years 2020/21 and 2021/22.

By Minute Item 52140, dated October 13, 2020, the Board amended the current CIP to include the implementation of BESS at four Metropolitan facilities; and authorized an agreement with Stantec Inc. in an amount not-to-exceed \$900,000.

### **California Environmental Quality Act (CEQA)**

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#### **CEQA determination for Option #1:**

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of modifying existing public facilities with negligible or no expansion of existing or former use and no possibility of significantly impacting the physical environment. In addition, the proposed action includes the construction and location of limited numbers of new, small facilities or structures; installations of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made including water, main, sewage, electrical, gas, and other utility extensions, including street improvements, of reasonable length to serve such construction. The numbers of structures described in this section are the maximum allowable on any legal parcel. In addition, the proposed action includes minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes. Accordingly, the proposed action qualifies under Class 1, Class 3, and Class 4 Categorical Exemptions (Sections 15301, 15303, and 15304 of the State CEQA Guidelines).

#### **CEQA determination for Option #2:**

None required

## Board Options

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### Option #1

- a. Award \$11,604,521 contract to Ameresco, Inc. to construct Battery Energy Storage System Facilities at the Jensen and Skinner plants; and
- b. Authorize increase of \$550,000 to agreement with Stantec Inc., for a new not-to-exceed total of \$1,450,000, to provide technical support.

**Fiscal Impact:** Expenditure of \$16.4 million in capital funds. Approximately \$6 million will be incurred in the current biennium and have been previously authorized.

**Business Analysis:** This option will enable Metropolitan to reduce retail electricity expenditures and increase treatment plant resiliency to power supply outages. Metropolitan will receive \$6.0 million in incentives from the SGIP to offset project expenditures. This includes \$3.0 million at the completion of construction in December 2022 and an additional \$3.0 million over a three to five-year period thereafter. Based on the projected electric utility rate increases, the net present value of this option ranges from \$2.6 million to \$3.5 million over ten years, and the payback period is from five to six years.

### Option #2

Do not proceed with the project at this time.

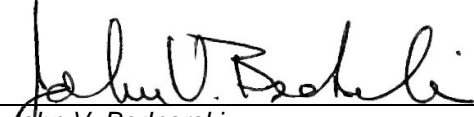
**Fiscal Impact:** None

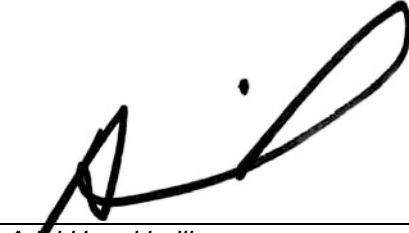
**Business Analysis:** Metropolitan will forego an opportunity to receive \$6.0 million in incentives from the SGIP, reduce operating costs, and improve resiliency at critical facilities.

## Staff Recommendation

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### Option #1

  
\_\_\_\_\_  
John V. Bednarski  
Manager/Chief Engineer  
Engineering Services  
8/12/2021  
Date

  
\_\_\_\_\_  
Adel Hagekhalil  
General Manager  
9/1/2021  
Date

**Attachment 1 – Allocation of Funds**

**Attachment 2 – Abstract of Bids**

**Attachment 3 – Subcontractors for Low Bidder**

**Attachment 4 – Location Map**



### **Allocation of Funds for BESS at the Jensen and Skinner plants**

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	<b>Current Board Action (Sep. 2021)</b>
Labor	
Studies & Investigations	\$ -
Final Design	-
Owner Costs (Program mgmt., contract admin., envir. monitoring)	709,000
Submittals Review & Record Drwgs.	614,000
Construction Inspection & Support	1,278,000
Metropolitan Force Construction	125,000
Materials & Supplies	120,000
Incidental Expenses	108,000
Professional/Technical Services	-
Stantec Inc.	550,000
Environmental Monitoring	30,000
Equipment Use	-
Contracts	-
Ameresco, Inc.	11,604,521
Fiber Optic Cable Installers	460,000
Remaining Budget	801,479
<b>Total</b>	<b>\$ 16,400,000</b>

The total amount expended to date for the installation of battery energy storage systems at the Jensen and Skinner plants is approximately \$1.6 million. The total estimated cost to complete the Jensen and Skinner Battery Energy Storage Systems, including the amount appropriated to date, and funds allocated for the work described in this action, is \$18.6 million.

**The Metropolitan Water District of Southern California**

**Abstract of Bids Received on July 13, 2021 at 2:00 P.M.**

**Specifications No. 1998**

**Joseph P. Jensen and Robert A. Skinner Water Treatment Plants  
Battery Energy Storage Systems**

The work consists of furnishing and constructing a 1 MW/4,000 MWh Battery Energy Storage System at each location. It includes equipment pad, monitoring and control systems with microgrid capability, unit substation, conduits and cables to the power substation, security system, and site grading and paving. The contract also includes testing and commissioning the system.

Engineer's estimate: \$7,650,000

<b>Bidder and Location</b>	<b>Total</b>	<b>SBE Amount</b>	<b>SBE %</b>	<b>Met SBE<sup>1</sup></b>
Ameresco, Inc Ontario, CA	\$11,604,521	\$1,925,000	16.5%	Yes
SunPower Corporation Systems Anheim, CA <sup>2</sup>	\$7,902,058	-	-	-
Siemens Industry, Inc. Cypress, CA <sup>2</sup>	\$11,058,340	-	-	-

<sup>1</sup> SBE (Small Business Enterprise) participation level established at 5 percent for this contract bid.

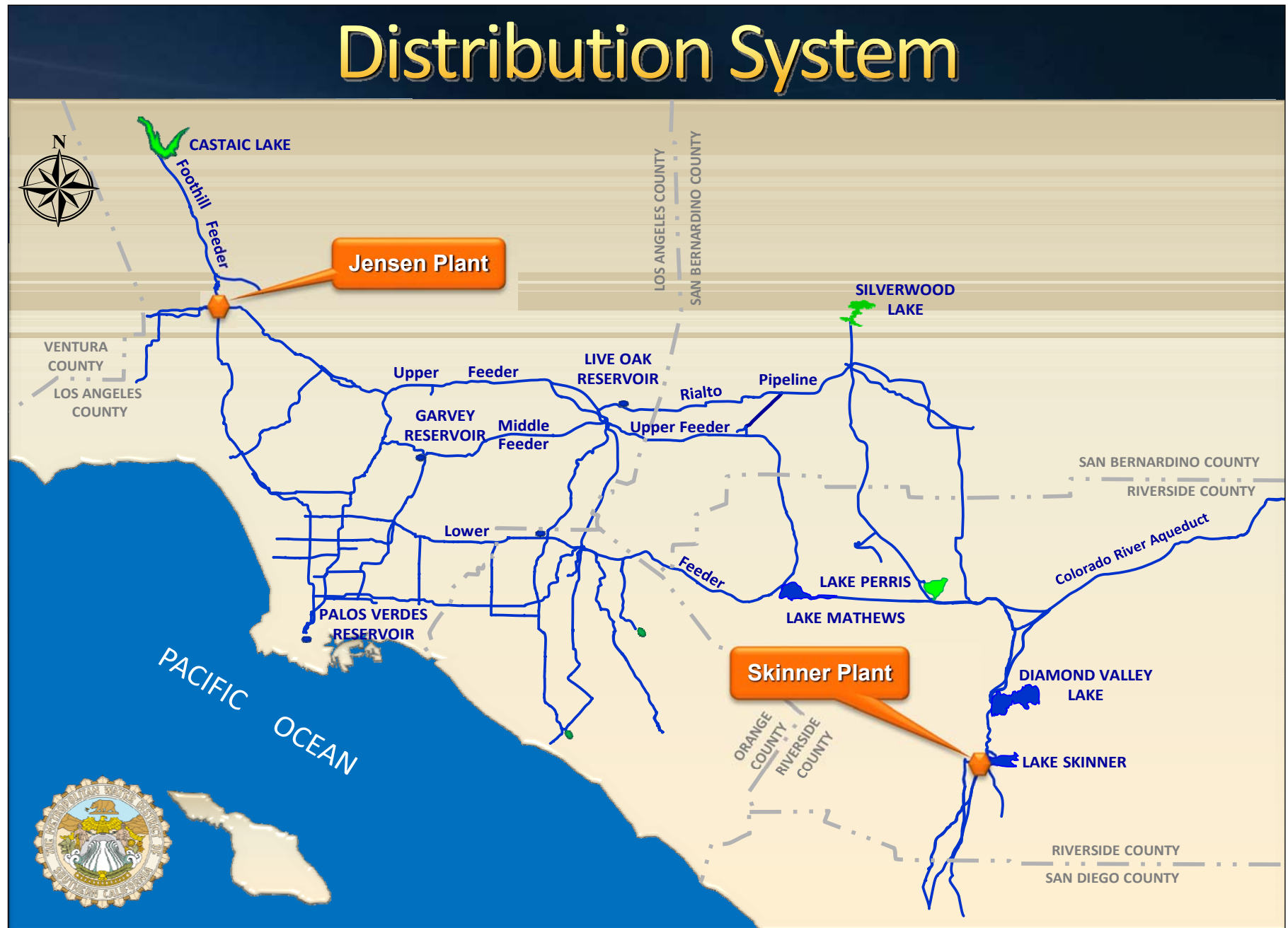
<sup>2</sup> Bid was determined to be non-responsive.



**The Metropolitan Water District of Southern California****Subcontractors for Low Bidder****Specifications No. 1998****Joseph P. Jensen and Robert A. Skinner Battery Energy Storage Systems**

Low bidder: Ameresco, Inc.

<b>Subcontractor and Location</b>
MB Herzod Electric, Inc., Paramount, CA
Teichert Energy & Utilities Group, Inc., San Diego, CA





# Award Construction Contract for Battery Energy Storage Systems at the Jensen and Skinner Plants

Engineering & Operations Committee

Item 7-2

September 13, 2021

# Current Action

- Award \$11,604,521 contract to Ameresco, Inc. for construction of battery energy storage systems at the Joseph Jensen and Robert A. Skinner Water Treatment Plants
- Authorize an amendment to an agreement with Stantec Inc. for a new not-to-exceed amount of \$1,450,000 for engineering support during construction



# Distribution System





# Project Location – Jensen Plant





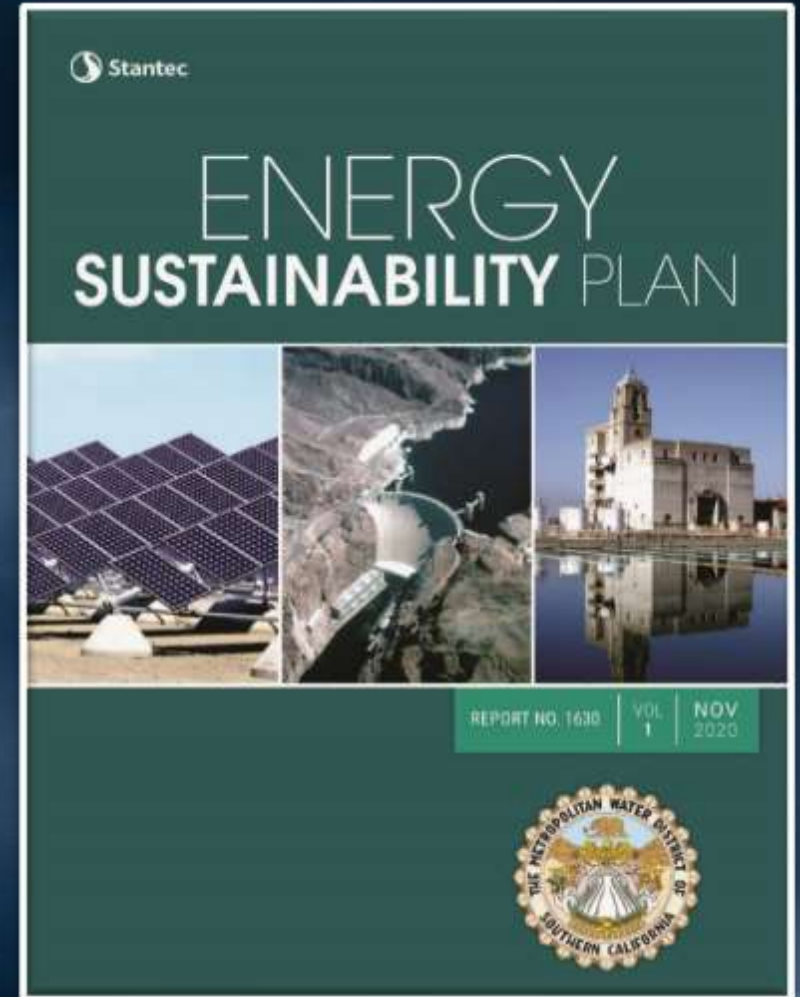
# Project Location – Skinner Plant





# Background

- Energy Sustainability Plan (2020)
  - Analysis of electricity needs & energy supply risk
  - Holistic multi-criteria assessment
- Technology
  - Battery paired with solar facilities on site
    - Storing excess solar energy for later use
  - Peak load reduction
    - Energy arbitrage: charge when power is cheap & discharge when power is expensive
  - Micro-grid configuration
- Key benefits of BESS to Metropolitan
  - Reduce energy cost and GHG emission
  - Increase operational flexibility and resiliency

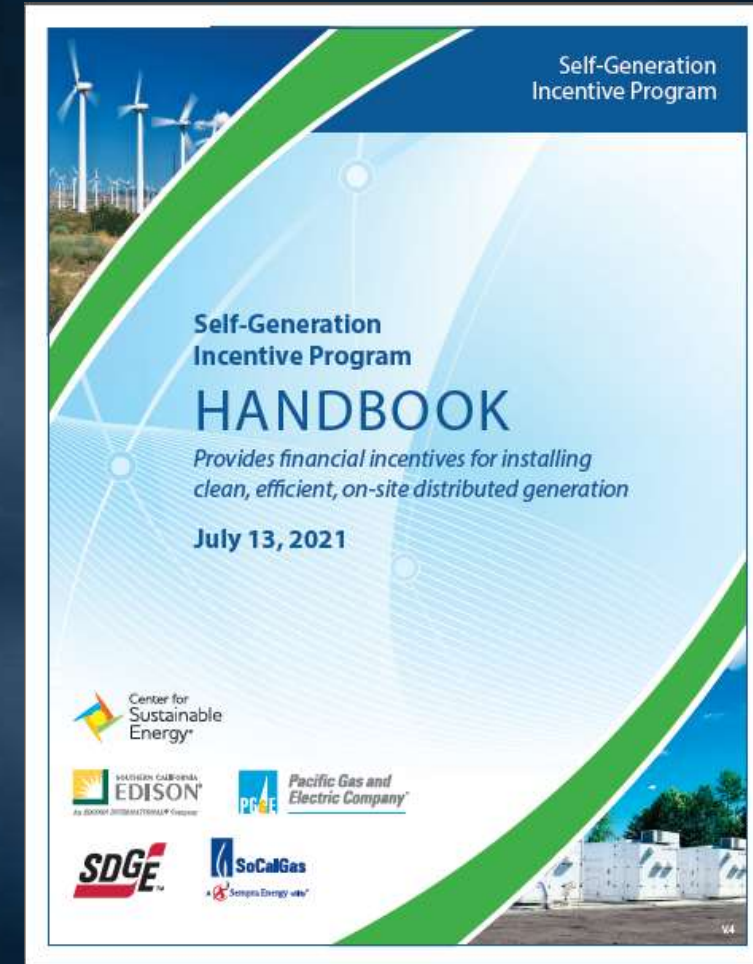




# Background

## Self-Generation Incentive Program (SGIP)

- 4 applications submitted in May 2020
  - Jensen, Skinner & OC-88 confirmed in August 2020
  - Weymouth confirmed in May 2021
- Current project status
  - OC-88 cancelled
    - Higher cost to meet new requirement of OCFD
  - Skinner and Jensen advertised in June 2021
  - Weymouth construction contract award is planned in Spring 2022



# Contractor Scope

- Site grading and paving
- Construction of equipment pads
- Furnish & install
  - battery energy storage system and appurtenant equipment
  - monitoring & control systems with microgrid capability
- Improve access road at Skinner site to meet Riverside Fire Dept. requirements
- Perform testing and commissioning per SGIP and electrical utilities requirements

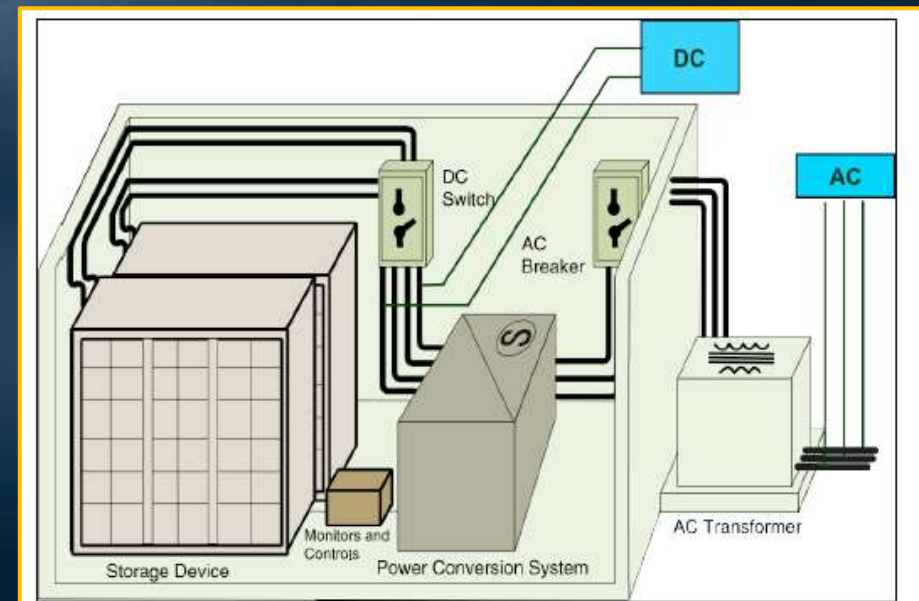


Figure 1. Schematic of a Battery Energy Storage System  
(Source: Sandia National Laboratories)

# Bid Results

## Specifications No. 1998

Bids Received	July 29, 2021
No. of Bidders*	3
Low responsive bidder	Ameresco, Inc.
Low Bid	\$11,604,521
Engineer's Estimate	\$7,650,000
SBE Participation**	16.5%

\* 2 bids deemed non-responsive

\*\* SBE (Small Business Enterprise) participation set at 5%

# Alternatives Considered

- Reject all bids and do not proceed with the project
- Continue project as originally planned
  - Selected Option
  - Economic viability of project re-evaluated
    - Anticipated SGIP incentive: \$6M
    - Net cost savings: \$2.6M to \$3.5M over 10 years
    - Payback: 5 to 6 years
  - Other benefits identified in the Energy Sustainability Plan



# Alternatives Considered

- Contractor completes all required construction work
  - Challenge to meet SGIP Milestones
  - Need for separate plant shutdown
- Metropolitan performs critical work in advance
  - Selected option
  - Installation of electrical duct bank at Skinner
  - Control and protection modification of electrical switchgear at Jensen
    - Increase flexibility to coordinate and schedule work
    - Take advantage of already planned shutdowns

# Metropolitan Scope

- Metropolitan Force Construction
  - Installation of electrical duct bank at Skinner
  - Control and protection modification of electrical switchgear at Jensen
  - Installation of network infrastructure for cyber security protection
- Construction Support Activities
  - Construction management and inspection
  - Environmental monitoring, contract administration & PM
  - Testing, Start-up & Commissioning

# Stantec Inc.

## Agreement Amendment

- Selected under RFQ 1215
- Additional scope of work
  - Engineering and technical support during construction
  - Submittals review & record drawings
  - Support for testing & commissioning
- SBE participation level – 5%
- Amendment amount – \$550,000
- NTE amount – \$1,450,000

# Allocation of Budgeted Funds

## Contracts

Ameresco, Inc.	\$11,604,521
Fiber optic cable installers	460,000

## Metropolitan Labor

Construction inspection	1,278,000
Metropolitan Force construction	353,000
Submittals review, testing & commissioning	614,000
Contract adm., SGIP & Intercon. agrmts, & PM	709,000

## Professional Services

Stantec Inc.	550,000
Environmental monitoring service	30,000

<u>Remaining Budget</u>	801,479
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**Total: \$16,400,000**

Total construction cost: \$12.4 million



# Project Schedule



Construction



Board Action



Testing/Commissioning



Completion

# Board Options

- Option #1

- Award \$11,604,521 contract to Ameresco, Inc. to construct Battery Energy Storage System Facilities at the Jensen and Skinner plants; and
- Authorize increase of \$550,000 to agreement with Stantec Inc., for a new not-to-exceed total of \$1,450,000, to provide technical support.

- Option #2

- Do not proceed with the project at this time.

# Staff Recommendation

- Option #1





- Board of Directors  
*Engineering and Operations Committee*

9/14/2021 Board Meeting

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7-3

## Subject

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Authorize an agreement with HDR Engineering, Inc., in an amount not to exceed \$635,000 for engineering design services to upgrade the 2.4 kV power line that serves the Black Metal Mountain communications site; the General Manager has determined that this proposed action is exempt or otherwise not subject to CEQA

## Executive Summary

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The Black Metal Mountain communications site is situated on top of a mountain and provides clear line-of-site connectivity to other Colorado River Aqueduct (CRA) communications sites. Given its prime location, the communications site also houses communications equipment from several other agencies which lease space from Metropolitan. The Black Metal Mountain communications site's power demand has increased over time, and an upgrade of both the 2.4 kV power line cables and supporting poles are recommended in order to maintain reliable communications service at the Black Metal Mountain site. This action authorizes an agreement for engineering design services to upgrade the 2.4 kV power line that serves the Black Metal Mountain communications site.

## Details

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### Background

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

The Black Metal Mountain communications site is located on a prominent peak between the Gene and Intake pumping plants. The site serves as a critical link in the microwave communications system for Metropolitan's desert facilities. The site houses Metropolitan's wide-area communications equipment, as well as communications equipment for various government agencies such as the San Bernardino County Sheriff's Department, the California Highway Patrol, Cal Trans, and the San Bernardino County Fire Department.

The power usage at the Black Metal Mountain communications site has increased over the years, and today the peak power demand at the site has grown larger than the existing one-mile-long power line can support. During the summer months, air conditioners run constantly to keep the enclosed electronic equipment from overheating. During the hottest desert conditions, the circuit breakers trip on a regular basis, and these events interrupt communications operations at the site. The existing power line conductors to the site will be replaced with higher capacity 2.4kV conductors to ensure that the required electrical supplies can be provided to the communications equipment under all weather conditions.

In addition to the conductor upgrades, the poles that support the existing electrical power line are deteriorated due to age and weathering in the harsh desert environment. Some poles are currently held in place by multiple guy wires, leaving them vulnerable to collapse, while pole cross arms and extensions require frequent repairs. The new poles will be fabricated of galvanized steel and will be approximately 40 feet in height. Metal poles are recommended for this project due to the new high voltage distribution lines that will be supported. This recommendation contrasts to the wooden poles that are primarily used for lighter weight, lower voltage communications lines, such as fiber-optic lines.



Metropolitan staff has completed the study phase for this project and recommends that the project advance into preliminary design. This action authorizes a new agreement for engineering services to conduct preliminary design for replacement of the 2.4 kV power distribution line.

In accordance with the April 2020 action on the biennial budget for Fiscal Years 2020/21 and 2021/22, the General Manager will authorize staff to proceed with the actions described herein, pending board authorization of the design services agreement described below. Based on the current Capital Investment Plan (CIP) expenditure forecast, funds for the work to be performed pursuant to this action during the current biennium are available within the Capital Investment Plan Appropriation for Fiscal Years 2020/21 and 2021/22 (Appropriation No. 15517). This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP Evaluation Team to be included in the CRA Reliability Program.

### **Black Metal Mountain 2.4 kV Electrical Power Upgrade – Preliminary Design**

Planned upgrades to the existing power line include new power poles, larger electrical conductors, and improvements to the maintenance road. The new power line will be approximately one mile long. Alternatives will also be investigated during preliminary design to improve site access to enhance efficiency and safety related to construction and long-term maintenance activities. Improvements to the existing access road may include reducing road slopes, improving drainage, paving parts of the roadway to improve traction, installing guardrails, and stabilizing adjacent slopes.

Planned preliminary design phase activities include: development of design criteria; conducting site surveys and geotechnical investigations including geologic mapping and geophysical testing for assessing constructability of excavation and earthwork; preparation of environmental documentation including performing technical studies to address issues such as air quality, biological resources, cultural resources, and noise, and initiation of permits, as needed; preparation of a preliminary design report including electrical system load calculations, selection of electrical equipment, development of interconnections to existing systems, identification of needed outages; and planning and coordination with the facility's other users. The preliminary design phase activities will be conducted with a hybrid effort of consultants and Metropolitan staff as described below. Metropolitan staff will perform overall project management and consultant oversight.

A total of \$1.7 million is required for this work. Allocated funds include \$635,000 for preliminary design by HDR Engineering, Inc. (HDR), as described below, and a total of \$515,000 for value engineering, environmental documentation, and geotechnical investigation activities, as described above. Each of these activities will be performed by specialty firms under separate contracts planned to be executed under the General Manager's Administrative Code authority to award contracts of \$250,000 or less. Allocated funds for Metropolitan staff activities include \$188,000 for technical oversight and review of consultant's work; \$295,000 for surveying, right-of-way assessments, project management, and project controls; and \$67,000 for remaining budget.

The total cost of the project to replace and upgrade the existing 2.4 kV power line system to the Black Metal Mountain communications site will be re-evaluated during preliminary design. Currently, the future construction contract is estimated to range from \$7 million to \$8 million. **Attachment 1** provides the allocation of the required funds.

### **Engineering Services (HDR Engineering, Inc.) – New Agreement**

HDR is recommended to provide engineering services for preliminary design of the Black Metal Mountain 2.4 kV electrical power line upgrade. HDR was prequalified through a competitive process via Request for Proposals No. 1252. They were selected based on the firm's expertise in high-voltage electrical systems, technical approach, and methodology.

The planned activities for HDR in the preliminary design of the Black Metal Mountain 2.4 kV electrical power upgrade include: power line and access road alignment and site assessment; electrical load calculations; preparation of preliminary designs for the power line installation and access road improvements; development of design criteria, and preliminary construction cost estimates.

This action authorizes an agreement with HDR for a not-to-exceed amount of \$635,000 to provide engineering design services to upgrade the Black Metal Mountain 2.4 kV electrical power line. For this agreement, Metropolitan has established a Small Business Enterprise (SBE) participation level of 25 percent. HDR has

agreed to meet this level of participation. The sole subconsultant planned for this agreement is TJC and Associates, Inc.

### **Alternatives Considered**

At the outset of this project, staff also considered removing some of the electrical loads from the site so that the existing electrical supply capacities would be sufficient for Metropolitan's communication equipment. This alternative would potentially include terminating leases with California Highway Patrol or others. This approach is not recommended as it runs counter to the collaborative nature of radio communications sites, which are often uniquely situated. Historically, under this collaborative approach, agencies with strategic sites have leased space to other agencies seeking line-of-sight communications capabilities. Often these types of leases are essential to ensure public safety communication. Additionally, this alternative does not address the deteriorating condition of the electrical system poles, which need to be replaced. Staff will take into account the cost of the recommended upgrades when the current leases are renewed, and new leases are negotiated.

### **Summary**

This action authorizes an agreement with HDR Engineering, Inc. for a not-to-exceed amount of \$635,000 to provide engineering services to upgrade the 2.4 kV power line to the Black Metal Mountain communications site.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2020/21 capital expenditure plan. See **Attachment 1** for the Allocation of Funds and **Attachment 2** for the Location Map.

### **Project Milestone**

October 2022 – Complete preliminary design

### **Policy**

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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 51963, dated April 14, 2020 the Board appropriated a total of \$500 million for projects identified in the Capital Investment Plan for Fiscal Years 2020/21 and 2021/22.

### **California Environmental Quality Act (CEQA)**

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#### **CEQA determination for Option #1:**

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed action qualifies as a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

#### **CEQA determination for Option #2:**

None required

## Board Options

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### Option #1

Authorize an agreement with HDR Engineering, Inc. in an amount not to exceed \$635,000 for engineering services to replace the 2.4 kV power line to Black Metal Mountain communications site.

**Fiscal Impact:** \$1.7 million in capital funds for preliminary design. Approximately \$1 million in capital funds will be incurred in the current biennium and has been previously authorized. The remaining funds from this action and future construction costs will be accounted for and appropriated under the next biennial budget.

**Business Analysis:** This option will enhance the reliability of Black Metal Mountain communications site by replacing key elements of its electric power systems.

### Option #2

Do not proceed with the project at this time, and staff will continue to monitor the operational status of the 2.4 kV power line.

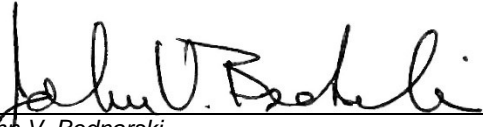
**Fiscal Impact:** None


**Business Analysis:** This option would defer the replacement of the 2.4 kV power line, which would forego an opportunity to reduce the risk of unplanned outages of the Black Metal Mountain communications site.

## Staff Recommendation

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### Option # 1

  
\_\_\_\_\_  
John V. Bednarski  
Manager/Chief Engineer  
Engineering Services  
8/12/2021  
Date

  
\_\_\_\_\_  
Adel Hagekhalil  
General Manager  
9/1/2021  
Date

**Attachment 1 – Allocation of Budgeted Funds**

**Attachment 2 – Location Map**

Ref# es09142021



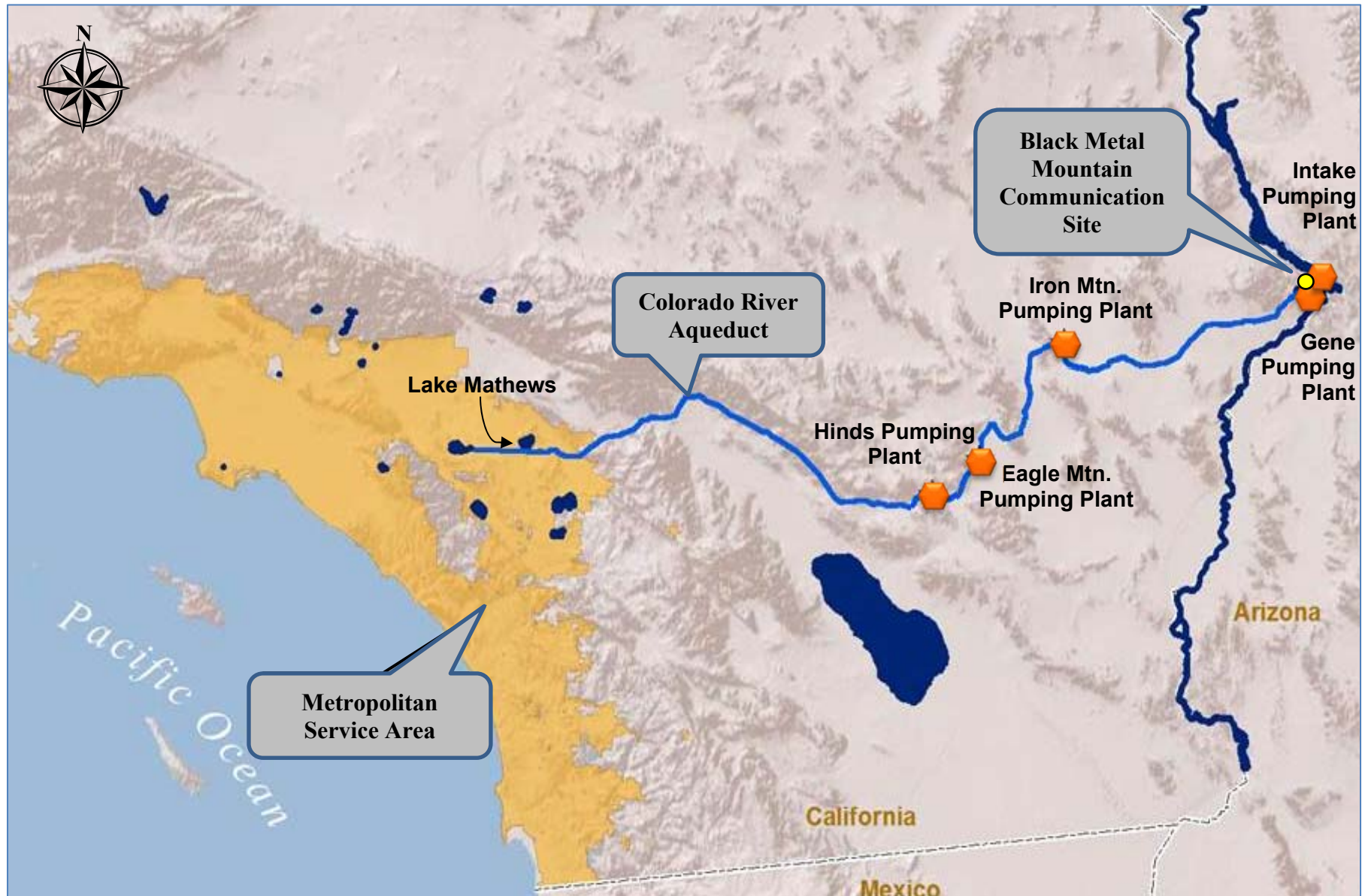
### **Allocation of Funds for Black Metal Mountain 2.4 kV Electrical Power Upgrade**

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	<b>Current Board Action (Sept. 2021)</b>
Labor	
Studies & Investigations	\$ 188,000
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	288,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	7,000
Professional/Technical Services	-
HDR Engineering, Inc.	635,000
VE Consultant	45,000
Specialized Environmental Services (Aspen Enviromental)	240,000
Specialized Geotechnical Services (Kleinfelder)	230,000
Right-of-Way	-
Equipment Use	-
Contracts	-
Remaining Budget	67,000
<b>Total</b>	<b>\$ 1,700,000</b>

The total amount expended to date for the Black Metal Mountain 2.4 kV Electrical Power Upgrade is approximately \$249,000. The total estimated cost to complete this project, including the amount appropriated to date, funds allocated for the work described in this action, and future final design and construction costs, is anticipated to range from \$11.5 million to \$12.5 million.

# Location Map





# Black Metal Mountain 2.4 kV Electrical Power Upgrade

Engineering and Operations Committee

Item 7-3

September 13, 2021

# Current Action

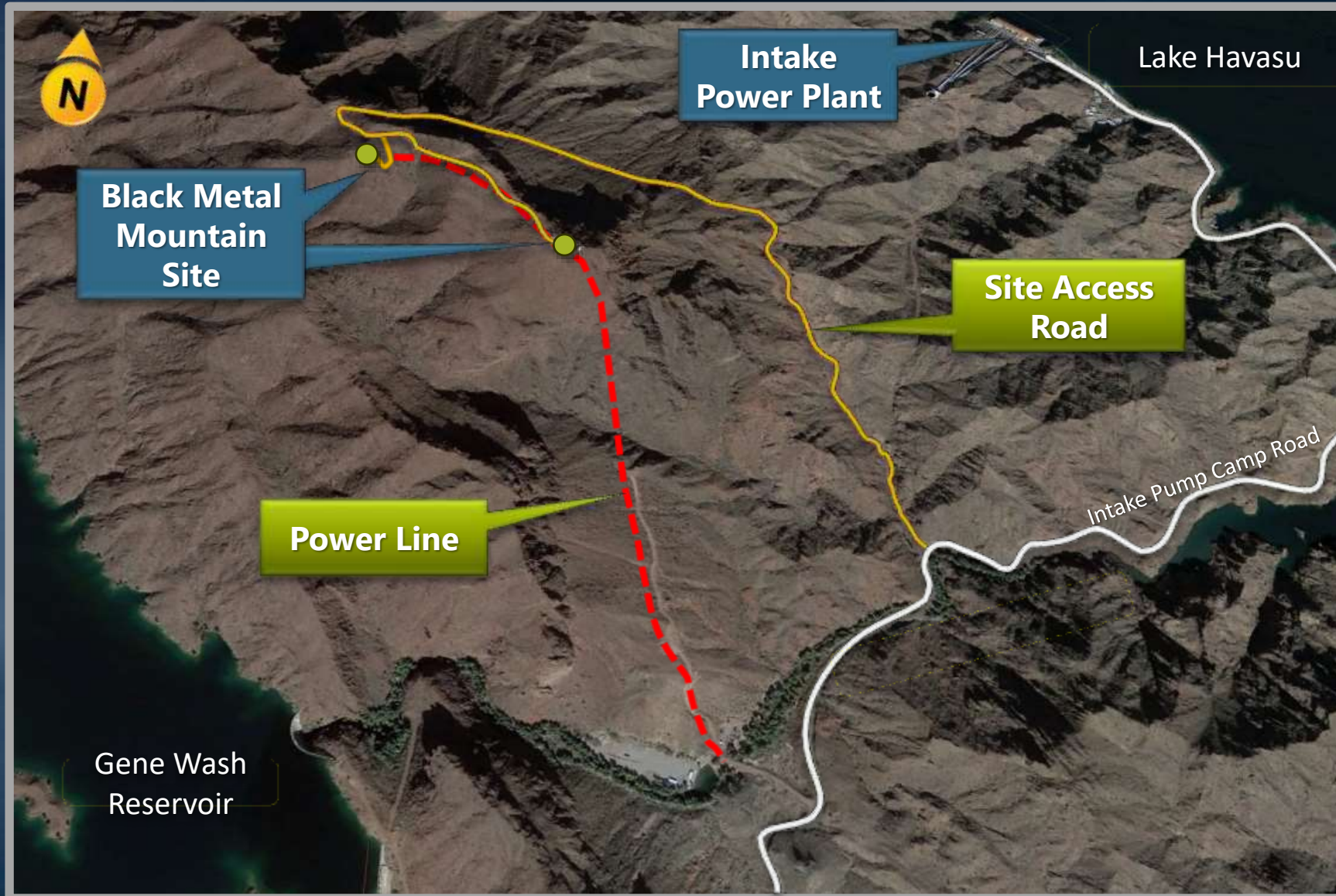
- Authorize an agreement with HDR Engineering, Inc. in an amount not to exceed \$635,000 for engineering services to replace the 2.4 kV power line to Black Metal Mountain communications site



# Location Map



# Location Map





# Background

- Installed in 1970s
- Critical link for Metropolitan's desert facilities
- Site leased to other government agencies
  - San Bernardino County Sheriff's and Fire Departments
  - California Highway Patrol
  - Caltrans
  - Federal Aviation Administration



Communication Site Equipment

# Background

- Power usage has increased over the years
  - Peak power demand exceeds rated capacity
  - Circuit breakers trip on a regular basis during the hottest desert conditions
- Wood poles are deteriorating due to weathering
  - Pole extensions & support require frequent repairs
- Steep & unpaved access road



Overloaded Power Pole

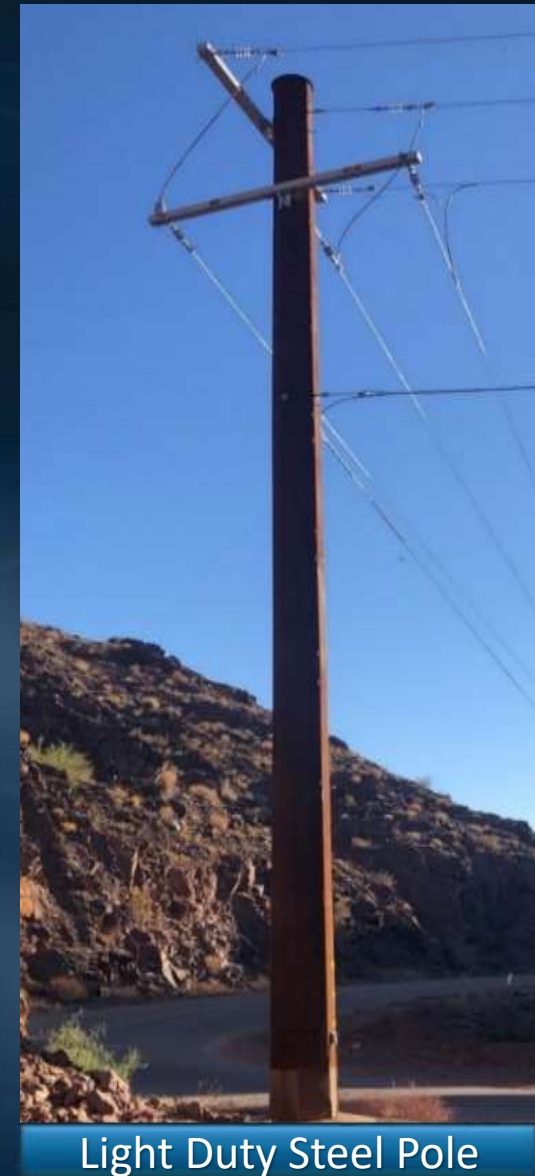


# Alternatives Considered

- Remove some electrical loads from the site
  - Requires termination of existing leases
  - Runs counter to collaborative nature of radio communications sites
  - Does not address rehabilitation of deteriorating poles
- Selected option
  - Upgrade the power distribution
    - Install higher capacity 2.4 kV power line conductors
  - Replace deteriorating poles
    - Install steel poles suitable for high voltage environment
  - Address site access issues

# Planned Work

- 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 roadway for traction
  - Install guardrails



Light Duty Steel Pole

# HDR Engineering, Inc.

## New Agreement

- Competitively selected under RFQ 1215
- Scope of work
  - Site assessment & design criteria development
  - Electrical load calculations
  - Preparation of preliminary design
  - Preliminary construction cost estimates
- SBE participation level: 25%
- NTE amount: \$635,000

# Metropolitan Scope

- Conduct field investigations
  - Geotechnical analysis
  - Site surveys and mapping
- Prepare environmental documentations & permitting as needed
- Assess temporary rights-of-way needs
- Identify outages & coordinate with other users
- Provide technical oversight & review consultant work
- Project controls & project management

# Allocation of Funds

## Professional Services

HDR Engineering, Inc.	\$ 635,000
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VE consultant	45,000
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Environmental services	240,000
------------------------	---------

Geotechnical services	230,000
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## Metropolitan Labor

Preliminary design support	188,000
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Project management & permitting	288,000
---------------------------------	---------

Materials and Incidentals	7,000
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<u>Remaining Budget</u>	67,000
-------------------------	--------

<b>Total:</b>	<b>\$1,700,000</b>
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# Project Schedule



Preliminary Design



Construction



Board Action



Final Design



Completion

# Board Options

- Option #1

- Authorize an agreement with HDR Engineering, Inc. in an amount not to exceed \$635,000 for engineering services to replace the 2.4 kV power line to Black Metal Mountain communications site.

- Option #2

- Do not proceed with the project at this time, and staff will continue to monitor the operational status of the 2.4 kV power line.

# Staff Recommendation

- Option #1





## ● **Capital Investment Plan Quarterly Report for period ending June 30, 2021**

### **Summary**

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The attached report provides a summary of actions and accomplishments on the Capital Investment Plan (CIP) during fiscal years 2020/21 and 2021/22. It also provides updates on the status of capital projects and capital expenditures to date, and information regarding service connections and relocations authorized by the General Manager during the reporting period of April to June 2021, the fourth quarter of fiscal year 2020/21, and the fourth quarter of the fiscal years 2020/21 and 2021/22 biennium.

### **Purpose**

---

Administrative Code Requirement Section 2720(a)(1): General Manager's Quarterly Reports

Section 2720 of Metropolitan's Administrative Code requires the General Manager to report quarterly to the Engineering and Operations Committee on the Capital Investment Plan.

Sections 4700-4708 of Metropolitan's Administrative Code requires the General Manager to report on service connections approved by the General Manager with the estimated cost and approximate location of each.

Section 8122(c) of Metropolitan's Administrative Code requires the General Manager to report on the execution of any relocation agreement under the General Manager's authority involving an amount in excess of \$100,000.

Highlights of progress and major milestones on selected projects are presented in the attached report grouped by CIP program.

### **Attachments**

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Capital Investment Plan quarterly report for period ending June 2021





# CAPITAL INVESTMENT PLAN

Quarterly Report

April – June 2021



## THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

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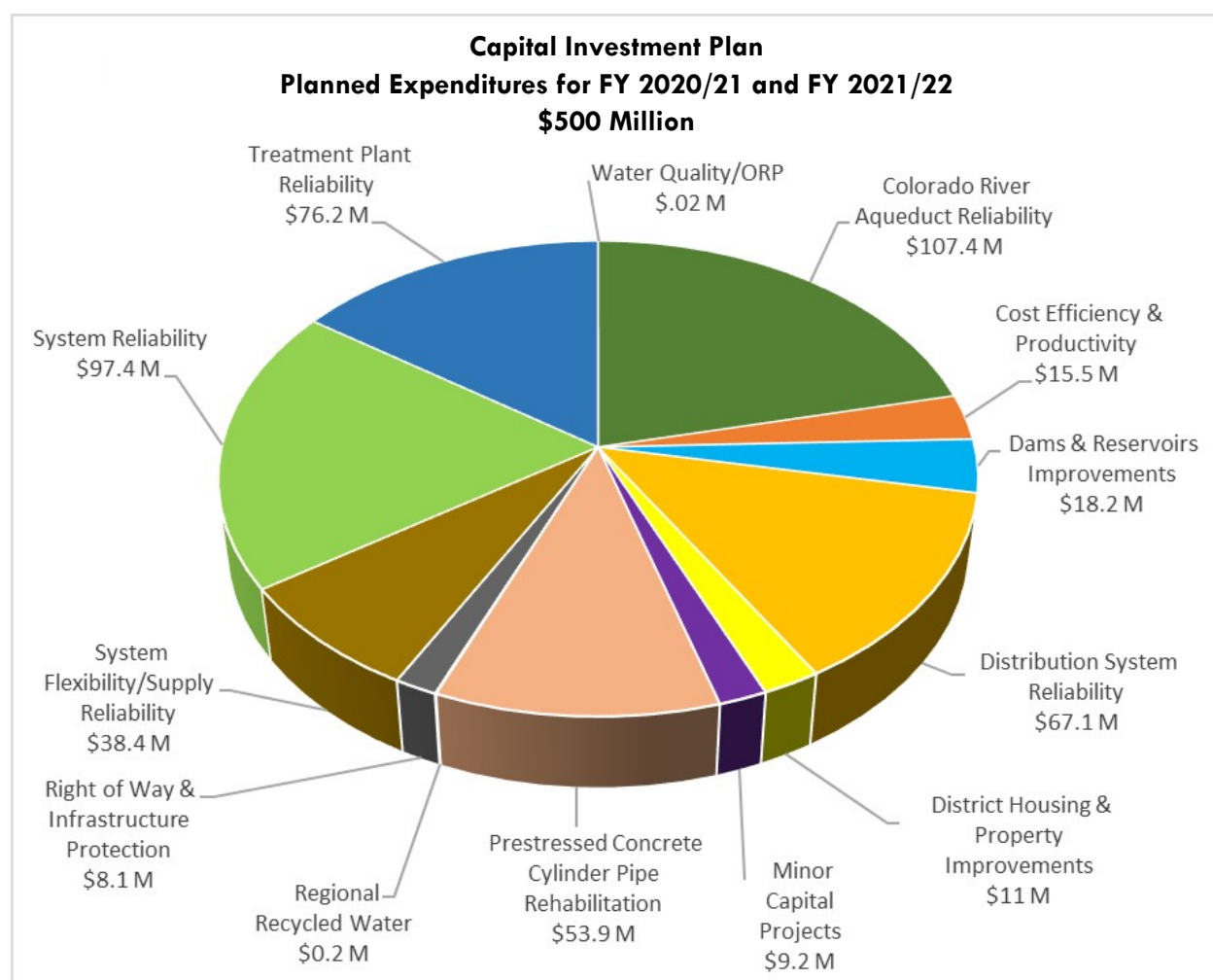
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## **CAPITAL INVESTMENT PLAN FOR FISCAL YEARS 2020/21 & 2021/22**

Metropolitan's total Capital Investment Plan (CIP) planned expenditures for FYs 2020/21 and 2021/22 are \$500 million appropriated by the Board in April 2020, and are shown in Figure 1 below in relation to their associated programs. In the same board meeting, the Board also delegated authority to the General Manager, subject to both CEQA requirements and the General Manager's authority as addressed in Metropolitan's Administrative Code, to initiate or proceed with work on all planned capital projects identified in the CIP for FYs 2020/21 and 2021/22.

*Figure 1: CIP for FY 2020/21 and FY 2021/22 by Program*



[Cover photos: (left to right): Pipe segment being lowered into access pit for Allen-McColloch Pipeline PCCP 2021 Relining; West Valley Feeder No. 1 - De Soto Valve Structure Improvements multi orifice valve assembly]

## FOURTH QUARTER SUMMARY

Biennial expenditures through June 2021 totaled \$261.5 million (details shown in Table 15), and expenditures for the 4<sup>th</sup> Quarter of Fiscal Year 2020/21, April through June 2021, totaled \$70.1 million for all capital programs.

During the 4<sup>th</sup> Quarter, board actions heard in open session included six project-specific actions summarized in Table 1 below. These actions awarded one contract totaling approximately \$2 million, authorized six new professional/technical services agreements totaling a not-to-exceed amount of approximately \$6.2 million, authorized an increase of approximately \$0.4 million for one existing agreement, and authorized an increase of \$0.2 million in change order authority for the Greg Avenue Pump Station Rehabilitation contract. Information on the awarded contracts can be found in Table 10 of this report. The table below excludes information on board items heard in closed session.

Table 1: 4<sup>th</sup> Quarter Board Actions

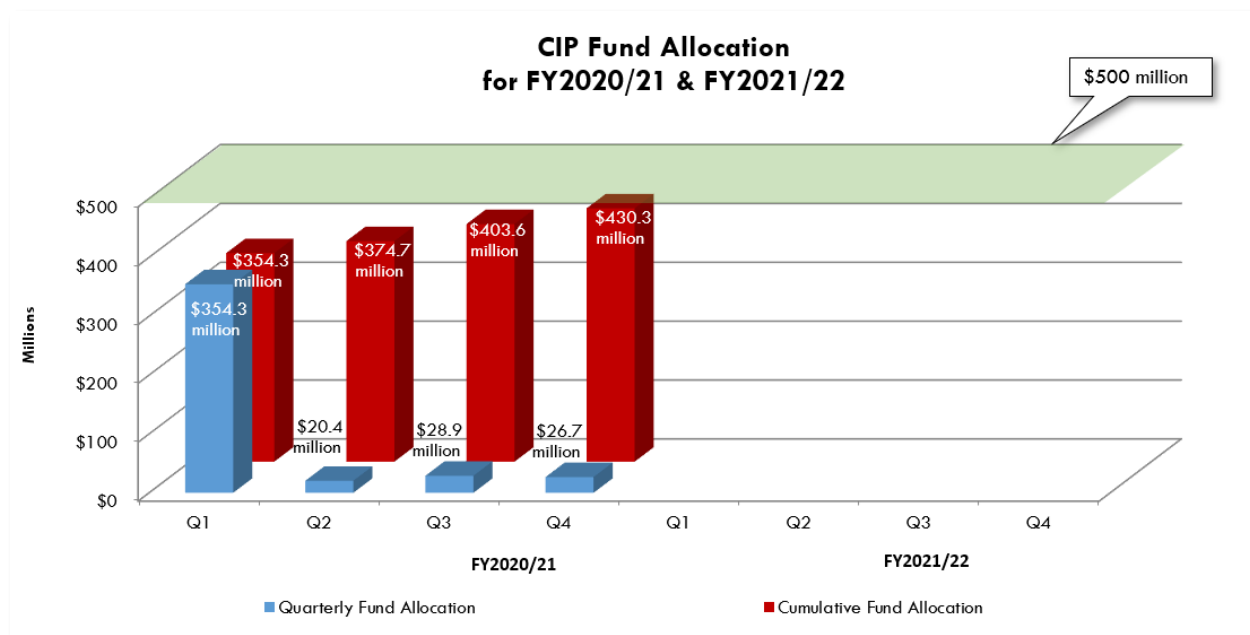
Month	Board Letter Item No.	Project	Action taken
<b>April</b>	7-4	CRA 69 kV and 230 kV Transformers Replacement	Authorized two agreements not-to-exceed \$1,700,000 and \$360,000
<b>April</b>	7-8	Fuel Management System Upgrade	Authorized an agreement not-to-exceed \$1,104,000
<b>April</b>	7-9	Water Information System	Authorized an agreement not-to-exceed \$2,430,000
<b>May</b>	7-4	Greg Avenue Pump Station Rehabilitation	Authorized \$200,000 increase in change order authority to an existing construction contract; authorized an increase of \$350,000 to an existing agreement
<b>May</b>	7-5	CRA Mile 12 Flow Monitoring Station Upgrades	Awarded \$2,022,000 construction contract
<b>May</b>	7-11	District Housing and Property Improvements Program	Authorized two agreements not-to-exceed \$250,000 and \$350,000

The previously referenced April 2020 board action appropriated \$500 million to perform work on planned capital projects through the current biennium. In order to be considered a planned project, the project must be identified and described in the Capital Investment Plan Appendix for the two-year budget cycle. Consistent with this action, all requests to allocate funds and proceed with planned capital projects are reviewed and approved by the Chief Engineer acting under the General Manager's authority. Unplanned projects, those which are not already identified in the CIP Appendix, require a separate board authorization. Upon board approval of an unplanned project, requested funds are then transferred from the \$500 million (Appropriation No. 15517) to the pertinent capital appropriation under which the project is budgeted. During the 4<sup>th</sup> Quarter, no unplanned capital projects were authorized by the Board.

During the 4<sup>th</sup> Quarter, the total amount of Appropriation No. 15517 funds authorized by the General Manager for the current biennium (FYs 2020/21 and 2021/22) through management actions including the funds for the projects shown in Table 1 is approximately \$26.7 million. Details of these management actions which occurred during the 4<sup>th</sup> Quarter can be found in the **Project Actions** section of this report.

Figure 2 shows the allocation of the funds from Appropriation 15517 for this quarter and total for the current biennium through the quarter, which is approximately \$430.3 million, leaving approximately \$69.7 million available to be allocated during the remainder of the current biennium.

Figure 2: CIP Fund Allocation from Appropriation No. 15517 – FY 2020/21 and FY 2021/22



Information on construction and procurement contracts activities for the 4<sup>th</sup> Quarter of FY 2020/21 is summarized in Table 2 on the following page, and presented in further detail in the **Construction and Procurement Contracts** section of this report. Progress payments for these contracts in the 4<sup>th</sup> Quarter totaled approximately \$20.7 million, and primarily reflect construction progress on CRA Pumping Plants – Sump Rehabilitation, Headquarters Building Improvements, Allen-McColloch Pipeline PCCP 2021 Relining, Joseph Jensen Water Treatment Plant Electrical Upgrade - Stage 2, Diemer Water Treatment Plant West Basin and Filter Building Rehabilitation, Headquarters Building Physical Security Improvements, Lakeview Pipeline Improvements, and Headquarters Building Fire Alarm & Smoke Control Improvements.

Table 2: 4<sup>th</sup> Quarter Contract Action

Contract Actions during Q4 for FY 2020/2021, April 2021 through June 2021	
Contracts Awarded	1 construction contract totaling \$2.02 million (Table 10)
Total Payments Authorized	\$20.67 million
Construction Contracts Completed	Notice of Completion was filed for 8 construction contracts (Table 9)
Active Contracts at end of Q3 <sup>1</sup>	15 construction contracts, totaling \$197.59 million (Table 11)
	14 procurement contracts, totaling \$60.49 million (Table 12)
	\$258.08 million total value

## IMPACTS OF COVID-19

In response to the Governor's and General Manager's emergency declarations resulting from the COVID-19 pandemic, all active construction contracts were suspended in late March 2020. Since then all contracts, except on-site work for CRA Pumping Plant Sump Rehabilitation, resumed construction activities. In this reporting quarter, construction activities on the aforementioned CRA Pumping Plant Sump Rehabilitation remained suspended, and construction management staff recommended that the construction contract be converted to an equipment and material procurement contract. This approach will delete all on-site construction activities and will result in a negotiated final settlement with the prime contractor. Currently, it is anticipated that the CRA Pumping Plant Sump Rehabilitation project will be re-advertised in 2022. Equipment and materials procured under the existing contract will be included as Metropolitan-furnished equipment for the next contractor.

<sup>1</sup> Active contracts at the end of the 4<sup>th</sup> Quarter are those that are ongoing at the end of June 2021. In other words, contracts completed during the reporting quarter are excluded.



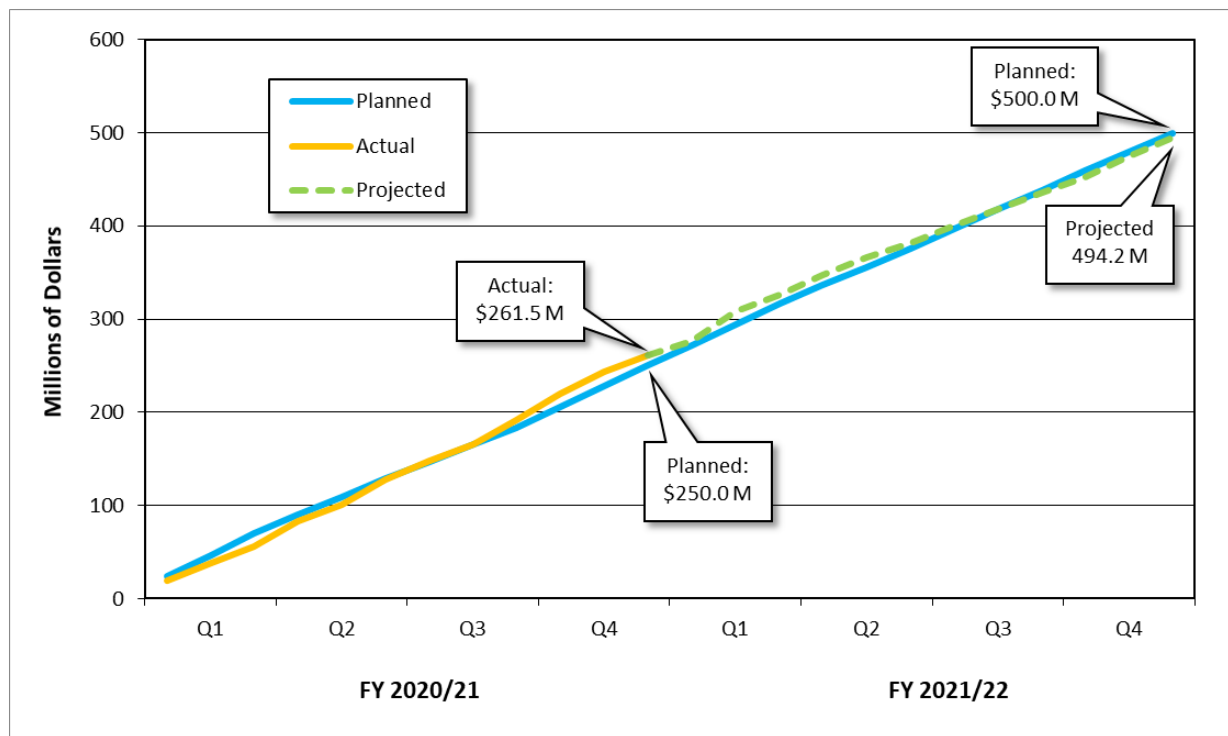
## PLANNED EXPENDITURE AND BUDGET

Table 3 and Figure 3 below show planned and actual expenditures for the biennium through the end of the 4<sup>th</sup> Quarter of FY 2020/21, and the forecast of expenditures through the end of the current biennium, against planned expenditures for the same time interval. Actual expenditures through the 4<sup>th</sup> Quarter of FY 2020/21 were approximately 103% of planned expenditures.

Table 3: Current Biennium: Planned & Actual Expenditures for FYs 2020/21 & 2021/22

Quarter	Planned Expenditures (millions)	Actual Expenditures (millions)
FY 2020/21 Q1	\$70.4	\$55.6
FY 2020/21 Q2	\$58.5	\$72.2
FY 2020/21 Q3	\$55.0	\$63.6
FY 2020/21 Q4	\$66.1	\$70.1
<b>Totals</b>	<b>\$250.0</b>	<b>\$261.5</b>

Figure 3: Current Biennium – Planned, Actual & Forecasted Expenditures



As shown in Figure 3, the total planned expenditures in the current biennium are \$500.0 million. The current projected expenditures for the biennium are currently approximately \$494.2 million with the actual expenditures exceeding the planned expenditures during the 4<sup>th</sup> Quarter of FY 2020/21 and are projected to coming back down under the planned expenditures at the end of the biennium.

This positive variance above the planned expenditures starting in the reporting quarter is due to several factors including prioritization of critical projects to ensure facility reliability and system flexibility, as well as better than anticipated progress by construction contractors.

## **MAJOR CAPITAL PROGRAMS OVERVIEW**

Metropolitan's CIP is structured into three levels. In descending order, they are:

- Program
- Project Group/Appropriation
- Project

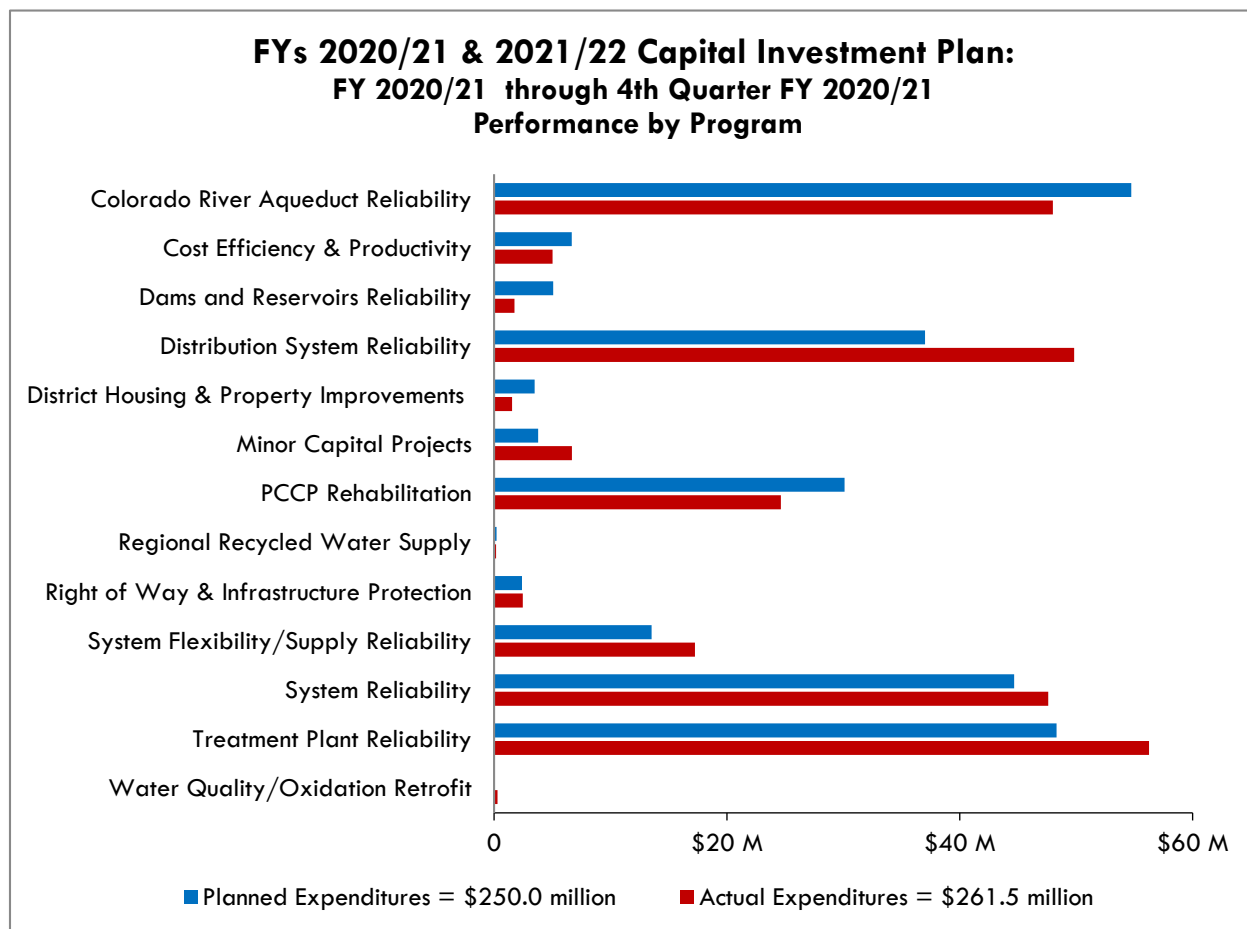
Metropolitan's CIP is comprised of 13 programs, which capture all projects within the CIP. The 13 capital programs are listed below in alphabetical order. Programs are comprised of one or more project groups/appropriations, and project group/appropriations are comprised of one or more projects. The status of each of the programs is provided later in this section of the report.

- Colorado River Aqueduct (CRA) Reliability
- Cost Efficiency & Productivity
- Dams & Reservoirs Improvements
- Distribution System Reliability
- District Housing & Property Improvements
- Minor Capital Projects
- Prestressed Concrete Cylinder Pipe (PCCP) Reliability
- Regional Recycled Water Supply
- Right-of-Way and Infrastructure Protection
- System Flexibility/Supply Reliability
- System Reliability
- Treatment Plant Reliability
- Water Quality/Oxidation Retrofit

For the current biennium, there are over 37 project groups, 72 planned appropriations, and 435 planned projects (excluding Minor Capital Projects) within the CIP. The list of appropriations that make up each of the programs, along with planned expenditures and actual costs to date for those appropriations, are provided in Table 15 at the end of this report.

Figure 4 below shows actual versus planned expenditures for the 13 capital programs for 4<sup>th</sup> Quarter of FY 2020/21.

Figure 4: Biennium-to-date Expenditures (Actuals vs. Planned) through 4<sup>th</sup> Quarter FY 2021/22



Variances between planned and actual expenditures for each program are primarily due to shifts in spending on current and planned construction work. The top ten capital projects information on the next page provides various examples of activities that contributed to such variances.

The top ten project list in Table 4 below reflects the ten projects in the CIP with the highest level of planned expenditures in the current biennium. The planned versus actual expenditures through the end of the 4<sup>th</sup> Quarter of FY 2020/21 are also shown in this table.

*Table 4: Top Ten Planned Capital Projects  
Planned and Actual Expenditures*

Project	Planned (FY 2020/21 through FY 2021/22) (millions)	Planned July 2020 to June 2021 (millions)	Actuals July 2020 to June 2021 (millions)
Headquarters Building Improvements	\$31.3	\$15.7	\$23.3
Casa Loma Siphon Barrel No. 1 Seismic Upgrade	\$30.0	\$15.0	\$15.9
CRA Pump Plant Sump System Rehabilitation	\$28.0	\$14.1	\$4.9
Perris Valley Pipeline - Tunnels	\$27.8	\$4.0	\$1.3
CRA Discharge Line Isolation Coupling Assemblies	\$23.0	\$20.1	\$18.1
Second Lower Feeder PCCP Rehabilitation - Reach 8	\$22.0	\$6.0	\$6.9
Jensen Electrical Upgrades - Stage 2	\$15.2	\$8.9	\$12.6
Diemer West Basin & Filter Building Rehabilitation	\$14.2	\$13.9	\$14.9
Second Lower Feeder PCCP Rehabilitation – Reach 2	\$13.0	\$13.0	\$4.8
Orange County Feeder Relining - Reach 3	\$12.5	\$6.3	\$0.6
<b>Total*</b>	<b>\$217.1</b>	<b>\$117.0</b>	<b>\$103.2</b>

\* Numbers may not sum due to rounding.

The cumulative expenditure variance for the top ten projects through the 4<sup>th</sup> Quarter reflects a mix of over- and under-spending on projects relative to their planned expenditures. Positive or negative variances do not mean that the projects are over or under budget, it simply reflects variances in timing of expenditures when compared to original budget plans. The following are the variance explanations for the top ten projects where actual expenditures exceeded planned expenditures through the current reporting quarter for the biennium.

- Casa Loma Siphon Barrel No. 1 Seismic Upgrade:** The actual vs. planned variance is due to a shift in timing for delivery of the Earthquake Resistant Ductile Iron Pipe (ERDIP) and the welded steel pipe. The two pipe procurement contracts are currently ongoing. Final design of the construction contract advertisement package for the pipe installation is nearly complete. Advertisement of these plans and specifications was deferred until sufficient CIP budget can be committed for the construction contract in the current biennium. All pipe, except for the steel closure pieces, have been delivered to the Diamond Valley Lake yard and will be stored there until the construction contract is awarded. Delivery of the closure pieces is anticipated in 2023.

- **Headquarters Building Improvements:** The actual expenditures were more than planned because of the following: (1) the approval of additional change orders to complete needed work while the building is lightly occupied due to the COVID-19 pandemic; and (2) the contractor was able to accelerate completion of some work elements as the building has been lightly occupied.
- **Second Lower Feeder PCCP Rehabilitation – Reach 8:** This project involves relining approximately 2,900 feet of PCCP pipeline in the city of Placentia. This work was conducted in the form of a change order to an on-going contract (Reach 2). This approach permitted the rehabilitation of this portion of the pipeline in the most cost-effective and expeditious manner. This portion of the feeder was relined earlier than originally planned to address critical wire breaks that were identified during a recent inspection. This additional work resulted in higher than planned expenditures on this project through the 4<sup>th</sup> Quarter.
- **Jensen Electrical Upgrades - Stage 2:** Project expenditures for the biennium are higher than originally planned through the 4<sup>th</sup> Quarter because the contractor's work activities were expedited after the COVID-19 work suspension to meet the scheduled 2022 shutdown dates.
- **Diemer West Basin & Filter Building Rehabilitation:** Project expenditures for the biennium are higher than originally planned through the 4<sup>th</sup> Quarter because the contractor's work activities were expedited to meet the scheduled basin shutdown dates.

The following are the variance explanations for the top ten projects with negative variances (under-spending projects).

- **CRA Discharge Line Isolation Coupling Assemblies:** The actual expenditures were less than planned due to the contractor completing more work than planned during the 2020 shutdown during the 3<sup>rd</sup> Quarter.
- **CRA Pump Plant Sump System Rehabilitation:** The actual vs. planned variance is due to the suspension of the on-site work due to the COVID-19 pandemic starting in March 2020, which led to cancellation of the construction portion of the contract. Resolution of outstanding submittal comments has also caused a delay in the delivery of equipment and materials to the site.
- **Perris Valley Pipeline – Tunnels:** The actual vs. planned expenditure variance is due to postponing the start of construction from November 2020 to early 2022 due to the discovery of contaminants at the work site that requires additional field and laboratory investigations, which resulted in the modification of the specifications to account for the contaminants. Additionally, complex right-of-way issues needed to be resolved prior to the advertisement of this project for construction bids.
- **Second Lower Feeder PCCP Rehabilitation – Reach 2:** The actual vs. planned variance is due to shifts in the timing of construction completion, which was completed approximately five months earlier than planned leaving less work for the current biennium. Early completion of this work can be attributed to extensive preconstruction planning and permitting, successful community outreach efforts, and better than expected relining production by the contractor.
- **Orange County Feeder Relining - Reach 3:** The actual vs. planned expenditure variance is due to postponing the start of construction from September 2020 to July 2022 in order to reduce expenditures in this biennium. The final contract, for Reach 3, is now planned to be advertised for construction bids in March 2022 to ensure that there is sufficient capacity in the current CIP budget to accommodate expenditures from this project in the biennium.



## MAJOR CAPITAL PROGRAMS – HIGHLIGHTS

The section that follows provides 4<sup>th</sup> Quarter highlights for the 12 Major Capital Programs; the Minor Capital Program is highlighted in its own section of this report. Status is provided for selected projects within each Major Capital Program. The selected projects typically achieved major milestones during the 4<sup>th</sup> Quarter of FY 2020/21, or are scheduled to achieve major milestones in the next quarter.

Program	Project
Colorado River Aqueduct (CRA) Reliability	CRA Discharge Line Isolation Coupling Assemblies
	CRA Radial Gates Replacement
Cost Efficiency & Productivity	Battery Energy Storage System
	DVL Wave Attenuator Rehabilitation
Dams and Reservoirs Improvements	Diamond Valley Lake Dam Monitoring System Upgrades
	Garvey Reservoir Rehabilitation
Distribution System Reliability	Lake Perris Bypass Pipeline Relining
	Lakeview Pipeline Improvements
District Housing & Property Improvements	Program highlights only
Prestressed Concrete Cylinder Pipe (PCCP) Reliability	Allen-McColloch Pipeline PCCP 2021 Relining
	Second Lower Feeder PCCP Rehabilitation – Reach 2
Regional Recycled Water Supply	Program highlights only
Right-of-Way & Infrastructure Protection	Erosion-Control Improvements for Six Sites in Orange County Region
System Flexibility/Supply Reliability	Greg Avenue Pump Station Rehabilitation
System Reliability	Headquarters Building Improvements
	Security Operations Center
Treatment Plant Reliability	Diemer West Basin & Filter Building Rehabilitation
	Weymouth Chlorination System Upgrades
Water Quality/Oxidation Retrofit	Program highlights only

## Colorado River Aqueduct (CRA) Reliability Program

**Program Information:** The CRA Reliability Program is composed of projects to replace or refurbish facilities and components of the CRA system in order to reliably convey water to Southern California.

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$54.72 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$47.99 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

#### Status

Expenditures for this program are less than planned through June 2021 due to schedule adjustments in order to optimize the construction activities of multiple contracts within the same CRA shutdown and to accommodate delays of site work activities and suspension of construction contracts under Metropolitan's response to COVID-19.

#### Accomplishments

- Completed construction of CRA Discharge Line Isolation Coupling Assemblies in May 2021, about two months earlier than the contractual completion date
- Continued construction activities for the following contracts:
  - CRA Radial Gates Replacement
    - i. Completed most of the punch list contract work, including fabrication and delivery of reinforcing steel for transformer concrete containment pads
    - ii. Began and continued installation of the transformer pad and transformers
    - iii. Began supervisory control and data acquisition (SCADA) related work by Metropolitan forces including installation of ductbanks and tie in to control panels
  - Gene Wash Reservoir Discharge Valve Structure Rehabilitation
    - i. Continued submittals for review and installation of the underground electrical duct bank
    - ii. Began and completed setup of a barge hoist and dive equipment
    - iii. Began and completed delivery, assembly and functional testing of a knife gate valve isolation device; installation of the electrical panels and equipment racks at the crest of the dam; and installation of new exterior lighting at the valve house
- Continued submittals for the CRA Pumping Plants Overhead Cranes Rehabilitation
- Continued submittals for the water treatment equipment procurement for domestic water treatment systems at all CRA pumping plants, estimated first delivery in June 2022 to coincide with the Domestic Water Treatment Systems Replacement construction schedule
- Under Metropolitan's response to COVID-19, suspended on-site construction for the CRA Pumping Plant Sump System Rehabilitation and continued submittals and fabrication activities
  - Completed valve fabrications and deliveries to all five pumping plants

- Continued fabrication of new pumps, piping, and other materials that are to be furnished
- Delivery of new pumps is expected to begin in August/September 2021
- Awarded construction contract and issued the Notice to Proceed for CRA Mile 12 Flow Meter Upgrade and began review of submittals
- Continued evaluating and establishing the course of action and construction repackaging options of the remaining outstanding contract work items for CRA 6.9 kV Power Cable Replacement.
  - Completed a pilot project to re-terminate cables for one unit at each plant by Metropolitan forces
- Continued final design of CRA Storage Building Replacement at Hinds, Eagle Mountain, and Iron Mountain
- Continued preliminary design of CRA Desert Region Security Improvements
- Continued preliminary design of Hinds Pumping Plant Discharge Valve Platform Replacement
- Began preliminary design and preparation of procurement package for the CRA Main Transformer Replacement
- Continued study of Black Metal Mountain 2.4 kV Electrical Power Upgrades
- Continued final design of Domestic Water Treatment Systems Replacement at all five CRA pumping plants
- Continued the CRA main pump rehabilitation efforts at all five pumping plants:
  - Completed as-is documentation efforts for Hinds and Iron Mountain Pumping Plants
  - Completed hydraulic analysis for Hinds Pumping Plant
- Initiated feasibility study to install variable frequency drive pumps at Gene and Intake Pumping Plants

#### Upcoming Activities

Upcoming work for the next quarter will include:

- Continue construction activities planned for the following contracts:
  - CRA Pumping Plants Overhead Crane Replacement
  - CRA Radial Gates Replacement
  - Gene Wash Reservoir Discharge Valve Structure Rehabilitation
  - Mile 12 Flow Meter Upgrade
- Continue fabrication activities for CRA Pumping Plant Sump System Rehabilitation and begin final design of the sump system installation contract
- Continue the CRA main pump rehabilitation efforts at all five pumping plants
- Continue preliminary design of CRA Desert Region Security Improvements
- Continue final design of CRA Storage Building Replacement at Hinds, Eagle Mountain and Iron Mountain
- Complete final design and advertise Domestic Water Treatment Systems Replacement at all five CRA pumping plants
- Complete study and begin preliminary design of Black Metal Mountain 2.4 kV Electrical Power Upgrades
- Continue preliminary design and preparation of procurement package for the CRA Main Transformer Replacement
- Continue preliminary design of Hinds Pumping Plant Discharge Valve Platform Replacement

**Construction Completion Date:**  
May 2021

**Total Project Estimate:**  
\$44.4 million

**Current Phase Estimate:**  
\$38.8 million

**Cost to Date for Current Phase:**  
\$35.7 million

### **CRA Reliability Program: CRA Discharge Line Isolation Coupling Assemblies**

This project will fabricate and install 44 isolation coupling assemblies with flow-through removal spool pieces; fabricate 10 removable bulkheads; and reline 6-foot discharge pipes with mortar lining.

Phase	Construction & Closeout
% Complete for Construction	100%
Construction Contract Awarded	August 2019
Appropriation Number	15481
Contract Number	1923

The contractor completed the contract work and demobilized. In the upcoming quarter, work will begin on the record drawings.



Completed concrete pipe supports, stairs, and handrailing at Intake Pumping Plant



### CRA Reliability Program: CRA Radial Gates Replacement

This project will improve the reliability of the Colorado River Aqueduct by replacing seven radial gates along the aqueduct. The work includes installation of new radial gates and actuators, upgrade of electrical equipment, and rehabilitation and expansion of the gate operating platforms.

Phase	Construction & Closeout
% Complete for Current Phase	94%
Construction Contract Awarded	August 2019
Appropriation Number	15438
Contract Number	1920

The contractor completed all contract work and began change order work which includes installing secondary containment for oil filled transformers at the Hinds and Iron Mountain Pumping Plants. In the upcoming quarter, the contractor will install the new transformers at the Iron Mountain and Hinds Pumping Plants.

#### *Estimated Construction*

##### *Completion Date:*

**August 2021**

##### *Total Project Estimate:*

**\$19.1 million**

##### *Current Phase Estimate:*

**\$15.0 million**

##### *Cost to Date for Current Phase:*

**\$13.6 million**



Construction of concrete transformer pad for radial gate at Iron Mountain Wasteway



## Cost Efficiency and Productivity Program

**Program Information:** The Cost Efficiency and Productivity Program is composed of projects to upgrade, replace, or provide new facilities, software applications, or technology, which will provide economic savings that outweigh project costs through enhanced business and operating processes.

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$6.67 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$5.02 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

#### Status

Biennium expenditures for this program are less than planned through June 2021 due to shifts in timing of the work, with expenditures offset by schedule delays of several other projects in the remaining appropriations within this program.

#### Accomplishments

- Completed construction to rehabilitate the Diamond Valley Lake wave attenuator system
- Completed final design of battery storage systems at the Jensen and Skinner Water Treatment Plants
- Continued Real Property Group Business System Replacement
- Continued WINS Water Billing System Upgrade project

#### Upcoming Activities

Upcoming work for the next quarter will include:

- Go live with the Budget System Replacement System during the 2<sup>nd</sup> quarter of FY2021/22
- Go live with the main site of mwdh2o.com during the 2<sup>nd</sup> quarter of FY2021/22
- Continue file migrations associated with Water System Operations and Chief Financial Office as part of Enterprise Content Management Phase 1
- Award contract for construction of battery storage systems at the Jensen and Skinner Water Treatment Plants

## Cost Efficiency & Productivity Program Battery Energy Storage System

This project will install battery energy storage systems (BESS) at the following three locations: (1) one-megawatt (MW) BESS at the Jensen plant, (2) one-MW BESS at the Skinner plant, and (3) one-MW BESS at the Weymouth plant. The project is eligible for participation in the Self-Generation Incentive Program (SGIP).

Phase	Final Design
% Complete for Current Phase	67%
Final Design Authorized	October 2020
Appropriation Number	15521

The final design was completed for the Jensen and Skinner sites. Construction bid package for the two sites were advertised for construction. In the upcoming quarter, final design will begin for Weymouth and construction contracts will be awarded for the Jensen and Skinner sites.

*Final Design Completion Date  
for Weymouth site:  
November 2021*

*Total Project Estimate:  
\$25.6 million*

*Current Phase Estimate:  
\$1.0 million*

*Cost to Date for Current  
Phase:  
\$0.8 million*



Proposed BESS site location at the Jensen plant

**Estimated Construction****Completion Date:****May 2021****Total Project Estimate:****\$615,000****Current Phase Estimate:****\$400,000****Cost to Date for Current Phase:****\$400,000****Cost Efficiency & Productivity Program  
DVL Wave Attenuator Rehabilitation**

This project will rehabilitate the floating wave attenuator system at Diamond Valley Lake (DVL) by replacing post-tensioned cable tendons that link the reinforced concrete box segments; replacing the polyurethane float spacers that separate and buffer the reinforced box segments; and repair damaged concrete.

Phase	Construction & Closeout
% Complete for Current Phase	100%
Construction Contract Awarded	October 2020
Appropriation Number	15515
Contract Number	1979

The contractor completed construction including alignment of the floating wave attenuator; installation of new post-tensioned cable tendons; and the project was closed out.



Completed wave attenuator with post-tension tendons installed

## Dams and Reservoirs Improvements Program

**Program Information:** The Dams and Reservoirs Improvements Program is composed of projects to upgrade or refurbish Metropolitan's dams, reservoirs, and appurtenant facilities in order to reliably meet water storage needs and regulatory compliance.

**Planned Biennium-to-date Expenditures**  
(July 2020 through June 2021)

\$5.07 million

**Actual Biennium-to-date Expenditures**  
(July 2020 through June 2021)

\$1.75 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

#### Status

Biennium expenditures for this program are less than planned through June 2021 due to differences between the planned and actual start of design.

#### Accomplishments

- Diamond Valley Lake Dam Monitoring System Upgrades
  - Continued to work on Request for Proposals (RFP) for vendors/consultants to install dam real-time monitoring and communications for early warning signs of dam distress
- Lake Mathews and Lake Skinner Dam Monitoring System Upgrades
  - Continued to identify area of need and prioritize instrumentation replacement at both reservoirs
- Lake Skinner Outlet Tower Seismic Upgrade
  - Completed value engineering plan for outlet tower upgrade concepts
- Garvey Reservoir Rehabilitation
  - Continued preliminary design

#### Upcoming Activities

Upcoming work for the next quarter will include:

- Diamond Valley Lake Dam Monitoring System Upgrades
  - Issue an RFP for vendors/consultants of the dam real-time monitoring system
- Garvey Reservoir Rehabilitation
  - Continue preliminary design
- Lake Skinner Outlet Tower Seismic Upgrade
  - Prepare interim dewatering plans
  - Prepare detailed seismic analyses of the outlet tower



### Dams & Reservoirs Improvements Program: Diamond Valley Lake Dam Monitoring System Upgrades

This project will replace the obsolete, increasingly unreliable dam monitoring systems at Diamond Valley Lake (DVL)

#### Estimated Study Completion

Date:

March 2022

#### Total Project Estimate:

\$9.0 million

#### Current Phase Estimate:

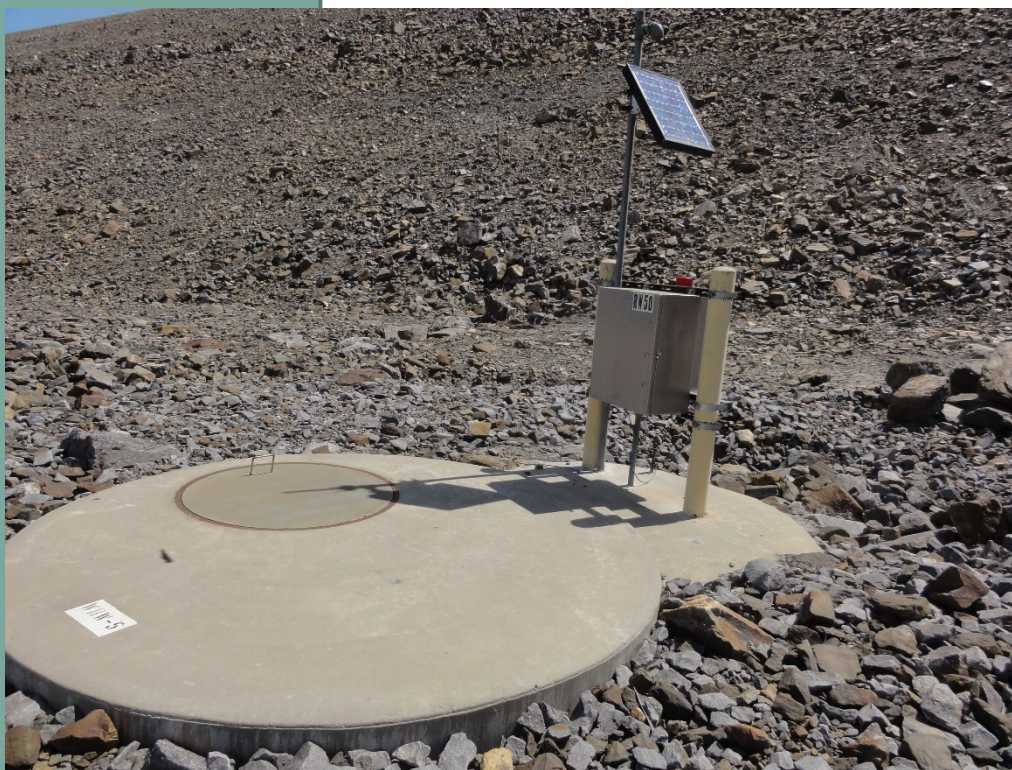
\$2.7 million

#### Cost to Date for Current Phase:

\$1.8 million

Phase	Study
% Complete for Current Phase	70%
Study Authorized	July 2016
Appropriation Number	15419

Criteria were developed and a list of candidate companies was prepared to solicit bids for preliminary design. In the upcoming quarter, comparative analysis of the companies will be performed and workshops will be coordinated with the candidate companies.



Existing Diamond Valley Lake dam monitoring station



## Dams & Reservoirs Improvements Program: Garvey Reservoir Rehabilitation

This project will refurbish aging facilities at the Garvey Reservoir site and restore them to reliable operating condition.

Phase	Preliminary Design
% Complete for Current Phase	10%
Preliminary Design Authorized	March 2021
Appropriation Number	15417

Began and continued preliminary design. In the upcoming quarter, the consultants will complete preliminary design and environmental documentation.

**Estimated Preliminary Design  
Completion Date:**  
June 2022

**Total Project Estimate:**  
\$68.5 million

**Current Phase Estimate:**  
\$3.9 million

**Cost to Date for Current  
Phase:**  
\$0.2 million\*

\*\$0.4 million reported last  
quarter was for the study phase



Bridge to inlet tower at Garvey reservoir

## Distribution System Reliability Program

**Program Information:** The Distribution System Reliability Program is comprised of projects to replace or refurbish existing facilities within Metropolitan’s distribution system, including reservoirs, pressure control structures, hydroelectric power plants, and pipelines, in order to reliably meet water demands.

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$37.01 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$49.82 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

Status	Biennium expenditures for this program are more than the planned expenditures through June 2021 due to differences in timing between planned and actual payments for projects such as the Garvey Reservoir Sodium Hypochlorite Feed System Rehabilitation, Orange County Region Service Center, Middle Feeder Relocation, Sepulveda Feeder/East Valley Feeder Interconnection Electrical Upgrades, Orange County Feeder Relining, and Lakeview Pipeline Relining.
Accomplishments	<ul style="list-style-type: none"> <li>Completed construction of the West Valley Feeder No. 1 De Soto Valve Replacement</li> <li>Completed construction of the Lake Perris Bypass Pipeline Relining</li> <li>Completed construction of Lakeview Pipeline Relining</li> <li>Completed delivery of welded steel pipe for Casa Loma Siphon Barrel No. 1 Seismic Upgrade. Procurement contract will remain open for the fittings which will be manufactured to meet field measurements.</li> </ul>
Upcoming Activities	<p>Upcoming work for the next quarter will include:</p> <ul style="list-style-type: none"> <li>Completed design for the Casa Loma Siphon Barrel No. 1 Seismic Upgrades</li> </ul>

## Distribution System Reliability Program: Lake Perris Bypass Pipeline Relining

This project will reline 1,500 feet of the Lake Perris Bypass Pipeline to support additional load imposed by construction of a levee by Department of Water Resources that will cross over the pipeline.

Phase	Construction & Closeout
% Complete for Construction	100%
Construction Contract Awarded	July 2020
Appropriation Number	15503
Contract Number	1972

The contractor completed relining 1,500 feet of pipeline and placed the pipeline back into service. Activities planned for the upcoming quarter include performing record drawings and project closeout.

**Construction Completion Date:**  
May 2021

**Total Project Estimate:**  
\$6.5 million\*

**Current Phase Estimate:**  
\$6.15 million\*

**Cost to Date for Current Phase:**  
\$6.11 million

\* In May, the total project estimate was revised from \$7.6 million to \$6.5 million and the current phase estimate was revised from \$7.0 million to \$6.11 as anticipated change order issues were resolved.



Closure piece with manway installation on Lake Perris Bypass Pipeline



**Construction Completion Date:**  
May 2021

**Total Project Estimate:**  
\$5.0 million

**Current Phase Estimate:**  
\$4.6 million

**Cost to Date for Current Phase:**  
\$4.3 million

### Distribution System Reliability Program: Lakeview Pipeline Improvements

This project will replace the 60-inch pipe tee-fitting at the Lake Perris Control Facility, and reline a portion of the Lakeview Pipeline at the east portal of the Bernasconi Tunnel.

Phase	Construction & Closeout
% Complete for Construction	100%
Construction Contract Authorized	July 2020
Appropriation Number	15480
Contract Number	1977

Construction was completed and the pipeline was returned to service delivering water from DVL to the Mills plant. Activities planned for the upcoming quarter include performing record drawings and project closeout.



Welding of 133-inch bulkhead on Lakeview Pipeline

## District Housing & Property Improvements Program

**Program Information:** The District Housing & Property Improvements Program is composed of projects to refurbish or upgrade workforce housing at Metropolitan to enhance living conditions to attract and retain skilled employees

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$3.48 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$1.55 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

#### Status

Biennium expenditures for this program are less than planned through June 2021 as additional final site verifications were performed with multiple stakeholders after the conceptual master plan layouts were finalized for all four villages.

#### Accomplishments

- Completed employee village enhancement master planning study for Iron Mountain and Gene Pumping Plants
- Completed conceptual study for kitchen and lodge improvements at Eagle Mountain and Iron Mountain Pumping Plants

#### Upcoming Activities

Upcoming work for the next quarter will include:

- Board authorization to extend an agreement for preliminary design in support of this program
- Initiate geotechnical work and preparation of environmental documentation for preliminary design activities in support of this program
- Complete development of relocation study for housing improvements



## Prestressed Concrete Cylinder Pipe (PCCP) Reliability Program

**Program Information:** The PCCP Reliability Program is composed of projects to refurbish or upgrade Metropolitan’s PCCP feeders to maintain water deliveries without unplanned shutdowns.

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$30.11 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$24.63 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

#### Status

Biennium expenditures for this program are less than the planned expenditures through June 2021 due to a delay in permitting and subsequent rescheduling of construction contract award for Second Lower Feeder Reach 3 to a time when sufficient CIP budget can be committed.

#### Accomplishments

- Second Lower Feeder Reach 3 - Continued design and obtaining preliminary permitting approvals from local agencies; continue shutdown coordination with member agencies
- Second Lower Feeder Reach 2 – Completed manway modifications and demobilization
- Allen-McColloch Pipeline PCCP 2021 Relining – Completed construction
- Sepulveda Feeder Reach 1 - Continued final design and environmental documentation to rehabilitate Sepulveda Feeder Reach 1
- Sepulveda Feeder, Rialto Feeder, Calabasas Feeder and Allen-McColloch Pipeline Preliminary Design - Continued system hydraulic analyses, access portal optimizations, and valve replacement studies

#### Upcoming Activities

Upcoming work for the next quarter will include:

- Second Lower Feeder Reach 2 - Prepare record drawings and project closeout
- Sepulveda Feeder Reach 1 - Continue final design and coordination with local agencies for permit approvals; continue shutdown coordination with member agencies
- Sepulveda Feeder Reach 2 - Begin final design and environmental documentation to rehabilitate Sepulveda Feeder Reach 2
- Second Lower Feeder Isolation Valve Procurement - This procurement contract provides 13 conical plug isolation valves. The first three 48-inch conical valves are scheduled to be delivered by August 2021.

### PCCP Reliability Program: Allen-McColloch Pipeline PCCP 2021 Relining

This project will reline approximately 1,200 feet of PCCP segment on Allen McColloch Pipeline (AMP) located in the city of Irvine. This section of the AMP was prioritized for relining when segments of pipe were identified to have new pre-stressed wire breaks. The section of pipeline in question will be rehabilitated with a new steel liner during a planned shutdown of the pipeline in April 2021.

Phase	Construction & Closeout
% Complete for Construction	100%
Construction Contract Awarded	November 2020
Appropriation Number	15502
Contract Number	1988

The pipeline was shutdown; construction began; and was completed. The pipeline was placed back into service and the contractor demobilized. In the upcoming quarter, record drawings will be prepared and re-seeding efforts will be planned for Q1 of FY2021/22.

**Construction Completion Date:**  
June 2021

**Total Project Estimate:**  
\$5.2 million\*

**Current Phase Estimate:**  
\$4.8 million\*

**Cost to Date for Current Phase:**  
\$4.1 million

\* In June, the total project estimate was revised from \$4.3 million to \$5.2 million and the current phase estimate was revised from \$3.6 million to \$4.8 million for additional labor and fabrication costs incurred during shutdown.



Pipe segment being welded on Allen-McColloch Pipeline

**Construction Completion Date:**  
**June 2021**

**Total Project Estimate:**  
**\$65 million**

**Current Phase Estimate:**  
**\$48.6 million\***

**Cost to Date for Current Phase:**  
**\$48.5 million**

\* \$61.8 million reported last quarter was for the final design, procurement, and construction phases

## PCCP Reliability Program: Second Lower Feeder PCCP Rehabilitation – Reach 2

This project will rehabilitate approximately 4.5 miles of PCCP segments of the Second Lower Feeder - Reach 2 with steel liner.

Phase	Construction & Closeout
% Complete for Construction	100%
Pipe Procurement Contract Awarded	November 2018
Construction Contract Awarded	May 2019
Appropriation Number	15497
Pipe Procurement Contract Number	1925
Construction Contract Number	1902

The contractor completed manway modifications and demobilized. Upcoming activities for the next quarter include preparation of record drawings and project closeout.



Completed manway restoration on Second Lower Feeder Reach 2



## Regional Recycled Water Supply Program

**Program Information:** The Regional Recycled Water Supply Program includes the design and construction of the Advanced Water Treatment Demonstration Plant, which represents the initial step in development of a potential regional recycled water system for recharge of groundwater basins within Southern California.

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$0.21 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$0.18 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

#### Status

Biennium expenditures for this program are consistent with the planned expenditures through June 2021.

#### Accomplishments

- Continued membrane challenge testing which involves cutting the membrane fibers of the membrane bioreactor unit to “challenge” the system, and collecting test results accordingly
- Continued warranty repairs on equipment and post-contract system improvements to enhance safety and operational reliability
- Submitted additional information requested by the State Water Resources Control Board for an invoice to reimburse construction costs as part of the grant funding
- Continued record drawing preparation of the AWT Demonstration Facility
- Issued Request for Proposal and evaluated proposals for selection of an engineering consulting firm to provide services to operate, test, and monitor demonstration facility for next testing phase

#### Upcoming Activities

Upcoming work for the next quarter will include:

- Complete membrane challenge testing for Phase 1 Testing, which includes validating the effectiveness of membranes and combined ultra-violet/Advance Oxidation Process (UV/AOP) to achieve regulatory requirements and reliable operation
- Continue system configuration and site improvements along with engineering support to enhance safety and reliability; optimize on-going testing process; and prepare for next testing phase
- Prepare quarterly report on demonstration testing for State Water Resources Control Board as part of the grant funding requirements
- Finalize record drawings of the AWT Demonstration Facility

## Right-Of-Way and Infrastructure Protection Program

**Program Information:** The Right of Way Infrastructure Protection Program (RWIPP) is comprised of projects to refurbish or upgrade above-ground facilities and right-of-way along Metropolitan’s pipelines in order to address access limitations, erosion-related issues, and security needs.

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$2.40 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$2.47 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

#### Status

Biennium expenditures for this program are consistent with the planned expenditures through June 2021.

#### Accomplishments

- Completed construction at remaining three of the first six sites in the Orange County Region. The initial construction contract for six sites in the Orange County Region is now complete.
- Continued negotiations for rights-of-way for seven additional project sites requiring rights-of-way in the Orange County Region
- Continued negotiations of environmental permits for the Orange County Region project sites that require permits

#### Upcoming Activities

Upcoming work for the next quarter will include:

- Orange County Region – continue final design for the second group of project sites
- Western San Bernardino Region – continue with final design of the first group of project sites



## Right-Of-Way and Infrastructure Protection Program: Erosion-Control Improvements for Six Sites in Orange County Region

This project will construct erosion-control improvements for six sites in the Orange County region.

Phase	Construction & Closeout
% Complete for Construction	100%
Construction Contract Awarded	June 2020
Appropriation Number	15474
Contract Number	1924

Construction was completed at the three remaining project sites. Construction is now complete for all six sites. In the upcoming quarter, record drawings will be prepared and the project will be closed out.



Completed water crossing at Santiago Lateral at Sta. 325+00

**Construction Completion Date:**  
**May 2021**

**Total Project Estimate:**  
**\$1.4 million**

**Current Phase Estimate:**  
**\$1.1 million**

**Cost to Date for Current Phase: \$1.0 million**

## System Flexibility/Supply Reliability Program

**Program Information:** The System Flexibility/Supply Reliability Program is comprised of projects to increase the capacity and flexibility of Metropolitan’s water supply and delivery infrastructure to meet service demands.

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$13.53 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$17.25 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

#### Status

Biennium expenditures for this program are more than the planned expenditures through June 2021 due to differences between the planned and actual start of construction for the Perris Valley Pipeline Tunnels and extra work on the Greg Avenue Pump Station Rehabilitation.

#### Accomplishments

- Completed construction of the Greg Avenue Pump Station Rehabilitation, including the following items:
  - Startup and testing of the pumps
  - Resolution of pressure surge issues discovered during startup and testing

#### Upcoming Activities

Upcoming work for the next quarter will include:

- Continue design of the Perris Valley Pipeline Tunnels
- Continue record surveys of properties associated with the Verbena Land Acquisition

### System Flexibility/Supply Reliability Program: Greg Avenue Pump Station Rehabilitation

This project will improve the reliability of the Greg Avenue Pump Station by replacing the existing pumps, surge tanks, and valves; upgrading key electrical, mechanical, and control equipment; and adding a new electrical control building with electrical equipment at the facility.

Phase	Construction & Closeout
% Complete for Construction	99%
Construction Contract Awarded	February 2019
Appropriation Number	15488
Contract Number	1911

The contractor completed pump testing, completed construction, and demobilized. In the upcoming quarter, preparation of the record drawings will begin.

**Construction Completion Date:**  
June 2021

**Total Project Estimate:**  
\$40.2 million\*

**Current Phase Estimate:**  
\$35.2 million\*

**Cost to Date for Current Phase:**  
\$34.7 million

\* In May, the total project estimate was revised from \$37.0 million to \$40.2 million and the current phase estimate was revised from \$29.7 million to \$35.2 million for increased labor, professional & technical services, and material costs to resolve issues identified during construction and pump start up.



Operational pumps and ancillary equipment at  
Greg Avenue Pump Station

## System Reliability Program

**Program Information:** The System Reliability Program is comprised of projects to improve or modify facilities located throughout Metropolitan’s service area in order to utilize new processes and/or technologies, and improve facility safety and overall reliability. These include projects related to Metropolitan’s Supervisory Control and Data Acquisition (SCADA) system and other Information Technology projects.

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$44.68 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$47.60 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

#### Status

Biennium expenditures for this program are more than the planned expenditures through June 2021 due to accelerated scheduling of the Headquarters Building Improvement Project as the contractor was able to complete construction activities in an expedited manner to take advantage of the lightly occupied building.

#### Accomplishments

- Datacenter Modernization Upgrade – began primary site datacenter telecommunications equipment installation
- Headquarters Building Improvements and Boardroom Technology Upgrade – audiovisual equipment installed and voting system configured
- MWD Cyber Security Upgrade
  - Yubikey, identity usb hardware key – started roll out to all MWD employees
- Lake Mathews IT Disaster Recovery Upgrade – implementation complete
- WiFi Upgrade – completed design for headquarters

#### Upcoming Activities

Upcoming work for the next quarter will include:

- Datacenter Modernization Upgrade – initiate primary site server installation and systems migration
- Headquarters Building Improvements and Boardroom Technology Upgrade – final systems integration testing and acceptance
- Desert Microwave Tower Sites Upgrade Stage 1 – procurement and final design phase scheduled to start by September 2021
- MWD Cyber Security Upgrade - begin implementation of security operational processes
- WiFi Upgrade – La Verne facility design scheduled to begin by August 2021
- Maximo Upgrade – scheduled to go live by September 2021
- Control System Upgrade – receive proposals for Mills site from prime consultant respondents in July 2021
- Initiate final design of Gene Communications System Upgrades



### System Reliability Program: Headquarters Building Improvements

This project will provide seismic strengthening of Metropolitan's Headquarters building, as well as making other necessary upgrades to this 20-year old building.

Phase	Construction & Closeout
% Complete for Current Phase	93%
Construction Contract Authorized	November 2018
Appropriation Number	15473
Contract Number	1905

The contractor completed construction of floors 10 through 12; completed installation of rain screen and kitchen remodel; and removed exterior scaffolding from the building. In the upcoming quarter, the contractor plans to install power door assist at all the exit doors.

*Estimated Construction*

*Completion Date:*

*July 2022*

*Total Project Estimate:*

*\$78.5 million*

*Current Phase Estimate:*

*\$67.2 million*

*Cost to Date for Current  
Phase:*

*\$54.3 million*



Completed exterior of the headquarters building



**Estimated Yubikey  
Deployment Completion Date:**  
September 2021

**Total Project Estimate:**  
\$249,999

**Current Phase Estimate:**  
\$220,000

**Cost to Date for Current  
Phase:**  
\$178,280

### System Reliability Program: Security Operations Center

This project will improve the overall cybersecurity posture of MWD, by implementing a smart card feature to authentication.

Phase	Yubikey Deployment
% Complete for Current Phase	50%
Design and Implementation Authorized	March 2021
Appropriation Number	15378

The office of cybersecurity has implemented security policy changes to prepare for two-factor authentication enforcement. Yubikeys will provide this function and have been delivered to human resources, legal, admin services, ethics, and audit. In the upcoming quarter, an instructional video will be created and all yubikeys will be delivered to the remaining personnel.

- YubiKey plugs into USB
- Login to Computer
  - YubiKey and PIN to authenticate
- User Guide will be provided



Yubikey operating instructions

## Treatment Plant Reliability Program

**Program Information:** The Treatment Plant Reliability Program is comprised of projects to replace or refurbish facilities and components of Metropolitan's five water treatment plants in order to continue to reliably meet treated water demands.

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$48.31 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$56.26 million

#### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

Status	Biennial expenditures for this program are more than planned through June 2021 due to shifts in timing of the work.
Accomplishments	<ul style="list-style-type: none"> <li>• Continued construction of:               <ul style="list-style-type: none"> <li>○ Diemer West Basin &amp; Filter Building Rehabilitation</li> <li>○ Diemer Water Sampling System Improvements</li> <li>○ Jensen Electrical Upgrades - Stage 2</li> <li>○ Weymouth Chlorine System Upgrade</li> <li>○ Weymouth Water Quality Instrumentation Improvements</li> <li>○ Mills Module Nos. 3 and 4 Flash Mix Chemical Containment Upgrades</li> </ul> </li> <li>• Continued procurement of power supply units (PSU) and dielectrics for Jensen ozone generators</li> <li>• Continued final design of:               <ul style="list-style-type: none"> <li>○ Weymouth Basins 5-8 Rehabilitation</li> <li>○ Mills Electrical Upgrades - Stage 2</li> <li>○ Jensen Ozone PSU Replacement</li> </ul> </li> </ul>
Upcoming Activities	<ul style="list-style-type: none"> <li>• Continue construction of:               <ul style="list-style-type: none"> <li>○ Weymouth Chlorine System Upgrade</li> <li>○ Weymouth Water Quality Instrumentation Improvements</li> </ul> </li> <li>• Continue procurement of power supply units and dielectrics for Jensen ozone generators</li> <li>• Complete final design of:               <ul style="list-style-type: none"> <li>○ Jensen Ozone PSU Replacement</li> <li>○ Mills Electrical Upgrades - Stage 2</li> </ul> </li> <li>• Continue construction of:               <ul style="list-style-type: none"> <li>○ Diemer Water Sampling System Improvements</li> <li>○ Jensen Electrical Upgrades - Stage 2</li> <li>○ Mills Module Nos. 3 and 4 Flash Mix Chemical Containment Upgrades</li> </ul> </li> <li>• Continue final design of Weymouth Basins 5-8 Rehabilitation</li> </ul>

### Treatment Plant Reliability Program: Diemer West Basin & Filter Building Rehabilitation

This project will rehabilitate the Diemer Water Treatment Plant's west flocculation/sedimentation basins and filter building. The work includes the replacement of treatment basin equipment, and filter valves, abatement of hazardous materials, and seismic strengthening of the filter building.

Phase	Construction & Closeout
% Complete for Construction	99%
Construction Contract Awarded	October 2018
Appropriation Number	15380
Contract Number	1900

The contractor completed installation, commissioning and testing of all basin equipment, filter valves, and actuators in the west side of the Diemer plant. In the upcoming quarter, the Notice of Completion (NOC) will be filed, record drawings will be prepared and the project will be closed out.



Rehabilitated Diemer west basin returned to service

**Construction Completion Date:**  
July 2021

**Total Project Estimate:**  
\$56.6 million

**Current Phase Estimate:**  
\$44.2 million

**Cost to Date for Current Phase:**  
\$42.3 million

**Construction Completion Date:**  
**October 2021**

**Total Project Estimate:**  
**\$15.6 million**

**Current Phase Estimate:**  
**\$12.8 million**

**Cost to Date for Current Phase:**  
**\$12.1 million**

### **Treatment Plant Reliability Program: Weymouth Chlorination System Upgrades**

This project will upgrade chlorination system for maximum chlorine dosage demand with ozone system operation at maximum plant flow.

Phase	Construction & Closeout
% Complete for Current Phase	92%
Construction Contract Awarded	December 2018
Appropriation Number	15477
Contract Number	1883

The contractor completed installation of all liquid and gas chlorine piping and associated equipments, performed chlorine detector programmable logic controller testing, and completed all other equipment precommissioning activities. In the upcoming quarter, the contractor plans to perform testing and commissioning for the new and existing chlorine systems.



New evaporator and liquid chlorine piping at Weymouth Plant



## Water Quality/Oxidation Retrofit Program

**Program Information:** The Water Quality/Oxidation Retrofit Program (ORP) is comprised of projects to add new facilities to ensure compliance with water quality regulations for treated water, located at Metropolitan’s treatment plants and throughout the distribution system.

### Planned Biennium-to-date Expenditures (July 2020 through June 2021)

\$0.02 million

### Actual Biennium-to-date Expenditures (July 2020 through June 2021)

\$0.30 million

### PROGRAM HIGHLIGHTS (4<sup>th</sup> Quarter)

Status	Biennial expenditures and progress are consistent with the plan for this program
Accomplishments	<ul style="list-style-type: none"> <li>Weymouth Enhanced Bromate Control Facilities – Continued with preparation of record drawings</li> </ul>
Upcoming Activities	<p>Upcoming work for the next quarter will include:</p> <ul style="list-style-type: none"> <li>Weymouth Enhanced Bromate Control Facilities – Complete record drawings and project closeout</li> </ul>



## MINOR CAPITAL PROGRAM

The Minor Capital Projects (Minor Cap) Program is authorized biennially to enable staff to expedite small capital projects. At the commencement of each biennium, the Board had appropriated the entire two-year budget for the program. For the current biennium, the minor cap budget was included in the CIP appropriation. In order to be considered for inclusion in the Minor Cap Program, a project must have a planned budget of less than \$400,000. The \$400,000 project budget cap was first established by the June 2018 board action Item 8-3 and the same cap is applied for the new minor caps that are approved for the current biennium. Prior to that action, the budget cap for minor cap projects was \$250,000.

The duration of minor capital projects typically ranges from a few months to three years. Since many of these projects require rapid response to address unanticipated failures, safety or regulatory compliance concerns, or to take advantage of shutdown opportunities, the Minor Cap Program authorizes the General Manager to execute projects that meet defined criteria without seeking additional board approval.

For the past two bienniums, the two-year budgets for the Minor Cap Program have been \$10 million, and \$15.5 million respectively. In April 2020, the Board appropriated funds for the projects identified in the CIP appendix for the current biennium, FYs 2020/21–2021/22, including the Minor Cap Program. \$10 million has currently been allocated for the current biennium.

### Minor Cap Program Historical Summary

The following table provides the overall status of the Minor Cap appropriations for the fiscal years 2016/17-2017/18 through 2020/21–2021/22.

	Fiscal Year			Totals
	2016/17– 2017/18	2018/19– 2019/20	2020/21– 2021/22	
Amount Appropriated	\$10M	\$15.5M	\$10M	\$35.5M
Expenditures (through June 2021)	\$7.2M	\$9.7M	\$2.2M	\$19.1M
Number of Projects Approved	42	49	29	120
Number of Projects Completed (through June 2021)	38	19	0	57
Percent of Work Complete	97%	74%	26%	N/A
Number of Projects with Durations of Over 3 Years	4	0	0	0

Through June 2021, 57 of the 121 projects have been completed, and four active projects have exceeded three years in duration, as described below.

- Construction schedules of two projects, including the Security Upgrades at Washington Street PCS and Dominguez Pressure Relief Structure project and the Eagle Rock Security Fencing & Lighting project, have been impacted due to delays in permit processing and contractor personnel availability resulting from COVID-19 restrictions. Contractors have been scheduled to complete work by September 2021.
- The Gene Pool Refurbishment has experienced delays due to shortage of local contractors for this type of work due to surge in construction. Staff will continue reaching out to contractors to complete the remaining work by December 2021.
- Recent inspections of the San Diego Canal revealed that the concrete liner repairs required for the canal will require more work which exceed the scope authorized under a minor capital project. The San Diego Canal repairs are now scheduled to be addressed within a major capital project.

Planned biennium expenditures to date (July 2020 through June 2021) for the Minor Capital Projects Program were \$3.78 million, while actual biennium expenditures for the same period were \$6.69 million.

## Minor Cap Projects, 4<sup>th</sup> Quarter

### Authorized Projects

Six projects were authorized under the Minor Cap Program during the 4<sup>th</sup> Quarter of fiscal year 2020/21 (April through June 2021):

- DVL Inlet/Outlet Tower UPS Replacement – This project will replace the existing uninterruptable power supply unit for the DVL Inlet/Outlet Tower electrical system, which has deteriorated beyond repair. The project budget is \$190,000.
- Jensen Chlorine Railcar Scale – This project will procure one set of railcar scales and install it at the Jensen plant's chlorine railcar storage bays to increase operational reliability of the chlorine system and provide more accurate chlorine inventory readings. The project budget is \$380,000.
- Live Oak Reservoir Liner Rehabilitation – This project will remove and replace 6,000 square feet of deteriorated asphalt liner on the floor of the Live Oak Reservoir. The project budget is \$340,000.
- OC-88 Surge Tank Recirculation System Upgrade – This project will modify surge tank manifolds and install a recirculation pump to increase the frequency of water turnover in the tanks at the OC-88 pump station. This modification will allow the water in the tanks to be returned to the distribution system rather than manually drained and discharged. The project budget is \$195,000.

- San Diego Canal Dewatering Sump Upgrade – This project will install a 3-foot-long by 4-foot-deep pre-cast concrete sump in the San Diego Canal near radial gate V-06 to enhance dewatering efficiency during shutdowns. The project budget is \$135,000.
- Skinner Emergency Eyewash Shower Station Improvements – This project will replace deteriorated pressure reducing valves for 14 emergency eyewash and shower stations in the chemical tank farms at the Skinner plant. The project budget is \$148,000.

**Completed Projects**

Six projects were completed under the Minor Cap Program during the 4<sup>th</sup> Quarter of fiscal year 2020/21 (April through June 2021):

- Eagle Mountain Pool Refurbishment
- Intake Bank 2 Phase C Transformer Rehabilitation
- Iron Mountain 230kV Facility Physical Security Controls
- Mills Electrical Building 3 & 4 Air Conditioning System Improvements
- OC-13A & WR-34 Flowmeter Replacement
- Sedalia Property Grading & Drainage Improvements

**Cancelled Projects**

None

## PROJECT ACTIONS

Table 5 lists capital project actions authorized by the Board and the General Manager along with funding allocation amounts during the 4<sup>th</sup> Quarter of FY 2020/21, through the authority delegated by the Board in April 2020. The total funding amount authorized by the General Manager during the 4<sup>th</sup> Quarter is \$26,750,480, through thirty management actions. In some cases listed below, the Total Amount Authorized may differ from the Amount Authorized for Current Biennium when the work authorized is scheduled to extend beyond the current biennium. In these cases, it is anticipated that staff will request sufficient funds to be allocated from the CIP Appropriation for the next biennium to cover the planned remaining future-year costs of the project. When the Amount Authorized for Current Biennium is equal to the Total Amount Authorized, the authorized work is planned to be completed within the current biennium. Table 5 excludes any board items heard in closed session.

*Table 5: Capital Projects Funded by General Manager Authorization*

Project Authorized	Activity Authorized	Amount Authorized for Current Biennium	Total Amount Authorized
Appian Way Valve Replacement	Study	\$50,000	\$50,000
CRA Main Pump Rehabilitation (Stage 1) - Preliminary Investigations	Initiation of Building Information Modeling	\$130,000	\$130,000
CRA Main Transformer Refurbishment	Preliminary Design	\$5,300,000	\$5,300,000
CRA Mile 12 Flow Monitoring Station Upgrades	Construction	\$3,900,000	\$3,900,000
Desert Housing Improvements	Geotechnical Investigation & Environmental Documentation	\$2,550,000	\$2,850,000
Diemer Power and Distribution Panel Upgrades	Final Design	\$170,000	\$170,000
East Lake Skinner Bypass and Bypass No. 2 Screening Structure Upgrade	Preliminary Design	\$290,000	\$290,000
Fuel Management System Upgrade	Design, Development, & Deployment	\$840,480	\$1,450,000
Hydroelectric Plant Rehabilitation	Study	\$875,000	\$875,000
Mills Maintenance Building Roof Replacement	Preliminary Design & Final Design	\$118,000	\$118,000
Mills Ozone Generator PLC Control & Communication Equipment Upgrade	Final Design & Communication Equipment Procurement	\$538,000	\$538,000

Project Authorized	Activity Authorized	Amount Authorized for Current Biennium	Total Amount Authorized
New Jensen Caustic Soda Tank Farm at the Combined Filter Effluent	Study	\$190,000	\$190,000
San Diego and Auld Valley Canals Concrete Liner Repair	Preliminary Design	\$650,000	\$650,000
San Diego Pipelines 3 and 5 Vacuum Valve Replacement	Construction	\$465,000	\$465,000
Seven Minor Capital Projects	Design & Construction	\$1,754,000	\$1,754,000
Water Information System	Design, Development, & Deployment	\$3,000,000	\$4,175,000
Weymouth Hazardous Waste and Containment	Final Design	\$420,000	\$420,000
	<b>Total</b>	<b>\$21,240,480</b>	<b>\$23,325,000</b>

Table 6 lists projects that received additional funds for change orders from the CIP Appropriation for Fiscal Years 2020/21 and 2021/22, Appropriation No. 15517, during the 4<sup>th</sup> Quarter to complete authorized work. Reasons for these allocations include: comprehensive study, revisions to the final design package, additional workshops and design review, and upgrades that were necessary to accommodate the new equipment and enclosure requirement; additional evaluation of options needed to establish project requirements; increased construction cost due to COVID-19 delays; unexpected construction changes as a result of pump movement at the flexible coupling; additional costs to develop and implement enhancements to service catalog of ServiceNow; additional storage funding for delay in installation of pre-purchased equipment; and increased cost due to delays in final design.



Table 6: General Manager Actions for Change Orders to Allocate Funds from Appropriation 15517

Project	Activity Authorized	Amount Authorized for Current Biennium	Total Amount Authorized
108th Street Pressure Control Structure Valve Replacement	Study	\$375,000	\$375,000
CRA Domestic Water Treatment System Replacement	Final Design	\$1,100,000	\$1,100,000
CRA Pumping Plant Wastewater System Replacement	Study	\$265,000	\$265,000
Greg Avenue Pump Station Rehabilitation	Construction	\$3,250,000	\$3,250,000
IT Service Management System	Design, Development, & Deployment	\$100,000	\$100,000
La Verne Machine and Fabrication Shop Equipment Design and Procurement	Procurement	\$250,000	\$337,600
La Verne Shops - Stage 4 Buildings Completion & Equipment Procurement	Final Design	\$170,000	\$250,000
<b>Total:</b>		<b>\$5,510,000</b>	<b>\$5,677,600</b>

## **CEQA DETERMINATIONS**

Consistent with CEQA, the Board delegated this authority to the General Manager in April 2020. Adoption of Negative Declarations and Mitigated Negative Declarations, and certification of Environmental Impact Reports will continue to require action by Metropolitan's Board. Other than those capital projects that were presented to the Board, no CEQA exemption determinations were made by the General Manager during the 4<sup>th</sup> Quarter. This excludes information on board items heard in closed session.

## CONSTRUCTION AND PROCUREMENT CONTRACTS

The table below summarizes the status of all active construction and procurement contracts that were awarded by the Board during the reporting quarter. Total contract earnings for the 4<sup>th</sup> Quarter were approximately \$20,672,643.

*Table 7: Summary of Construction and Procurement Contracts during 4<sup>th</sup> Quarter  
(April through June 2021)*

Summary	Construction	Procurement
Number of Contracts Active during this Quarter <sup>2</sup>	23	14
Total Contract Amount of Active Contracts	\$323,363,259	\$60,491,942
Number of Contracts Completed this Quarter <sup>3</sup>	8	0
Number of Contracts Awarded this Quarter	1	0
Total Contract Amount of Contracts Awarded this Quarter	\$2,022,000	\$0
Contract Earnings <sup>4, 5, 6</sup> this Quarter	\$20,202,332	\$470,311

The figures on the next two pages show the locations of the twenty-four active construction contracts during the 4<sup>th</sup> quarter.

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- <sup>2</sup> Number of Contracts Active during this Quarter includes those that were underway as well as those that were completed during the 4<sup>th</sup> Quarter.
- <sup>3</sup> Completed construction contracts are those which Metropolitan has accepted as physically complete and has filed Notice of Completion during the 4<sup>th</sup> Quarter. Completed procurement contracts are those which Metropolitan has received complete delivery and use of field services during the 4<sup>th</sup> Quarter. No procurement contracts have been completed during the 4<sup>th</sup> Quarter.
- <sup>4</sup> Contract earnings reflected in this report represent the value of the work performed by the contractor by the 25<sup>th</sup> day of the month. Contract earnings include contract retention and other similar deductions for the amounts earned by the contractor, but otherwise required to be withheld by Metropolitan by law or by contract.
- <sup>5</sup> Contract payments are typically made by Metropolitan in the month following performance of the work.
- <sup>6</sup> For the reasons listed above in the preceding two footnotes, contract payments in Metropolitan's financial system may be less than the earnings until the final payment has been made to the contractor.







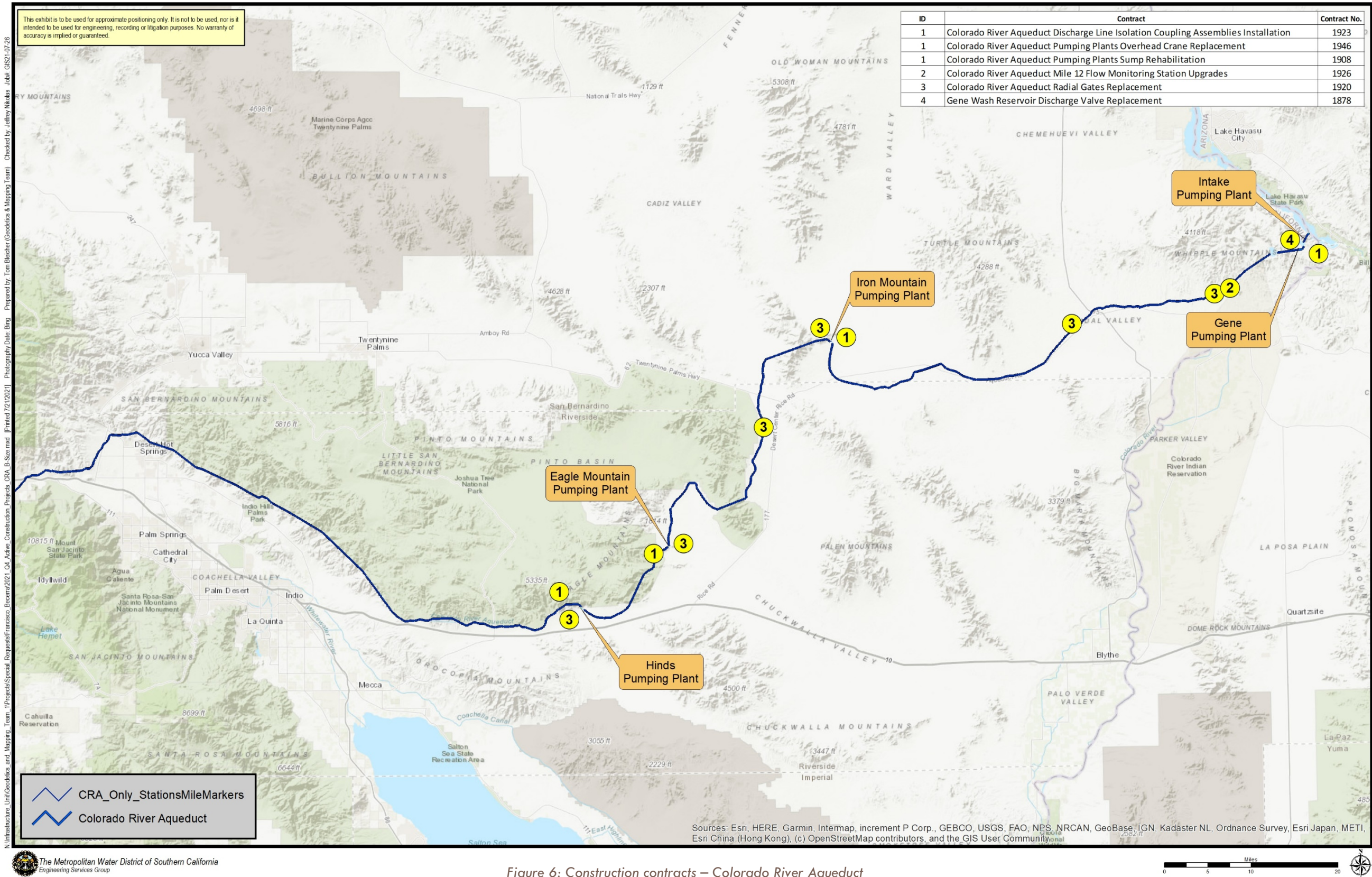


Figure 6: Construction contracts – Colorado River Aqueduct



Metropolitan's Administrative Code authorizes the General Manager to execute change orders on construction contracts in an aggregate amount not to exceed five percent of the original amount of the contract or \$250,000, whichever is greater. If changes occur on a construction contract that will exceed this total, additional authorization from the Board is required. In addition, the General Manager is authorized to execute change orders on procurement contracts in an amount not to exceed \$250,000. In the 4<sup>th</sup> Quarter, the Board authorized an increase of \$200,000 in change order authority for the construction contract to rehabilitate the Greg Avenue Pump Station.

#### **Notices of Completion during 4<sup>th</sup> Quarter:**

The following table shows the eight contracts for which Metropolitan accepted the contract as completed during the 4<sup>th</sup> Quarter of FY 2020/21 and filed a Notice of Completion (NOC) with the county where the work was performed. In accordance with Section 9204 of the Civil Code of the State of California, an NOC is filed within 15 days of acceptance by Metropolitan of completion of construction by the contractor.

*Table 8: Notices of Completion Filed This Quarter*

Contract No.	Contract	Notice of Completion	Original Bid Amount	Final Contract Costs	Change Order	Change Order %
1923	Colorado River Aqueduct Discharge Line Isolation Couplings and Bulkheads Installation	May 2021	\$32,946,000	\$32,946,000	\$0	0%
1924	OC Region Pipelines - ROW Infrastructure Protection Program Phase I	May 2021	\$429,295	\$570,908	\$141,613	33.0%
1972	Lake Perris Bypass Pipeline Relining	May 2021	\$5,410,000	\$5,410,000	\$0	0%
1977	Lakeview Pipeline Improvements	May 2021	\$3,270,000	\$3,486,674	\$216,674	6.6%
1979	Diamond Valley Lake Floating Wave Attenuator Repair	May 2021	\$276,373	*	*	*
1988	Allen-McColloch Pipeline PCCP 2021 Relining	May 2021	\$2,435,000	\$2,452,375	\$17,375	0.7%
1902 <sup>7</sup>	Second Lower Feeder PCCP Rehabilitation - Reach 2	June 2021	\$53,273,196	\$58,063,181	\$4,789,985	9.0%
1911	Greg Avenue Pressure Control Structure - Pump Modification and New Control Building	June 2021	\$20,975,000	*	*	*
<b>Totals:</b>			<b>\$119,014,864</b>			

<sup>7</sup> Total change order amount for Contract 1902 of 4,789,985 includes \$5,797,691 for the construction of Second Lower Feeder PCCP Rehabilitation - Reach 8 and net credit of \$1,007,706 for the Reach 2 portion.

For the 4<sup>th</sup> Quarter, the total amount of completed contracts was approximately \$119 million. For the Contract Numbers 1979 and 1911, although a Notice of Completion were filed during the reporting quarter, the final contract cost and change order amount are unknown due to outstanding pending issues. Final contract costs shown represent actual earnings as of the end of the quarter and may be refined based on resolution of pending issues subsequent to the completion date.

The final contract costs can differ from the original bid amount due to change orders and actual costs incurred on unit price or other various bid items. The rolling average of change orders on completed contracts during the preceding 12-month period (July 2020 through June 2021) is 1.12 percent<sup>8</sup>. Contract work on Second Lower Feeder PCCP Rehabilitation - Reach 8 was performed as an owner directed change to the Reach 2 contract and was excluded from the rolling average calculation.

#### **Contracts Awarded during 4<sup>th</sup> Quarter:**

During the period of April through June 2021, one construction contract totaling \$2,022,000 was awarded by the Board.

*Table 9: Construction Contracts Awarded This Quarter*

<b>Construction Contracts</b>	
<b>CRA Mile 12 Flow Monitoring Station Upgrades</b>	
Contract Number	1926
Contractor	R2Build Engineering dba R2Build
Amount	\$2,022,000

<sup>8</sup> Original amount of contracts completed (July 2020 through June 2021)	=	\$160,554,359
Change orders for completed contracts (July 2020 through June 2021)	=	\$1,795,324
Change order percentage for (July 2020 through June 2021)	=	1.12%

The table on this page lists the 15 ongoing construction contracts through the end of the 4<sup>th</sup> Quarter. Metropolitan is negotiating a settlement with the contractor on Construction Contract No. 1908 to remove the remaining construction portion of the contract, which was suspended due to Metropolitan's response to COVID-19. As part of the settlement, Metropolitan is procuring materials and equipment from the contractor for a future construction contract.

*Table 10: Active Construction Contracts at the End of 4<sup>th</sup> Quarter*

	Cont. No.	Contract Title	Contractor	Contract Amount <sup>9</sup>	Earnings Through June 2021	Start Date	Est. Completion Date	Est. Percent Complete
1	1884	Garvey Reservoir Sodium Hypochlorite Feed System Upgrades	Metro Builders & Engineers Group, Ltd.	\$2,418,149	\$61,250	4/9/21	7/22	3%
2	1878	Gene Wash Reservoir Discharge Valve Replacement	Gracon, LLC	\$5,319,066	\$2,302,659	1/21/20	11/21	43%
3	1883	F. E. Weymouth Water Treatment Plant Chlorination Systems Upgrades	J.F. Shea Construction, Inc.	\$8,726,530	\$8,180,099	1/28/19	10/21	93%
4	1900	Diemer Water Treatment Plant West Basin and Filter Building Rehabilitation	Environmental Construction, Inc.	\$39,878,691	\$39,818,691	11/13/18	7/21	99%
5	1905	Metropolitan Headquarters Building Improvements	Bernards Bros. Inc.	\$48,732,099	\$48,524,905	1/14/19	7/22	93%
6	1908	CRA Pumping Plants – Sump Rehabilitation	Michels Corp dba Michels Pipeline Construction	\$26,921,840	\$5,388,610	1/24/19	7/22	20%
7	1914	Joseph Jensen Water Treatment Plant Electrical Upgrade - Stage 2	Helix Electric, Inc.	\$15,087,406	\$12,483,886	8/14/19	8/22	83%
8	1920	Colorado River Aqueduct - Installation of Radial Gates at Seven Facilities	McMillen, LLC dba McMillen Jacobs Associates	\$10,501,211	\$10,456,211	9/18/19	8/21	99%
9	1921	F. E. Weymouth Water Treatment Plant Water Quality Instrumentation Improvements	Mehta Mechanical Company, Inc. dba MMC, Inc.	\$2,973,077	\$2,873,402	9/16/19	8/21	97%
10	1926	CRA Mile 12 Flow Monitoring Station Upgrades	R2 Engineering dba R2Build	\$2,022,000	\$0	6/16/21	7/22	0%

<sup>9</sup> The Contract Amount may differ from the original bid amount due to periodic change orders approved by the General Manager or, if required, by the Board.

	Conf. No.	Contract Title	Contractor	Contract Amount <sup>9</sup>	Earnings Through June 2021	Start Date	Est. Completion Date	Est. Percent Complete
11	1938	MWD HQ Bldg. Physical Security Improvements	Bernards Bros. Inc.	\$5,843,525	\$2,277,501	9/22/20	7/22	39%
12	1945	Lake Mathews IT Disaster Recovery Facility Upgrades	MCL Constructors, Inc.	\$448,900	\$179,140	2/10/21	10/21	40%
13	1946	Colorado River Aqueduct Pumping Plants - Overhead Crane Replacement	J.F. Shea Construction, Inc.	\$13,419,000	\$347,300	10/14/20	9/23	3%
14	1962	MWD HQ Building Fire Alarm & Smoke Control Improvements	Bernards Bros. Inc.	\$13,999,000	\$2,018,650	9/24/20	3/22	14%
15	1970	Garvey Reservoir Drainage and Erosion Improvements - Areas 6, 7, 8, 10, and 11	Kaveh Engineering & Construction, Inc	\$1,294,800	\$774,830	11/20/20	11/21	60%
Total contract value for active construction contracts:				\$197,585,294				



The following table lists the 14 ongoing procurement contracts through the end of the 4<sup>th</sup> Quarter.

*Table 11: Active Procurement Contracts at the End of 4<sup>th</sup> Quarter*

Cont. No.	Contract	Contractor	Contract Amount <sup>10</sup>	Earnings Through June 2021	Start Date	Est. Delivery Completion Date	Est. Percent Complete <sup>11</sup>
1 1851	Furnishing Horizontal Axially Split Centrifugal Pumps for the Greg Avenue Pump Station	Xylem Water Solutions U.S.A., Inc.	\$1,492,290	\$1,255,332	5/16/17	D <sup>12</sup>	87%
2 1861	Furnishing Lubricated Plug Valves for Second Lower Feeder	Southwest Valve & Equipment, Inc.	\$2,380,909	\$2,362,968	9/11/17	D <sup>12</sup>	99%
3 1867 <sup>13</sup>	Furnishing Butterfly Valves for the Weymouth Water Treatment Plant – Schedule 1	Crispin Valve, LLC	\$5,016,067	\$200,857	12/18/17	12/22	4%
4 1868	Furnishing Butterfly Valves for the Weymouth Water Treatment Plant – Schedule 2	DeZurick, Inc.	\$771,984	\$760,384	12/18/17	1/22	98%
5 1873	Furnishing One Hydraulic Shear System for the La Verne Maintenance Shops	Landmark Solutions, LLC	\$151,870	\$146,970	3/21/18	D <sup>12</sup>	97%
6 1912	Furnishing Large-Diameter Conical Plug Valves	Ebara Corporation	\$23,750,060	\$4,529,186	12/24/18	6/23	19%
7 1922	Furnishing One Double Column Vertical Machining Center for the La Verne Maintenance Shops	Gosiger Machine Tools, LLC (Gosiger West)	\$2,193,356	\$2,072,295	9/17/18	D <sup>12</sup>	94%
8 1948	Refurbishing Valve Actuators for the Diemer Water Treatment Plant	Flowserve Limatorque	\$3,532,700	\$1,446,889	2/16/19	9/21	41%
9 1955	Furnishing Membrane Filtration Systems for the CRA Domestic Water Treatment Systems	Wigen Water Technologies	\$1,206,535	\$0	5/28/20	7/25	0%
10 1965	Furnishing Equipment for the Jensen Ozone Power Supply Units Upgrades	Suez Treatment Solutions, Inc.	\$4,100,000	\$354,309	3/30/20	3/22	9%

<sup>10</sup> The Contract Amount may differ from the original bid amount due to periodic change orders approved by the General Manager or, if required, by the Board.

<sup>11</sup> Estimated Percent Complete is based on contract payments and may not reflect actual progress of fabrication. The contract will be 100% complete upon delivery of fabricated items and field services.

<sup>12</sup> All items were delivered but contract remains open pending use of manufacturer field services.

<sup>13</sup> Contract 1867 includes tariff and work on Furnishing Butterfly Valves for the Weymouth Water Treatment Plant - Schedule 1 per extra work directed in the November 2020 Board Letter, Item 7-1.

	Cont. No.	Contract	Contractor	Contract Amount <sup>10</sup>	Earnings Through June 2021	Start Date	Est. Delivery Com- pletion Date	Est. Percent Complete <sup>11</sup>
11	1968	Furnishing Earthquake-Resistant Ductile Iron Pipe for the Casa Loma Siphon Barrel No. 1	Kubota Corporation	\$9,237,782	\$9,021,862	2/12/20	D <sup>12</sup>	98%
12	1969	Furnishing Inlet Valve Gearboxes for Skinner Module No. 7	R&B Automation, Inc.	\$192,185	\$0	4/29/20	9/21	0%
13	1978	Furnishing Steel Pipe for the Casa Loma Siphon Barrel No. 1	Northwest Pipe Company	\$6,134,208	\$5,365,992	1/16/20	12/23	87%
14	PO 188 876	Furnish Two Sodium Hypochlorite Storage Tanks to Replace Existing Tanks at Lake Mathews	Pacific Mechanical Supply	\$331,996	\$0	5/20/19	8/21	0%
Total contract value for active procurement contracts:				\$60,491,942				

## **PERFORMANCE METRICS**

In order to measure project performance efficiency and to identify areas for continuous improvements, Metropolitan's Engineering Services Group has established two primary performance metrics for projects that will result in construction activities. These metrics serve as performance targets for Metropolitan staff for both final design and inspection activities. The inspection metric includes fabrication and construction inspection, as well as construction management services.

Separate performance targets have been established for two categories of project size; those with projected construction costs greater than \$3 million, and those with projected construction costs less than \$3 million.

Metropolitan's **performance metric targets** for the two categories of construction projects are listed below:

Project Category	Final Design, % of Construction	Inspection % of Construction
Projects with Construction Costs > \$3 Million	9% to 12%	9% to 12%
Projects with Construction Costs < \$3 Million	9% to 15%	9% to 15%

Prior to proceeding with final design or construction, budgets are established for design and inspection that best provide a quality and timely product. Efforts are made to optimize staff and consultant hours based on project complexity and location. The calculated values for the design and inspection costs, as a percentage of total construction costs, in almost all cases lie within or below the metric target ranges. In rare cases, the calculated values may exceed the metric target ranges.

Once a project phase is complete, either final design or construction, staff's performance against these metrics is then calculated and compared to the target metrics. Table 13 and Table 14 on the following page summarize the comparison between the target metrics and the actual performance metrics for each project category for the current reporting period. In cases where the actual performance exceeded the target metric, explanations for the variance are provided. Actual performance for in-house construction projects and minor capital projects are not reported in this section, since the efforts required for final design and inspection are different.

Table 12: Performance Metric Actuals, Projects &gt; \$3 Million

Project	Metric	Actual Cost of Metric	Construction Cost	Target Range	Actual %
Allen-McColloch Pipeline PCCP 2021 Relining	Inspection	\$249,000	\$4,100,000	9-12%	6.1%
Colorado River Aqueduct Mile 12 Flow Monitoring Station Upgrades	Final Design	\$627,339	\$2,964,000	9-12%	21.2% <sup>14</sup>
CRA Discharge Line Isolation Couplings Assemblies	Inspection	\$1,297,889	\$33,572,690	9-12%	3.9%
Greg Avenue Pump Station Rehabilitation	Inspection	\$3,187,818	\$24,833,506	9-12%	12.8% <sup>15</sup>
Lake Perris Bypass Pipeline Relining	Inspection	\$185,470	\$5,412,489	9-12%	3.4%
Lakeview Pipeline Improvements	Inspection	\$288,169	\$3,666,413	9-12%	7.9%
Second Lower Feeder PCCP Rehabilitation Reach 2	Inspection	\$2,416,675	\$54,726,947	9-12%	4.4%

<sup>14</sup> Final design costs for CRA Mile 12 Flow Monitoring Station Upgrades were higher than the target range due to repackaging the design from in-house construction to construction by contractor and re-advertising the bid package after rejecting all bids. Late stage design changes such as adding enhanced security features and control system upgrades impacted design efforts as well. In addition, the favorable bid came in significantly lower than the engineer's estimate, which increased the actual percentage.

<sup>15</sup> Inspection costs for Greg Avenue Pump Station Rehabilitation were higher than the target range due to longer than anticipated time to complete construction, which required additional inspection. The construction delays were mainly due to unanticipated discovery of higher water pressure within the suction and discharge portions of the pipeline during the startup testing of the pumps, which required design, fabrication, and installation of additional valves, pipes, and surge tanks to mitigate the pressure surge.

Table 13: Performance Metric Actuals, Projects &lt; \$3 Million

Project	Metric	Actual Cost of Metric	Construction Cost	Target Range	Actual %
Erosion-Control Improvements for Six Sites in Orange County Region	Inspection	\$104,842	\$628,663	9-15%	16.7% <sup>16</sup>
Diamond Valley Lake Floating Wave Attenuator	Inspection	\$27,590	\$247,600	9-15%	11.1%

<sup>16</sup> Inspection costs for Erosion-Control Improvements for Six Sites in Orange County Region were higher than the target range due to multiple remote locations that were under construction at the same time and long travel distance between the work sites as disclosed in the June 2020 Board letter, Item 7-5.



## **SERVICE CONNECTIONS AND RELOCATIONS**

### **Service Connections**

No new agreements for service connections were approved by the General Manager pursuant to Sections 4700-4708 during the reporting period (April through June 2021).

### **Relocations**

No new relocation agreements involving an amount in excess of \$100,000 were approved under the authority of Section 8122(c) during the reporting period.

## **PROJECTS EXPENSED TO OVERHEAD**

There are no expensed projects to report during the fourth quarter of fiscal year 2020/21 (April through June 2021).

## PROGRAM/APPROPRIATION STATUS

The following table provides the program and appropriation level budget versus cost-to-date and biennium planned expenditures versus actuals-to-date.

Table 14: Program and Appropriation Budget vs. Cost and Planned Expenditures vs. Actuals

Capital Programs/Appropriations	Appn. No.	Total to Date		Biennium to Date	
		Appn. Amount (\$1,000's)	Costs thru June 2021 (\$1,000's)	Biennium to Date Planned Expenditures (\$1,000's)	Biennium Actual Expenditures (\$1,000's)
<b>Colorado River Aqueduct Reliability Program</b>	<b>Total</b>	<b>\$447,357</b>	<b>\$363,783</b>	<b>\$55,000</b>	<b>\$47,993</b>
Cabazon Radial Gate Facility Improvements	15320	\$716	\$646	\$0	\$20
White Water Siphon Protection <sup>17</sup>	15341	\$15,585	\$14,490	\$0	\$0
CRA - Conveyance Reliability	15373	\$117,828	\$110,781	\$6,705	\$3,284
CRA - Electrical/Power Systems Reliability	15384	\$55,765	\$44,434	\$2,421	\$3,595
CRA – Discharge Containment	15385	\$8,129	\$7,908	\$0	\$329
CRA - Reliability for FY2006/07 through FY2011/12	15438	\$147,734	\$108,294	\$19,189	\$13,511
CRA Main Pump Reliability	15481	\$65,730	\$48,069	\$23,298	\$20,447
CRA - Reliability for FY2012/13 through FY2017/18	15483	\$31,227	\$26,354	\$3,377	\$5,226
CRA - Reliability for FY2018/19 through FY2023/24	15507	\$4,643	\$2,806	\$10	\$1,581

<sup>17</sup> \$2.8 million reimbursement from Federal Emergency Management Agency (FEMA) for construction of Whitewater Erosion Protection Structure Rehabilitation was credited in Q4 of FY 2020/21. The credited work was completed prior to the current biennium and has been reversed in this table to account all capital work performed in the current biennium.

Capital Programs/Appropriations	Appn. No.	Total to Date		Biennium to Date	
		Appn. Amount (\$1,000's)	Costs thru June 2021 (\$1,000's)	Biennium to Date Planned Expenditures (\$1,000's)	Biennium Actual Expenditures (\$1,000's)
<b>Cost Efficiency &amp; Productivity Program</b>	<b>Total</b>	<b>\$210,333</b>	<b>\$175,486</b>	<b>\$6,705</b>	<b>\$5,020</b>
DVL Recreation Facilities <sup>18</sup>	15334	\$87,004	\$63,821	\$925	-\$100
Power Reliability and Energy Conservation	15391	\$54,795	\$52,842	\$0	\$0
Information Technology System - Business, Finance, and HR	15411	\$22,468	\$22,387	\$11	\$47
Yorba Linda Power Plant Modifications	15446	\$17,125	\$17,050	\$30	\$37
Business Operations Improvement	15484	\$15,396	\$8,081	\$5,396	\$1,395
Project Controls and Reporting System	15490	\$6,440	\$6,288	\$0	\$334
Enterprise Content Management	15500	\$3,600	\$2,602	\$93	\$1,001
DVL Recreation Rehabilitation & Refurbishment	15515	\$1,030	\$700	\$250	\$591
Energy Sustainability Improvements	15521	\$2,475	\$1,717	\$0	\$1,717
<b>Dams and Reservoirs Reliability Program</b>	<b>Total</b>	<b>\$72,554</b>	<b>\$62,941</b>	<b>\$5,100</b>	<b>\$1,753</b>
Reservoir Cover and Replacement	15417	\$61,614	\$53,816	\$3,052	\$1,300
Dam Rehabilitation & Safety Improvements	15419	\$10,940	\$9,125	\$2,048	\$453
<b>Distribution System Reliability Program</b>	<b>Total</b>	<b>\$372,605</b>	<b>\$336,409</b>	<b>\$37,200</b>	<b>\$49,819</b>
Conveyance and Distribution System - Rehabilitation	15377	\$102,686	\$96,590	\$9,466	\$3,148
Conveyance and Distribution System - Rehabilitation for FY2006/07 through FY2011/12	15441	\$110,299	\$105,361	\$1,558	\$1,845
Hydroelectric Power Plant Improvements	15458	\$19,378	\$16,225	\$72	\$1,521
Conveyance and Distribution System - Rehabilitation for FY2012/13 through FY2017/18	15480	\$117,607	\$103,844	\$15,759	\$32,964
Pipeline Rehabilitation and Replacement	15482	\$1,143	\$1,010	\$0	\$806
Conveyance and Distribution System - Rehabilitation for FY2018/19 through FY2023/24	15503	\$21,492	\$13,377	\$10,344	\$9,534

<sup>18</sup> Approximately \$107K was credited from the sales of DVL properties per the November 2005 Board Letter, Item 7-3 and the March 2020 Board Letters, Item 8-2 in Q4 of FY 2020/21.

Capital Programs/Appropriations	Appn. No.	Total to Date		Biennium to Date	
		Appn. Amount (\$1,000's)	Costs thru June 2021 (\$1,000's)	Biennium to Date Planned Expenditures (\$1,000's)	Biennium Actual Expenditures (\$1,000's)
<b>District Housing &amp; Property Improvements Program</b>	<b>Total</b>	<b>\$5,607</b>	<b>\$2,478</b>	<b>\$3,500</b>	<b>\$1,549</b>
Employee Village Enhancement	15513	\$5,607	\$2,478	\$3,500	\$1,549
<b>Minor Capital Projects Program</b>	<b>Total</b>	<b>\$43,500</b>	<b>\$25,760</b>	<b>\$3,800</b>	<b>\$6,692</b>
Capital Program for Projects Costing Less Than \$250,000 for FY2014/15 through FY2015/16	15489	\$8,000	\$6,709	\$0	\$16
Capital Program for Projects Costing Less Than \$250,000 for FY2016/17 through FY2017/18	15498	\$10,000	\$7,205	\$353	\$446
Capital Program for Projects Costing Less Than \$400,000 for FY2018/19 through FY2019/20	15504	\$15,500	\$9,696	\$1,419	\$4,080
Capital Program for Projects Costing Less Than \$400,000 for FY2020/21 through FY2021/22	15518	\$10,000	\$2,151	\$2,028	\$2,151
<b>Prestressed Concrete Cylinder Pipe Rehabilitation Program</b>	<b>Total</b>	<b>\$307,732</b>	<b>\$244,881</b>	<b>\$30,260</b>	<b>\$24,631</b>
PCCP Rehabilitation and Replacement	15471	\$24,243	\$21,601	\$1,200	\$1,144
Sepulveda Feeder PCCP Rehabilitation	15496	\$28,470	\$24,819	\$375	\$1,793
Second Lower Feeder PCCP Rehabilitation	15497	\$239,887	\$189,157	\$26,900	\$15,528
Allen-McColloch Pipeline, Calabasas Feeder, and Rialto Pipeline PCCP Rehabilitation	15502	\$15,132	\$9,303	\$1,785	\$6,166
<b>Regional Recycled Water Supply Program</b>	<b>Total</b>	<b>\$22,150</b>	<b>\$21,106</b>	<b>\$210</b>	<b>\$178</b>
Demonstration-Scale Recycled Water Treatment Plant <sup>19</sup>	15493	\$22,150	\$21,106	\$210	\$178
<b>Right of Way &amp; Infrastructure Protection Program</b>	<b>Total</b>	<b>\$29,815</b>	<b>\$25,447</b>	<b>\$2,415</b>	<b>\$2,469</b>
Right of Way & Infrastructure Protection	15474	\$29,815	\$25,447	\$2,415	\$2,469

<sup>19</sup> \$1 million grant from the California State Water Resources Control Board for the construction of Advanced Water Treatment Demonstration Facility was credited in Q3 of FY 2020/21. The credited work was completed prior to the current biennium and has been reversed in this table to account all capital work performed in the current biennium.

Capital Programs/Appropriations	Appn. No.	Total to Date		Biennium to Date	
		Appn. Amount (\$1,000's)	Costs thru June 2021 (\$1,000's)	Biennium to Date Planned Expenditures (\$1,000's)	Biennium Actual Expenditures (\$1,000's)
<b>System Flexibility/Supply Reliability Program</b>	<b>Total</b>	<b>\$661,160</b>	<b>\$633,397</b>	<b>\$13,600</b>	<b>\$17,254</b>
Hayfield and Lake Perris Groundwater Recovery	15402	\$1,500	\$1,043	\$0	\$185
Perris Valley Pipeline	15425	\$130,800	\$129,457	\$3,954	\$1,271
Water Delivery System Improvements	15488	\$67,860	\$64,264	\$9,646	\$14,775
Verbena Property Acquisition	15492	\$264,000	\$261,292	\$0	\$814
Delta Wetlands Properties (Delta Islands)	15494	\$197,000	\$177,340	\$0	\$209
<b>System Reliability Program</b>	<b>Total</b>	<b>\$359,674</b>	<b>\$273,228</b>	<b>\$44,900</b>	<b>\$47,599</b>
Information Technology System - Infrastructure	15376	\$51,306	\$46,963	\$481	\$1,249
Information Technology System - Security	15378	\$12,351	\$9,303	\$1,000	\$1,070
La Verne Shop Facilities Upgrade	15395	\$46,480	\$45,960	\$4,615	\$470
Water Operation Control	15467	\$51,414	\$41,003	\$806	\$1,684
Union Station Headquarters Improvements	15473	\$106,805	\$72,841	\$15,746	\$23,860
IT Infrastructure Reliability	15487	\$46,758	\$30,944	\$12,242	\$14,250
Operations Support Facilities Improvement	15495	\$19,088	\$17,069	\$3,887	\$280
Metropolitan Security System Enhancements	15499	\$15,910	\$5,951	\$2,747	\$3,193
Infrastructure Reliability Information System	15501	\$4,075	\$2,271	\$2,066	\$766
System-Wide Paving & Roof Replacements for FY 2020/21 through FY 2021/22	15516	\$756	\$550	\$498	\$403
System-Wide Paving & Roof Replacements for FY2020/21 through FY2023/24	15519	\$1,041	\$372	\$0	\$372
Enterprise Data Analytics	18910	\$3,690	\$2	\$811	\$2



Capital Programs/Appropriations	Appn. No.	Total to Date		Biennium to Date	
		Appn. Amount (\$1,000's)	Costs thru June 2021 (\$1,000's)	Biennium to Date Planned Expenditures (\$1,000's)	Biennium Actual Expenditures (\$1,000's)
<b>Treatment Plant Reliability Program</b>	<b>Total</b>	<b>\$939,697</b>	<b>\$879,485</b>	<b>\$48,550</b>	<b>\$56,256</b>
Chlorine Containment and Handling Facilities	15346	\$162,370	\$160,508	\$0	\$61
Weymouth Water Treatment Plant Improvements	15369	\$190,910	\$184,297	\$3,376	\$2,594
Jensen Water Treatment Plant Improvements	15371	\$47,062	\$46,624	\$43	\$40
Diemer Water Treatment Plant Improvements	15380	\$213,657	\$204,721	\$16,192	\$15,570
Mills Water Treatment Plant Improvements	15381	\$5,525	\$5,277	\$0	\$0
Skinner Water Treatment Plant Improvements for FY2006/07 through FY2011/12	15435	\$3,860	\$2,142	\$0	\$33
Diemer Water Treatment Plant Improvements for FY2006/07 through FY2011/12	15436	\$70,939	\$63,621	\$1,109	\$1,326
Weymouth Water Treatment Plant Improvements for FY2006/07 through FY2011/12	15440	\$24,079	\$20,835	\$1,509	\$2,074
Jensen Water Treatment Plant Improvements for FY2006/07 through FY2011/12	15442	\$91,376	\$79,141	\$13,964	\$20,075
Mills Water Treatment Plant Improvements for FY2006/07 through FY2011/12	15452	\$22,652	\$21,599	\$480	\$2,205
Weymouth Water Treatment Plant Improvements for FY2012/13 through FY2017/18	15477	\$76,989	\$74,485	\$5,946	\$8,968
Diemer Water Treatment Plant Improvements for FY2012/13 through FY2017/18	15478	\$1,425	\$1,265	\$0	\$259
Mills Water Treatment Plant Improvements for FY2012/13 through FY2017/18	15479	\$1,094	\$549	\$0	\$95
Skinner Water Treatment Plant Improvements for FY 2012/13 Through FY 2017/18	15485	\$1,990	\$1,729	\$0	\$6
Jensen Water Treatment Plant Improvements for FY2012/13 through FY2017/18	15486	\$8,339	\$7,424	\$0	\$663

Capital Programs/Appropriations	Appn. No.	Total to Date		Biennium to Date	
		Appn. Amount (\$1,000's)	Costs thru June 2021 (\$1,000's)	Biennium to Date Planned Expenditures (\$1,000's)	Biennium Actual Expenditures (\$1,000's)
Weymouth Water Treatment Plant Improvements for FY2020/21 through FY2023/24	15505	\$685	\$240	\$468	\$16
Jensen Water Treatment Plant Improvements for FY2020/21 through FY2023/24	15508	\$6,790	\$1,678	\$4,493	\$1,356
Diemer Water Treatment Plant Improvements for FY2020/21 through FY2023/24	15510	\$745	\$432	\$499	\$49
Skinner Water Treatment Plant, Improvements For FY 2020/21 Through FY 2023/24	15512	\$3,831	\$2,900	\$470	\$847
Mills Water Treatment Plant Improvements for FY2020/21 through FY2023/24	15520	\$5,380	\$18	\$0	\$18
<b>Water Quality/Oxidation Retrofit Program</b>	<b>Total</b>	<b>\$631,914</b>	<b>\$628,200</b>	<b>\$19</b>	<b>\$296</b>
Diemer Water Treatment Plant Oxidation Retrofit	15389	\$370,192	\$370,024	\$0	\$0
Weymouth Water Treatment Plant Oxidation Retrofit	15392	\$251,482	\$248,594	\$19	\$18
Enhanced Bromate Control	15472	\$10,240	\$9,581	\$0	\$278
<b>Total CIP</b>		<b>\$4,104,098</b>	<b>\$3,672,599</b>	<b>\$251,259</b>	<b>\$261,508</b>

Notes on above table:

- Numbers may not sum due to rounding.
- \$0 under **Planned Expenditures** indicate that while no expenditures are planned during the reporting period, expenditures may be planned during upcoming periods
- Negative actual expenditures indicate the result of cost transfers, write-offs, or credits greater than actual costs for this biennium through the reporting quarter

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# Capital Investment Plan: Quarterly Report for Period Ending June 2021 & Budget Development Process

Engineering & Operations Committee

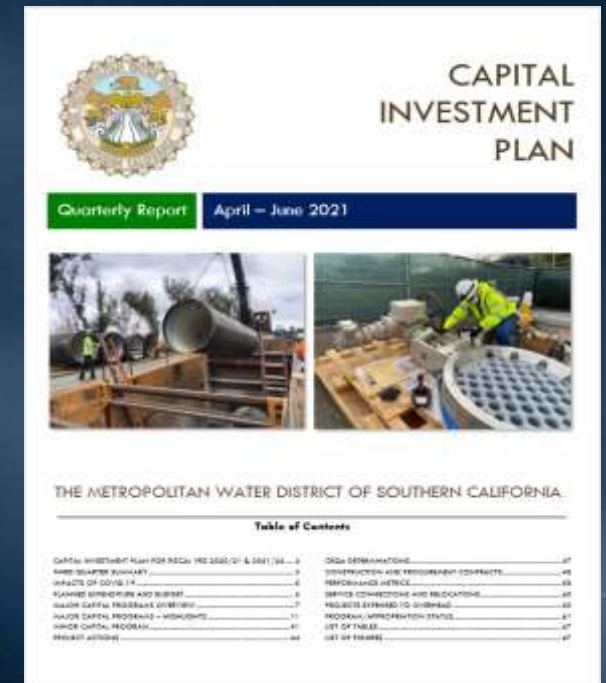
Item 6a

September 13, 2021

# Capital Investment Plan

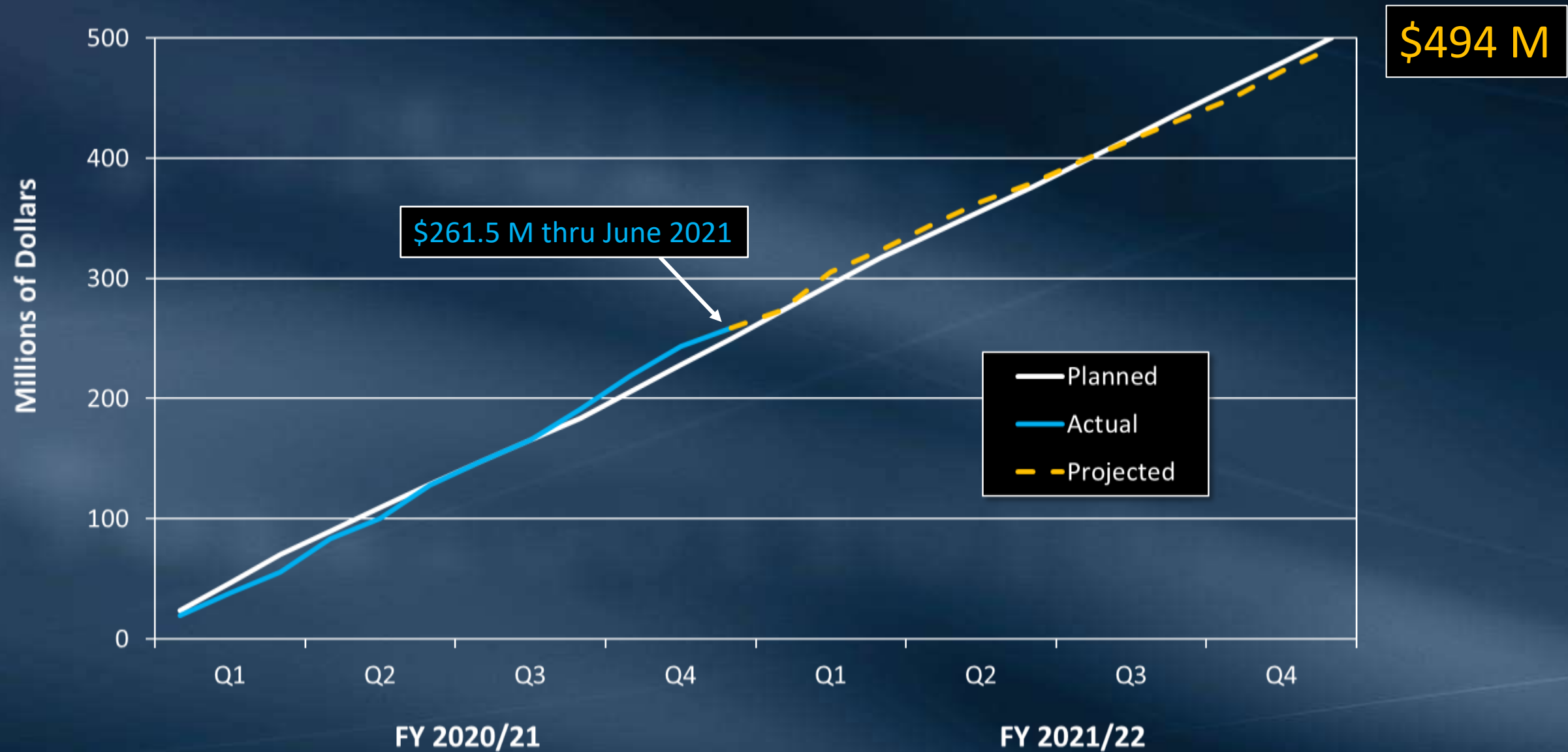
## 4<sup>th</sup> Quarter Summary for FY 2020/21

- 1 Construction contract awarded - \$2.0 M
- 1 Increase of change order authority - \$0.2 M
- 7 Professional service agreements authorized - \$6.6 M
- Contracts currently underway - \$260.9 M
  - 15 construction - \$200.4 M
  - 14 procurement - \$60.5 M
- CIP fund authorization - \$500 M biennial budget
  - \$26.7 M authorized for projects in Q4
  - \$430.3 M total authorized through Q4
  - \$69.7 M available





# CIP Performance - FYs 2020/21 & 2021/22



# Lakeview Pipeline Improvements



Lowering of steel liner for initial fit-up



Welding of 133-inch bulkhead

- Contract awarded in July 2020
  - Completed in May 2021
- Current Phase Estimate: \$4.6 M
- Actual for Current Phase: \$4.3 M

# Diemer West Basin & Filter Building Rehabilitation



Rehabilitated West Basin at Diemer Plant

- Contract awarded in October 2018
  - Completed in July 2021
- Current Phase Estimate: **\$44.2 M**
- Actual for Current Phase: **\$42.3 M**



# CRA Discharge Line Isolation Coupling Assemblies



- Contract awarded in August 2019
  - Completed in May 2021
- Current Phase Estimate: **\$38.8 M**
- Actual for Current Phase: **\$35.7 M**

Completed concrete pipe supports and stairs at Intake Pumping Plant

# Contract Completion and Change Orders

Contract	Original Bid Amount	Change Order Authority	Change Order
Allen-McColloch Pipeline PCCP 2021 Relining	\$2,435,000	\$250,000	\$17,375
CRA Discharge Line Isolation Coupling Assemblies	\$32,946,000	\$1,647,300	\$0
Diamond Valley Lake Floating Wave Attenuator Repair	\$276,373	\$250,000	TBD
Greg Avenue Pump Station Rehabilitation	\$20,975,000	\$1,648,750	TBD
Lake Perris Bypass Pipeline Relining	\$5,410,000	\$270,500	\$0
Lakeview Pipeline Improvements	\$3,270,000	\$250,000	\$216,674
OC Region Erosion-Control Improvements for Six Sites	\$429,295	\$250,000	\$141,613
Second Lower Feeder PCCP Rehabilitation – Reach 2	\$53,273,196	\$6,663,659	\$4,789,985
Total	\$119,014,864		

12-month rolling average change order percent = 1.1% (does not include Board-approved Second Lower Feeder PCCP Rehabilitation - Reach 2 change order which added scope for Reach 8)





# CIP Development Process

# Capital Investment Plan Budget Overview

- Current CIP budget
- GM Business Plan – strategic priorities
- CIP development process
- New budgeting tools
- Schedule

# Current CIP for FYs 2020/21 - 2021/22

- April 2020 Board Action
  - Appropriated \$500 million
  - Delegated authority to General Manager
    - Initiate or proceed with work on all planned capital projects identified in CIP Appendix, subject to limits on GM authority and CEQA requirements per Administrative Code

# GM Business Plan - Strategic Priorities

- Resiliency

- Emergency preparedness & business continuity:
  - Capital expenditures to enhance infrastructure reliability & flexibility

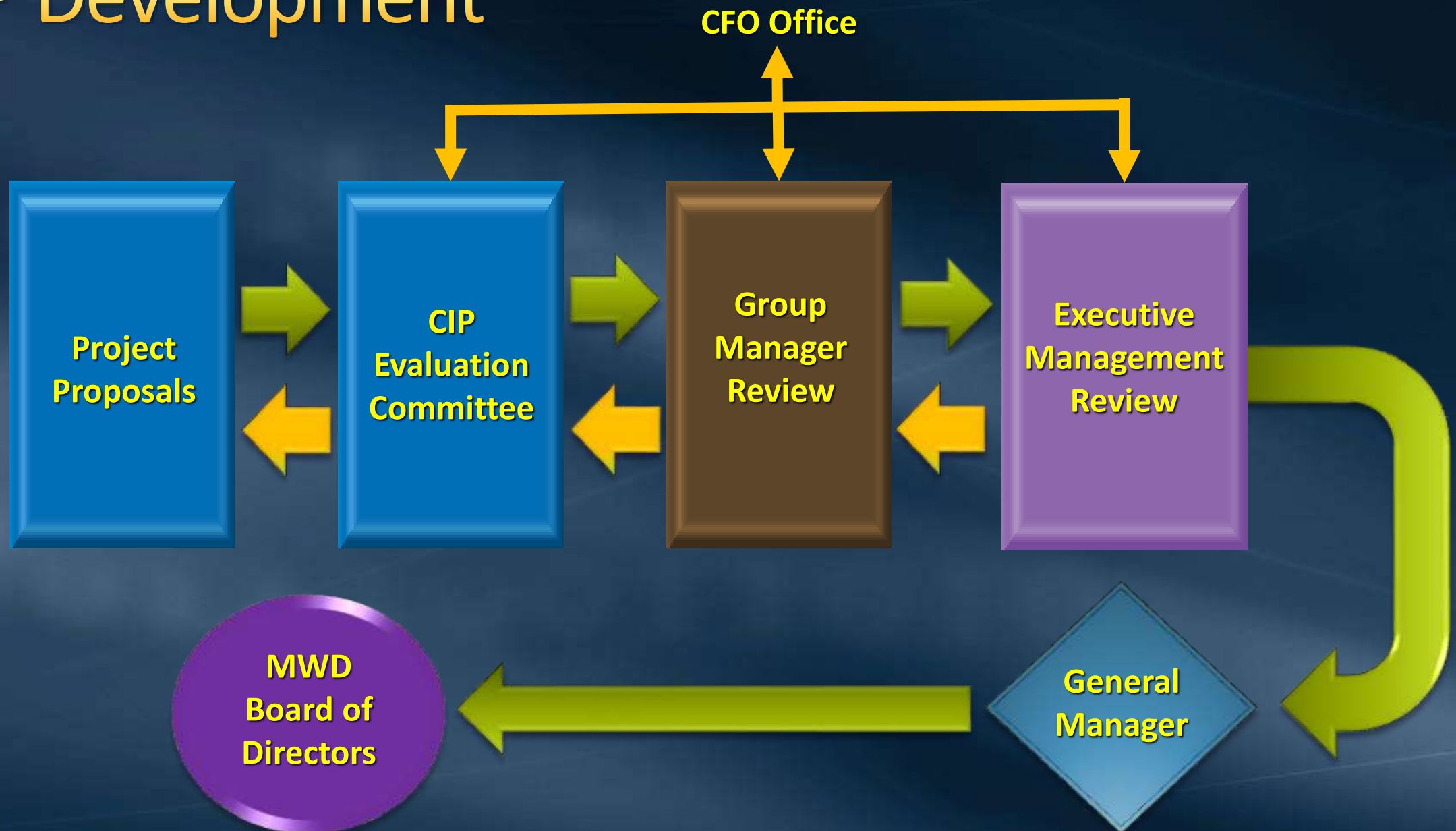
- Sustainability

- Charting long-term course addressing challenges:
  - Aging Infrastructure
  - Regional Recycled Water Program

- Innovation

- Creatively solving difficult challenges:
  - Pipe Inspection Technology
  - Data Center Modernization

# CIP Development





# New Web-Based CIP Proposal & CIP Risk Tool

CAPITAL INVESTMENT PLAN

Project Proposal for Fiscal Year 2022/23 – 2023/24

ContactHelp?

1Project Summ...

Project Descript...

Risks

Alternatives

Project Estimate

Review

\* Denotes required field

Project Sponsor and Preparer Information

Biennium:

Capital Project: 

Major

Minor

Project Manager:

Preparer Information: 

NikolasJeffrey S

Brand New or Existing Project:

CIP Index No:

Project No:

Project Title:

Appropriation No:

Sponsoring Group:

Metropolitan Water District of Southern California

CIP PROJECT RISK FORM

Contact | Help?

General Information

Submitted:

Form Status: Draft

Project Title\*:

Preparer\*: 

morg,james S

CIP Index No. 

(Leave blank if not yet assigned)

Subject Matter Experts Who Provided Feedback\*

Risk Input

\* Denotes required fields

Hazard 1

Hazard 2

Hazard 3

Hazard 4

Hazard 5

Step 1: Define the specific hazard\*

Step 2:Pre-Mitigation Risk 

(Risk if project is not approved)

Likelihood of Hazard: 

Event(s)\*

in

Year(s)\*

Annual Probability

Total Consequence Score 

0

Justification

Consequence if Hazards occurs: 

Safety

Score

Justification

Step 3:Post-Mitigation Risk 

(Eliminating risk after project is completed)

Likelihood of Hazard: 

Event(s)\*

in

Year(s)\*

Annual Probability

Total Consequence Score 

0

Justification

Consequence if Hazards occurs: 

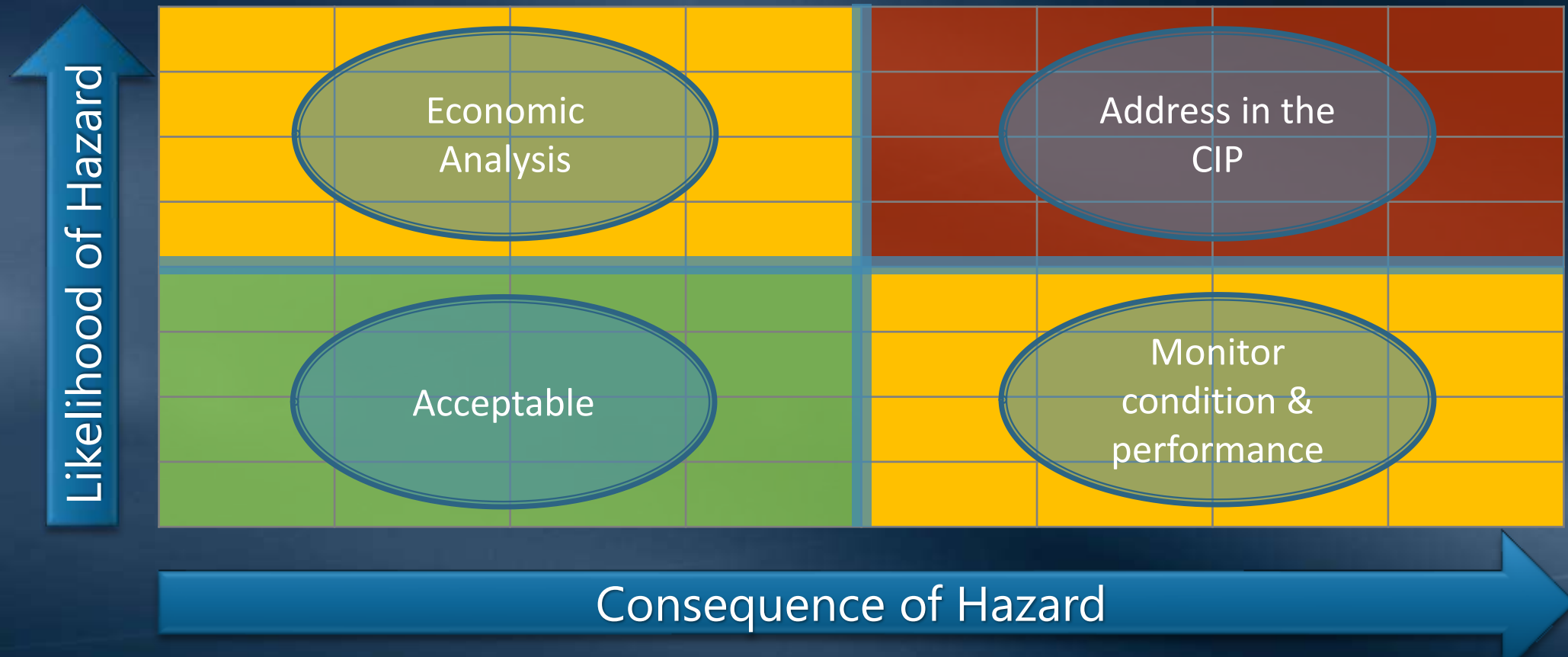
Safety

Score

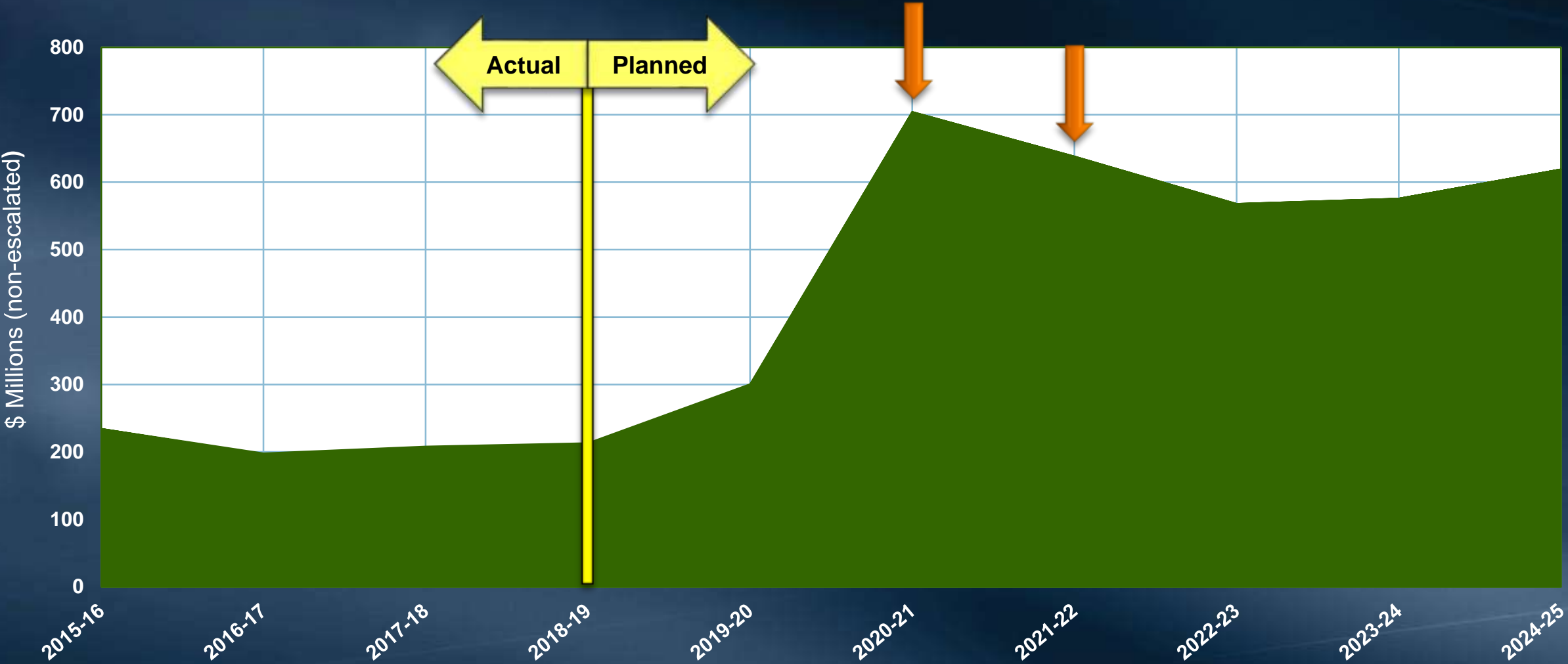
Justification

# CIP Portfolio Risk Tool

- Provides standardization of relative risk exposure
- Facilitates project prioritization & optimization of capital budget



# Draft CIP Budget – Before Prioritization



# New Web-based CIP Budgeting Tool

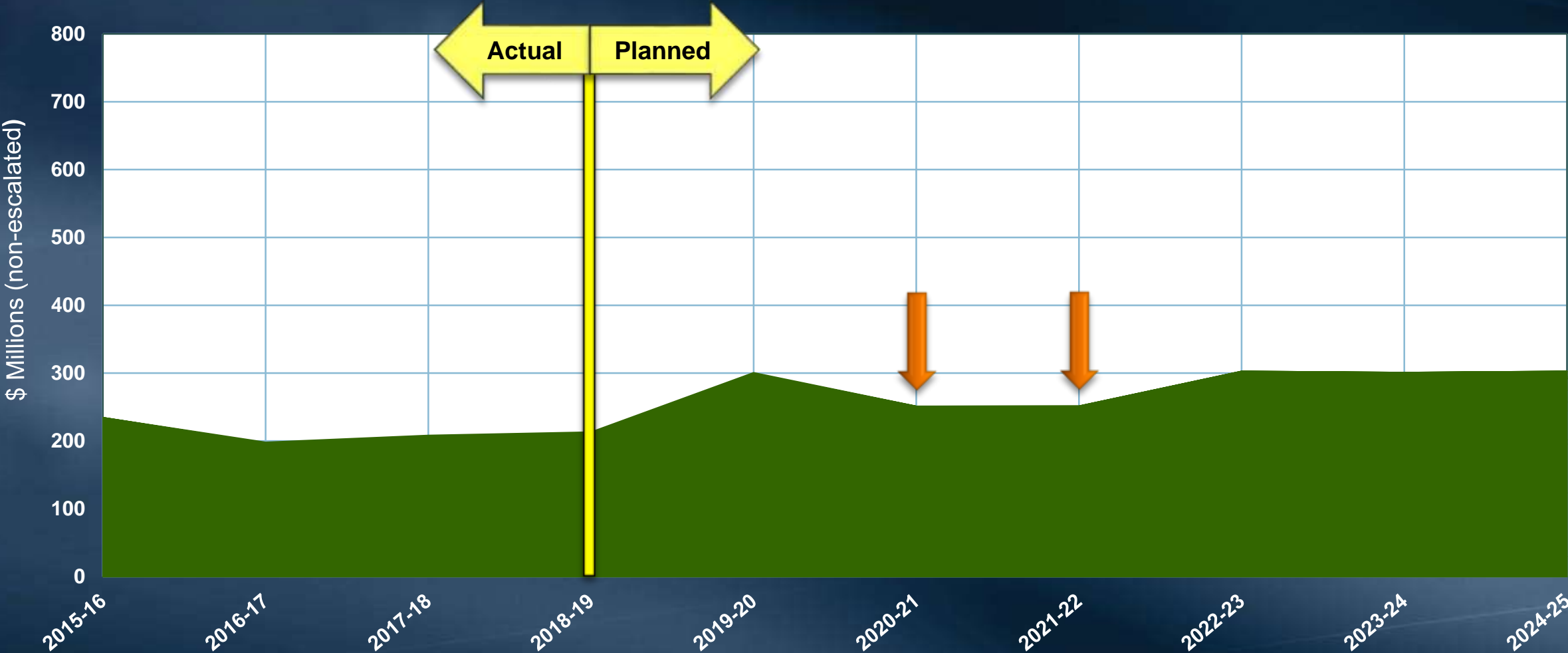
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CIP Index ▲

InVizion®

	<input type="checkbox"/>	CIP Index ▲	Project Title	Total Points	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
→	<input type="checkbox"/>	1618-2	Sepulveda Canyon Control Facility Reliability Improvements PDR	90	0	0	0	2,277,477	1,422,523	20,967,299
→	<input type="checkbox"/>	1618-21	Olinda PCS Valve Replacement	40	149,593	304,118	1,496,289	1,350,000	0	0
→	<input type="checkbox"/>	1618-31	Lake Mathews Electrical Upgrades	350	7,258	652,382	3,058,274	3,307,086	0	0
→	<input type="checkbox"/>	1618-34	Mills Plant Ozone Generator PLC Control & Communication Equipment U	292	763,043	1,160,788	96,168	0	0	0
→	<input type="checkbox"/>	1618-35	Mills Finished Water Reservoir Rehabilitation	375	261,186	1,973,303	990,250	9,978,901	3,610,849	0
→	<input type="checkbox"/>	1618-39	Diemer Treatment Plant - Slope Erosion Remediation Project	325	772,043	1,282,984	3,566,195	0	0	0
→	<input type="checkbox"/>	1618-43	Skinner Plant 1 - Concrete Joint Sealant Replacement	75	778,144	1,121,856	0	0	0	0
→	<input type="checkbox"/>	1618-45	Ozone Contactor Roof Elastomeric Coating	135	1,388,526	746,474	0	0	0	0
→	<input type="checkbox"/>	1618-48	Skinner Ozone Generator PLC Control & Communication Upgrade	320	139,782	402,994	44,006	0	0	0
→	<input type="checkbox"/>	1618-5	New La Verne Warehouse	165	13,813,638	1,251,657	501,659	0	0	0

# CIP Budget – After Prioritization





# Schedule: CIP Development & Approval

- CIP budget development kickoff: April
- Proposal submission: April to August
- Proposal evaluation: July to September
- Group manager review: September to October
- Executive manager review: October to November
- CIP budget completion: December
- Board workshop: February 2022
- Board adopts & appropriates budget: April 2022





# Regional Recycled Water Program Quarterly Update

Engineering and Operations Committee  
Item 6b  
September 13, 2021

# Outline

- Agency coordination/funding
- Environmental planning phase activities
- Opportunities for program acceleration



# Agency Coordination/Funding

## Wastewater Partner



## Groundwater Basin Managers



## Metropolitan Member Agencies



## Colorado River Partners



## Other Key Partners





# Agency Coordination/Funding LACSD/MWD On-going Work

- Amendment #1 approved in November 2020
  - Contributions to Environmental Phase work
- Ongoing LACSD coordination efforts
  - Continuing demonstration plant operation assistance
  - Monitoring for source control/waste residuals
  - Nitrogen pilot and bench scale optimization testing
  - Nitrogen management studies (complete October 2021)
  - Consultant selection process participation



# Federal and State Funding Opportunities

*Provide multiple benefits,  
including water  
supply reliability benefits  
for drought-stricken States  
and communities*

- Federal - Significant recycled water funding included in the proposed Federal infrastructure bill
  - \$450M total grant fund to be spent over 5 years
    - Projects in the Southwest over \$500M
    - Regional in nature/multiple stakeholders
    - Up to 25% of project cost
- Federal - Title XVI Grants continue
- State – potential \$700M in drought funding

# Environmental Planning Phase Activities

- Conveyance
  - Consultant agreement authorized in June 2020
  - Identify preferred alignment for CEQA by the end of 2021
- CEQA
  - Reviewing proposals received August 16, 2021
  - Consultant recommendation: October 2021 Board meeting
- Advanced Water Treatment
  - Reviewing proposals received August 18, 2021
  - Consultant recommendation: October 2021 Board meeting
  - DPR - Regulatory Framework and Scientific Panel Workshops

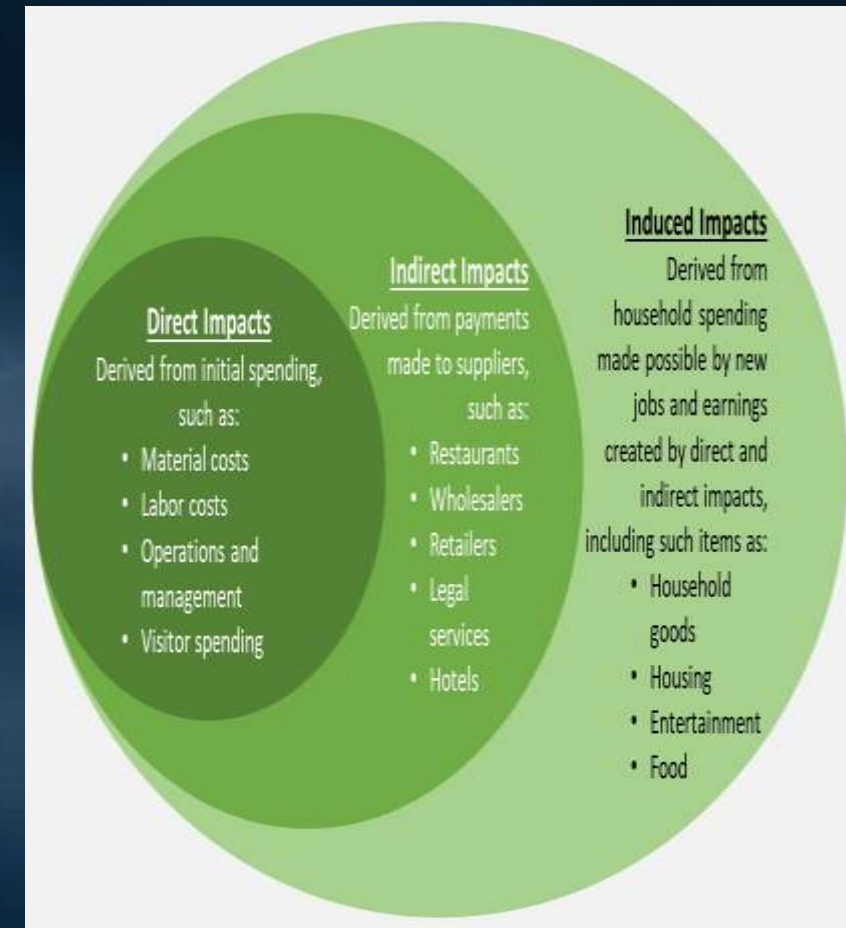
# Environmental Planning Phase Activities

- Public Outreach
  - Developed Public Outreach Team Charter document
  - Updating Public Outreach Plan and stakeholder database
  - Stakeholder meetings held with 17 cities on pipeline alignment(s)
  - Significant participation in Water Reuse Conference 2021
- Technical Studies
  - Current Demo Plant tMBR testing complete in September 2021
  - Board authorized consultant agreement for technical support at Demo Plant to study sMBR in August 2021
    - Baseline testing to begin in January 2022



# Economic Assessment of Program

- Los Angeles Economic Development Council job creation report
  - \$8.7B total economic output created
  - 47,000 development related jobs
  - 24,100 construction jobs in So. Calif.
  - \$400M+ State and Local taxes generated
- Ongoing economic activity in So. California
  - \$300M+ annual economic output
  - Over 1,000 total jobs supported



LAEDC Institute for Applied Economics

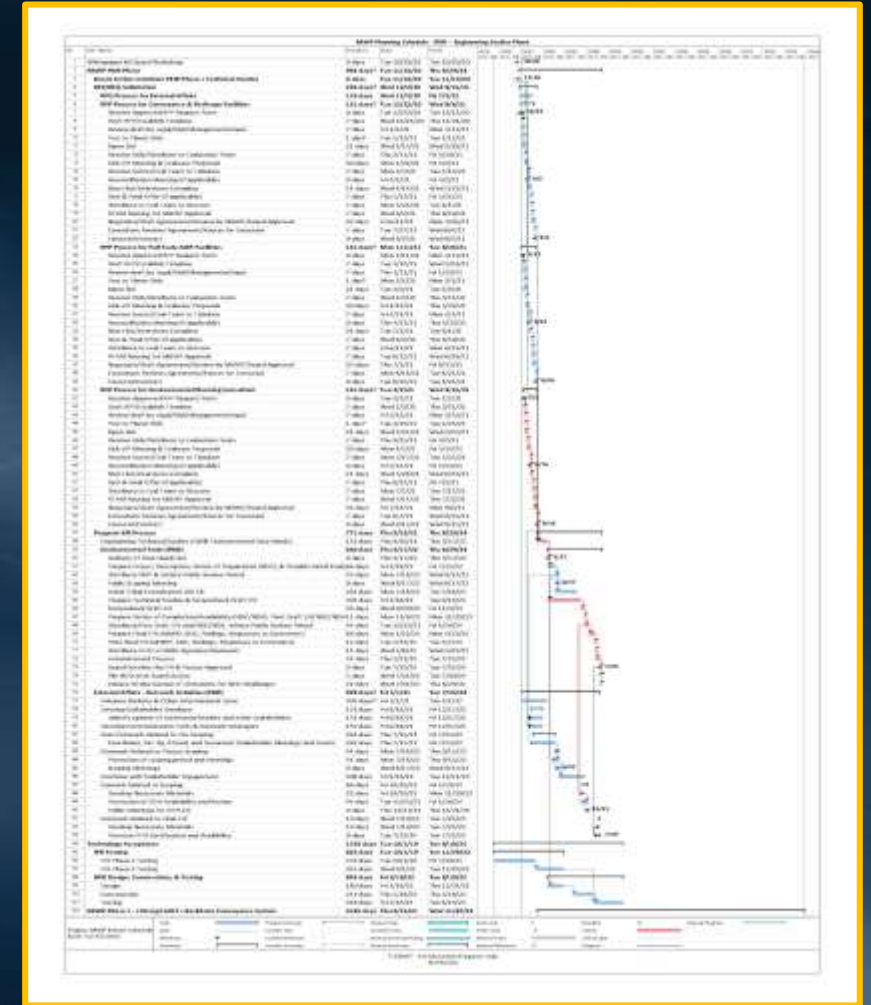


# Potential Acceleration of Program

- Alternatives previously developed
  - 2019 Conceptual Planning Report
  - 2019 White Paper No. 1
- Advent of outside funding opportunities
  - Federal funding for large regional program
  - Potential for State funding
- Continuation of dry hydrologic conditions

# Opportunities for Program Acceleration

- Current Implementation approach
  - Linear implementation
    - Design follows CEQA approval
  - Current critical path through:
    - CEQA preparation/certification
    - AWT design/construction
  - Utilizes design-bid-build approach
  - Online date Phase 1: 2032
    - ±100 MGD, indirect potable reuse



# Opportunities for Program Acceleration

- Alternative implementation ideas
  - Begin design on selected program components
    - Concurrent with on-going CEQA process
  - Develop and employ alternative delivery approaches
    - Would allow for concurrent design and construction on key program components
- Benefits to schedule
  - Up to a 2-year advancement on current schedule

# Early start of Design Activities

- Identify key program elements where design could begin
  - Avoid areas with current uncertainties
  - Focus on areas where:
    - CEQA is unlikely to change location, configuration, or impacts of project feature(s)
  - Initial criteria for selection of early-start components
    - Complex permitting
    - Complex ROW acquisition
    - Extensive investigations required
    - Long lead time for design efforts

# Early Start of Design Activities

- Current work activities
  - CEQA and technical studies
  - Undertaken with budgeted O&M
- Begin early-start design work with CIP funding
  - Board action required
    - Authorize out-of-budget CIP funding for current biennium
    - Initial CIP funding for design-related activities only
    - No construction activities



# Alternative Implementation Methodologies

- Conventional Design-Bid-Build (DBB) approach
  - Metropolitan's standard methodology
- Alternative delivery differs from DBB
  - Potential for schedule enhancement
  - Opportunities for owner/contractor collaboration
  - Opportunities for risk sharing/allocation
  - Price certainty prior to design completion
  - Alternative process for contractor selection
    - Typically includes qualifications and pricing

# Pathway to Alternative Delivery

- Secure legislative approval
  - Potential availability: January 2023
    - Assumes process starts in 2022
- Scope of Legislative authority
  - Targeted approach
    - RRWP
    - Drought reliability projects
  - Apply to design and construction activities only
    - Subsequent operations and maintenance by Metropolitan staff
  - Coordinate approach with bargaining units

# Alternative Delivery

- Common methods in industry
  - Design Build (DB)
  - Progressive Design Build (PDB)
  - Construction Manager/General Contractor (CMGC)
- Local agencies with authority
  - LACSD
  - West Basin MWD
  - LADWP (project specific authority)
  - Water Replenishment District (ARC facility)



West Basin MWD – Edward C. Little WTP

# Summary: Alternative Delivery

## Potential benefits

- ✓ Potential for schedule advancement
- ✓ Enhanced allocation of project risks
- ✓ Opportunities for Owner/Contractor collaboration
- ✓ Early pricing certainty

## Potential downsides

- ✗ Legislative action required to implement
- ✗ Development of new MWD contract documents
- ✗ Acquire and train staff



# Recommended Actions

- Commence early-start to design process
  - Request Board funding for CIP work on Program
  - Identify suitable areas for early-start design work
  - Pursue outside funding for Program, as it becomes available, to support design activities
- Pursue alternative delivery approaches
  - Request C&L Committee to begin legislative development process
  - Identify potential alternative delivery approaches for consideration
  - Begin staff development process to support new methods







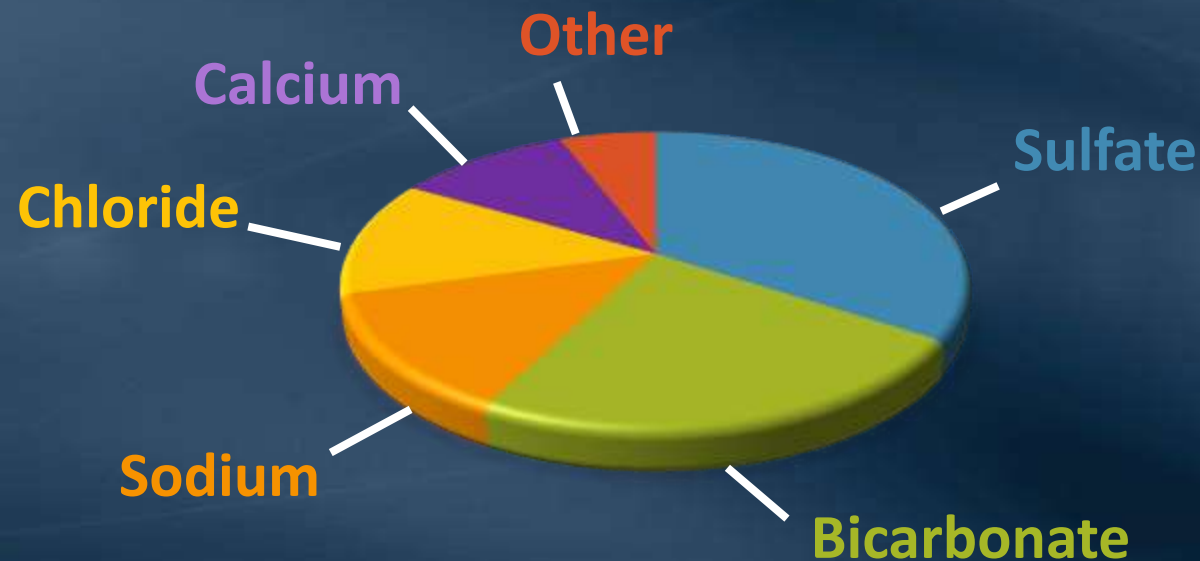
# Report on Salinity Management

Engineering and Operations Committee  
Item 6c  
September 13, 2021

# What is salinity?

- Measurement of salts (minerals) dissolved in water
- Commonly expressed as Total Dissolved Solids or “TDS”
- Naturally occurring, agricultural runoff, urban uses, seawater intrusion

## Typical mineral comparison in Colorado River water





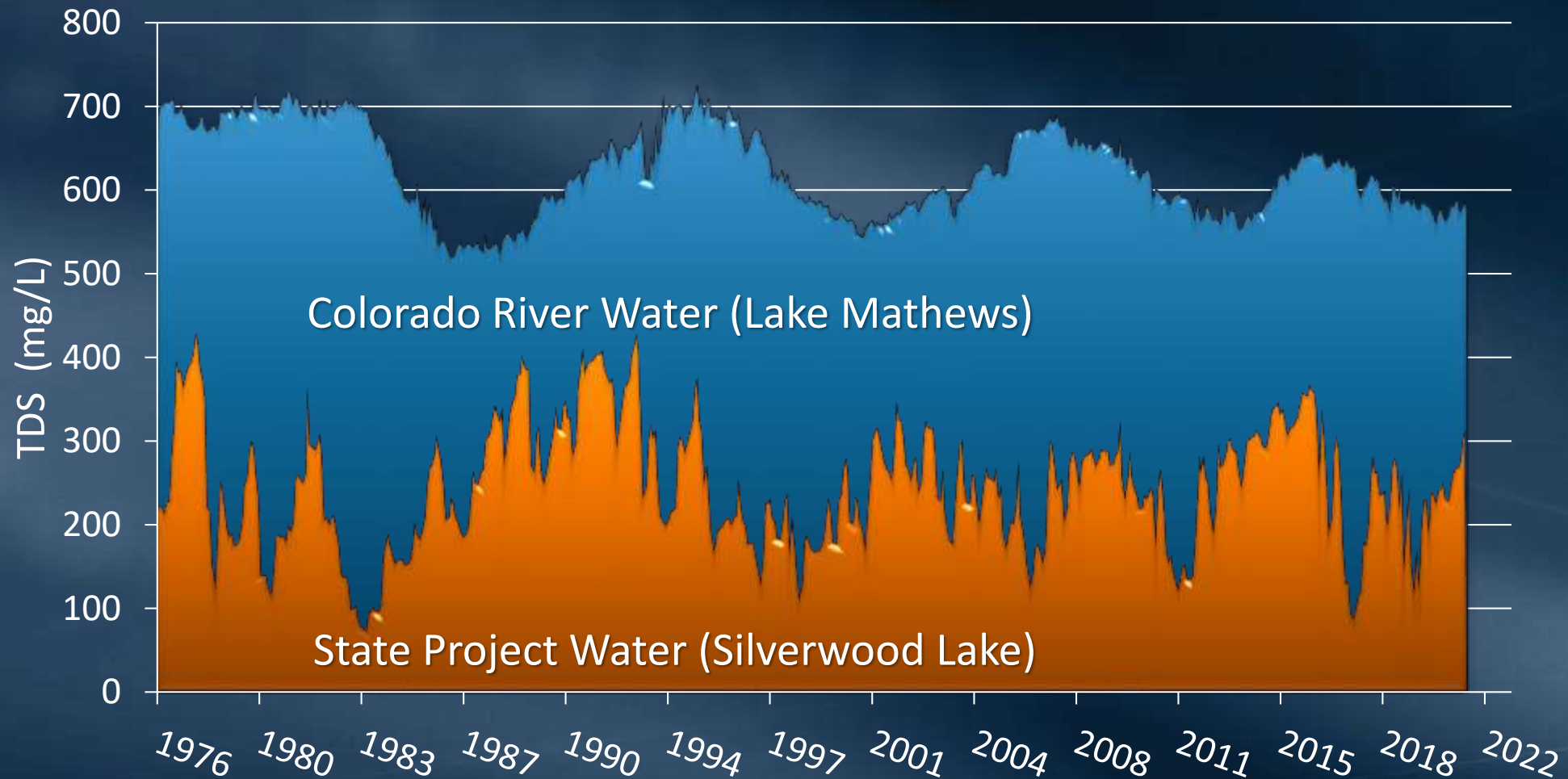
# Why does salinity matter?

- Limits use of groundwater basins for storage
- Lowers usefulness and increases cost of recycled water
- Scaling of household appliances and plumbing fixtures; impacts industrial processes
- Reduces agricultural crop yields
- Imparts unpleasant taste in drinking water



# Salinity in Metropolitan Supplies

## Historical Trends





# Colorado River Basin Salinity

Naturally  
Occurring  
(47%)

Human-  
caused  
(53%)

Est. Range of Salinity  
Concentrations (mg/L)



Nearly 9 million tons of salt  
pass Hoover Dam annually

Based on USBR figure using 2014-2018 salinity and flow data

# Colorado River Basin Salinity Control Program

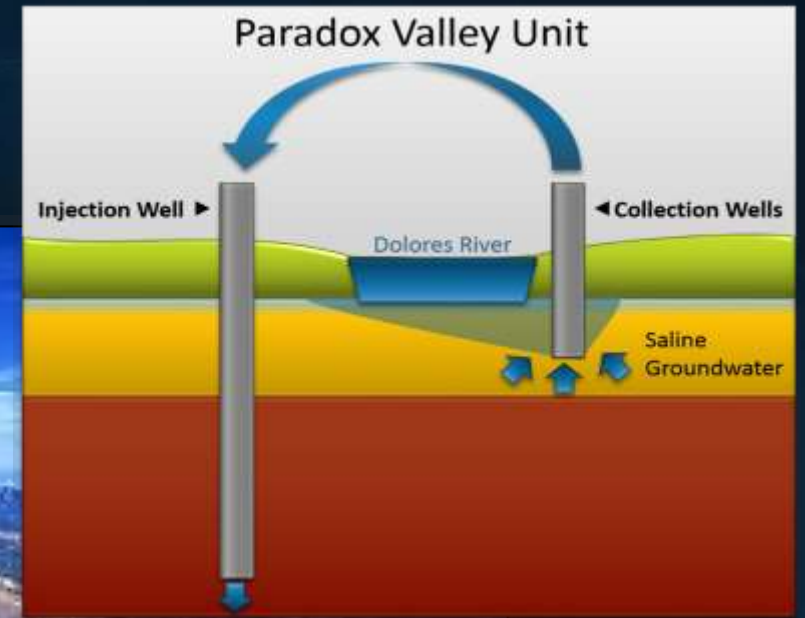
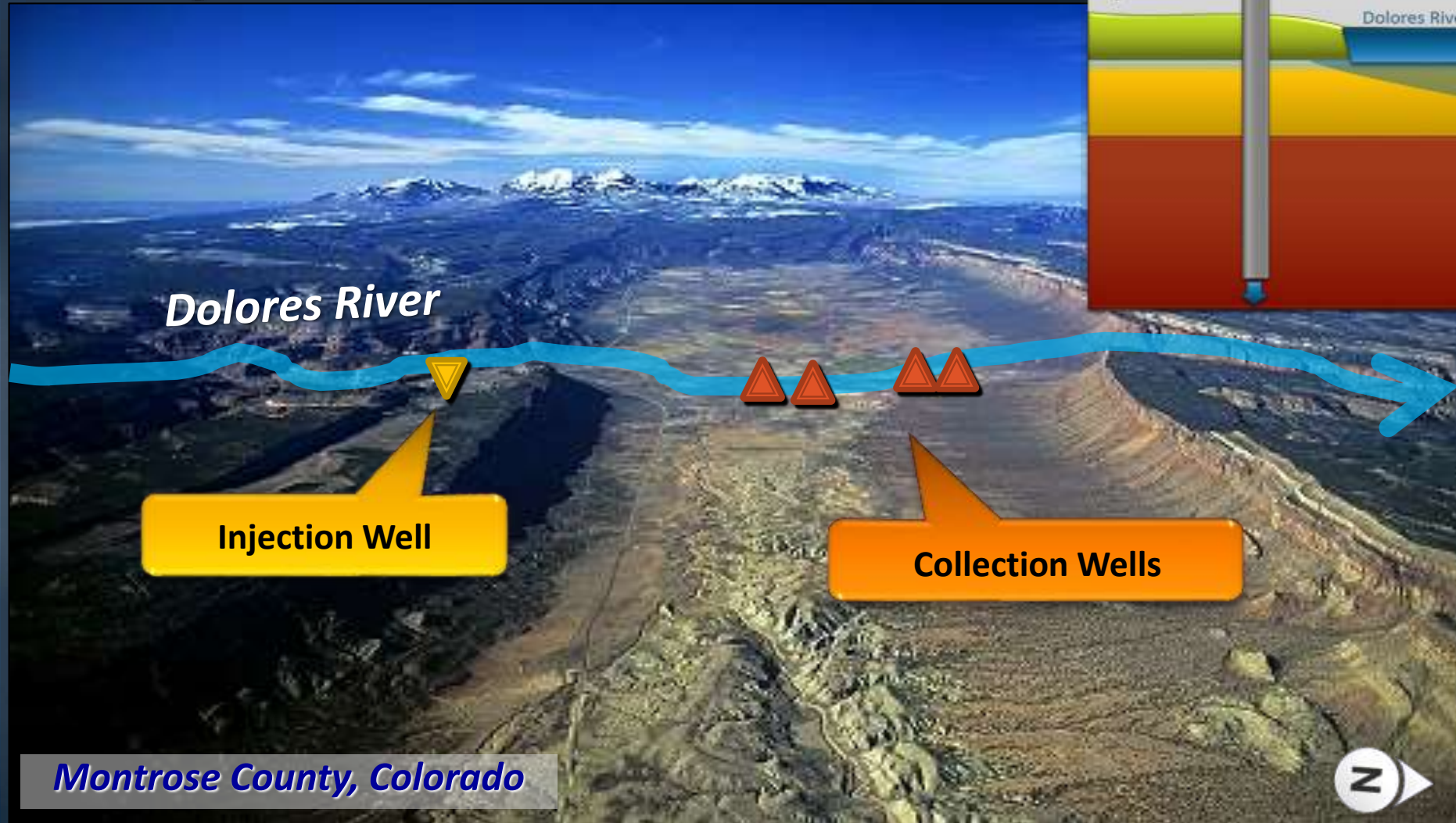
- Salinity Control Forum (1973); federal government and Basin states
- Salinity control measures
  - Improved irrigation practices
  - Rangeland management
  - Deep-well brine injection
- 1.2 million tons/year removed → 100 mg/L reduction
- ~\$40 million spent annually; 70% federally funded
- Current challenges: Paradox Valley; Funding





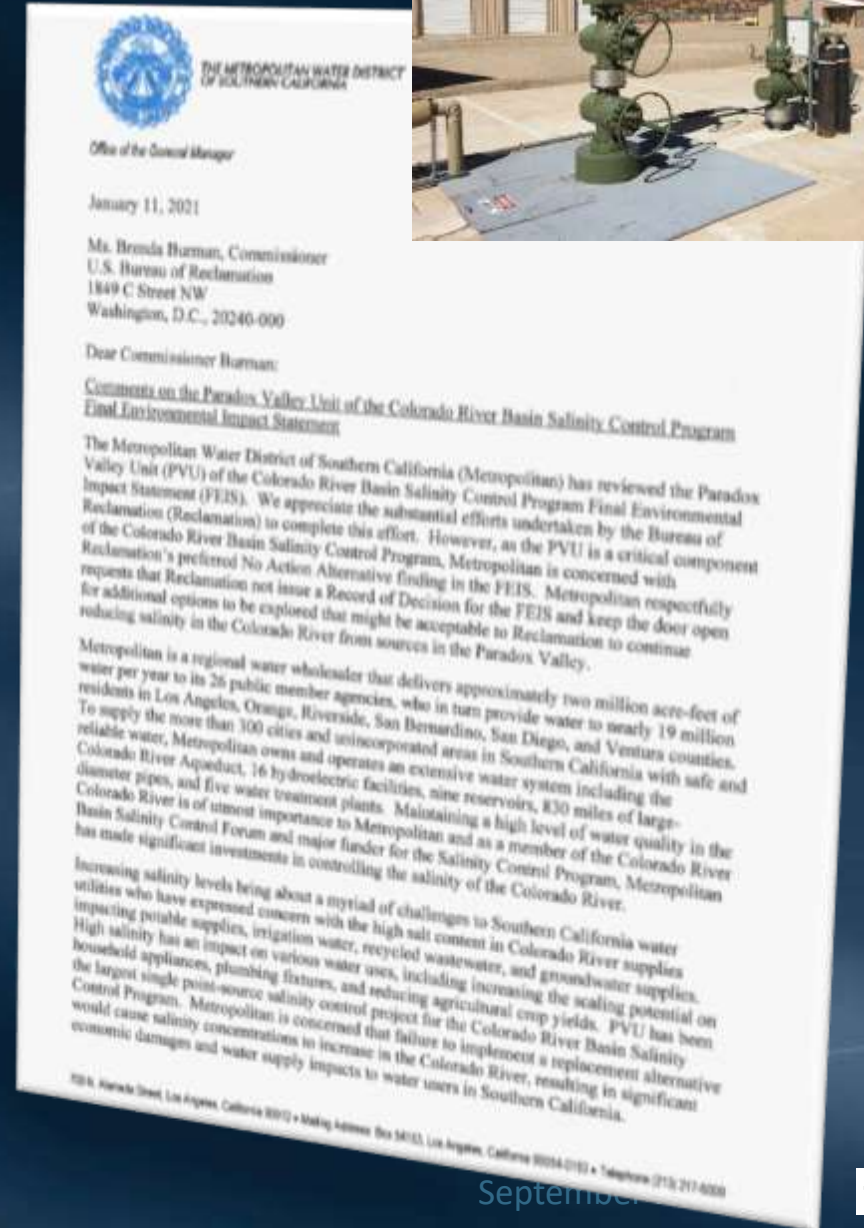
# Paradox Valley Salinity Control

## Deep Well Injections



# Paradox Valley Salinity Control Status

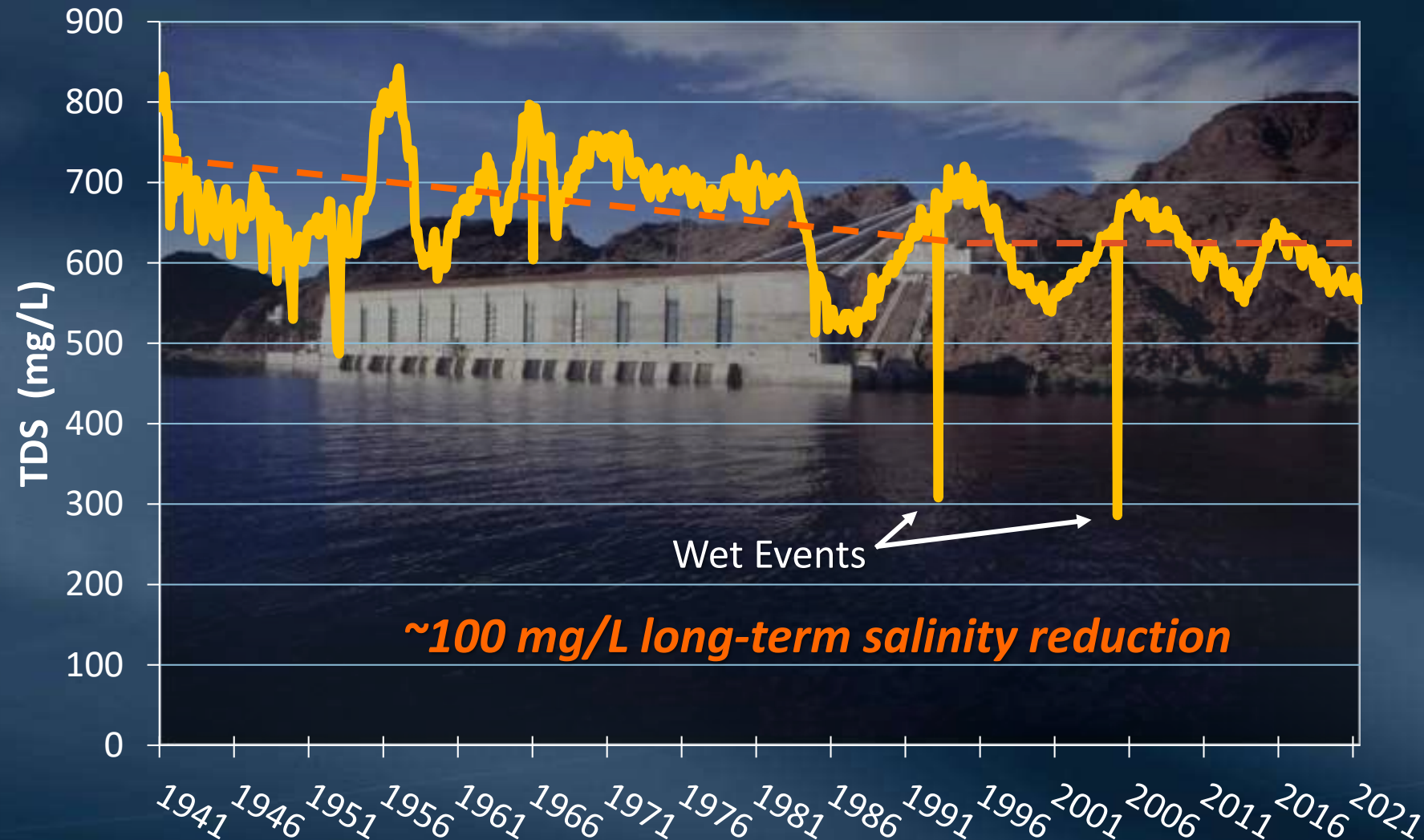
- Well hasn't operated since 4.1 magnitude earthquake in March 2019
- Reclamation analyzing injection and seismic data to optimize operations
- Final EIS analyzed replacement options – new injection well, evaporation ponds, zero liquid discharge, and **no action**
- Lake Powell and Lake Mead provide significant buffers





# Colorado River Historical Salinity

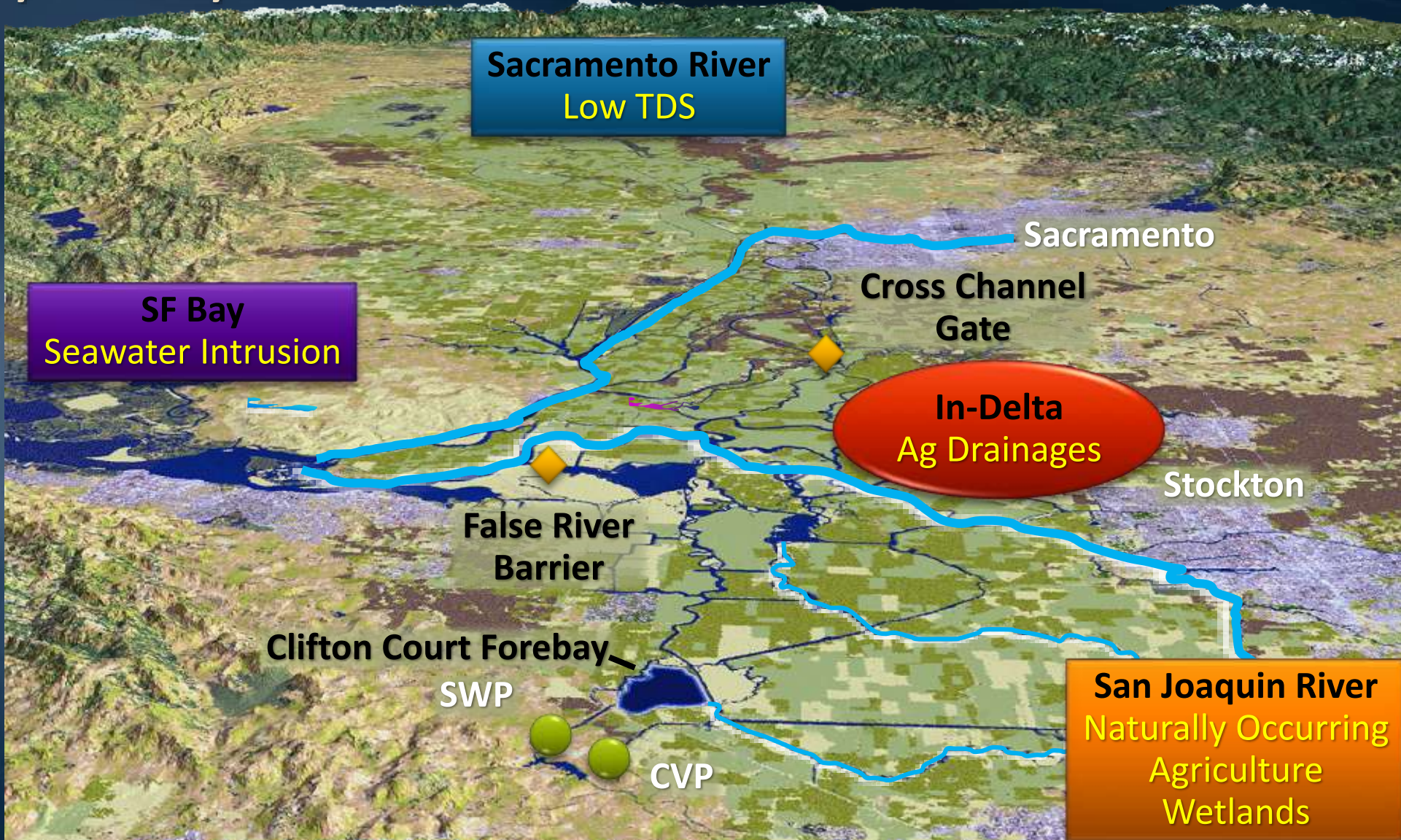
## Whitsett Intake





# State Water Project

## Primary Salinity Sources





# Statewide Salinity Management Efforts

- Delta-State Water Project
  - Delta Cross Channel Gate
  - Emergency Drought Salinity Barrier
  - Salinity forecasts
- Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS) Initiative
- Salt and Nutrient Management Plans

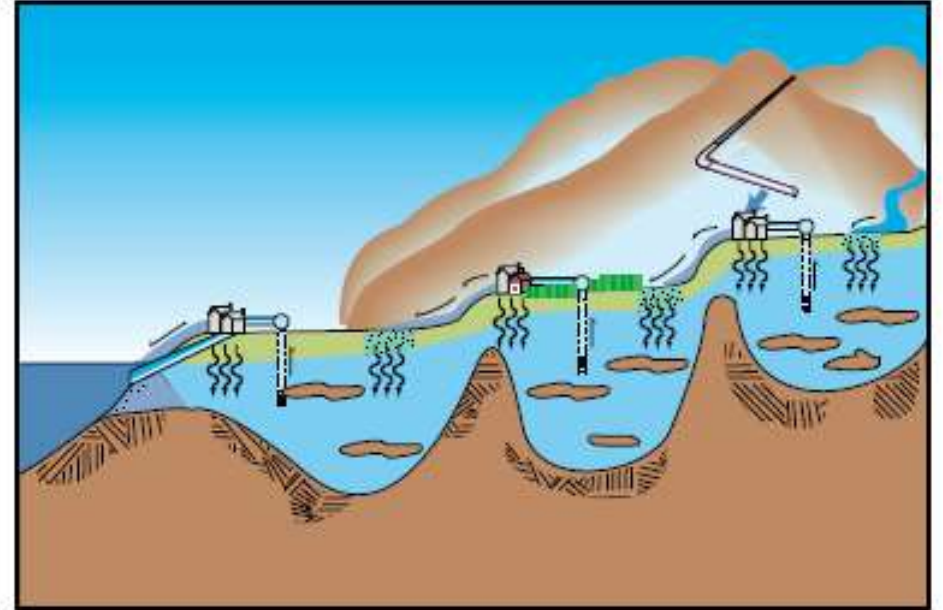


2021 Emergency Rock Barrier  
Sacramento-San Joaquin Delta

# Salinity Management Study

- Study estimated \$95 million/yr economic benefit with 100 mg/L salinity reduction (1999 dollars)
- Metropolitan Board adopted 500 mg/L TDS objective, annual average
  - System Blending
  - Dependent on availability of sufficient SWP water
- Protect imported source water
- Support groundwater and recycled water resources

## SALINITY MANAGEMENT STUDY Final Report



MWD  
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA



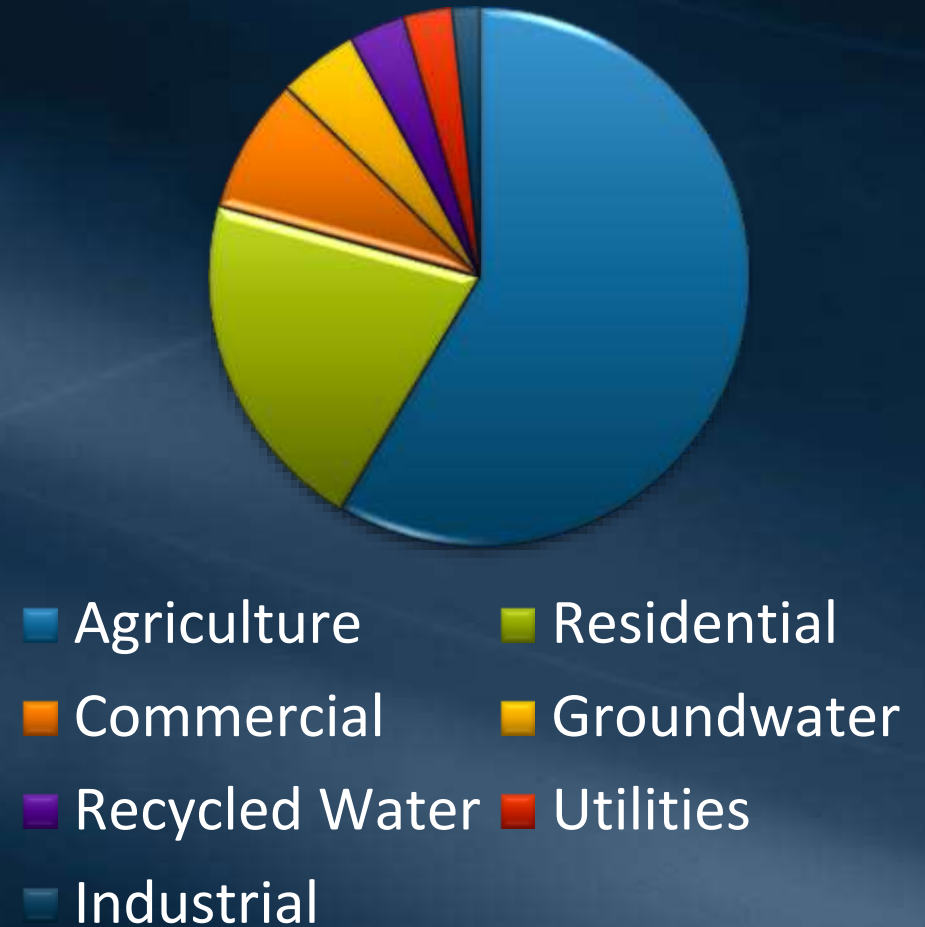
UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF RECLAMATION

June 1999

# Salinity Economic Impact Model

- Developed by USBR and Metropolitan; updated in 2020
- Quantifies economic impacts of salinity
  - Reduced appliance/ plumbing fixtures useful life
  - Reduced crop yields
  - Groundwater & Recycling impacts
- \$500 million/yr damages to lower Colorado River Basin (2035 projection)

Impact Sectors





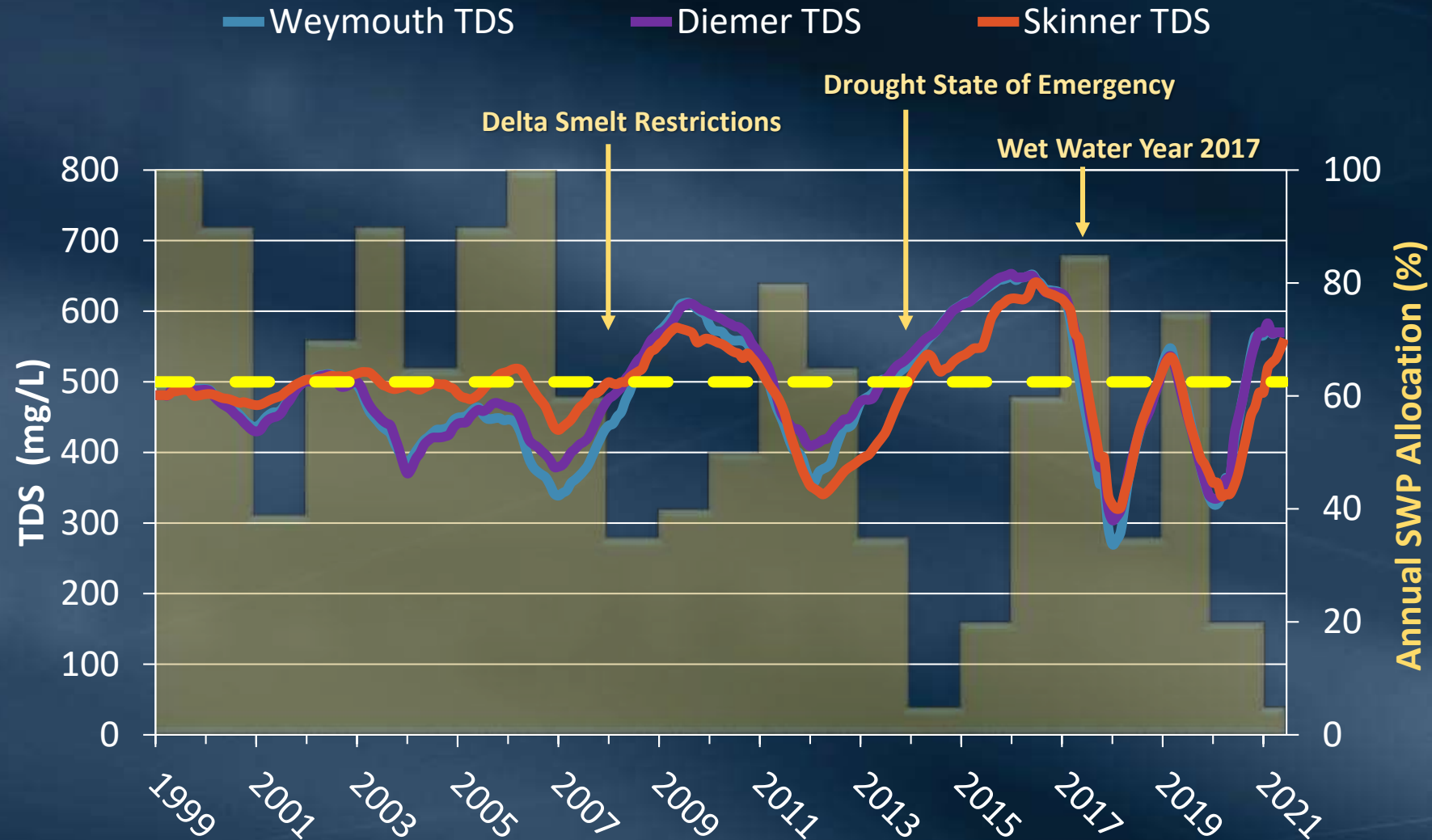
# Efforts to Meet Salinity Goal

- Transfer and Exchange Programs
- Local Storage
  - Inland Feeder/ Diamond Valley Lake
- Operating Principles
  - Meet water quality requirements and salinity objectives





# TDS Trends at Blend Plants



# Moving Forward

- Work with Reclamation to find a long-term replacement for the Paradox Well and develop a sustainable funding plan for the Salinity Control Program
- Invest in reliable Delta water supplies
- Manage system to meet salinity management policy objectives
- Collaborate with stakeholders on regional approaches
  - Southern California Salinity Coalition
  - Future Supply Actions Funding Program
  - Participate in other state and national programs





# Water System Operations Manager's Report

Engineering and Operations Committee  
Item 7a

September 13, 2021

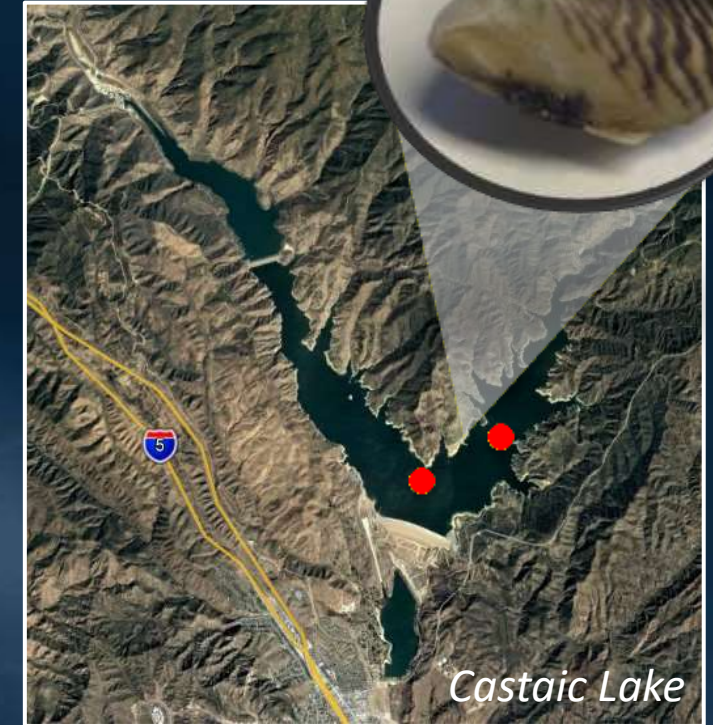


# Current Operational Conditions

- 2021 SWP Allocation is 5%
- SWP blend targets are 0% at Weymouth, Diemer, and Skinner plants
- CRA is at 7-pump flow
- DVL to Mills drought operation continues to perform well
- Managing storage based on WSDM principles
- August 2021 deliveries of 164 TAF were 19 TAF higher than August 2020

# Quagga Mussels Found in Castaic Lake

- In August, DWR found a few quagga mussels on shoreline of Castaic Lake
  - 1 confirmed adult mussel (live), 3 shells (dead)
- No evidence of reproducing mussel populations in Castaic Lake
  - No veligers (larval stages) detected in routine monitoring
  - No clumps of mussels
- Discovery triggers management actions to control mussels
  - Exit boat inspections implemented at Castaic Lake
  - Future management and control actions to be determined



Photos courtesy of DWR

# Upcoming Actions to Assess Impacts

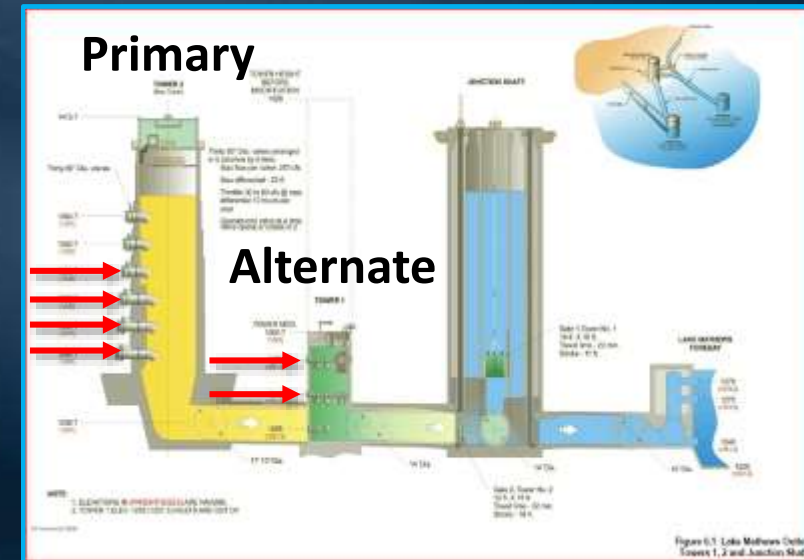
- Coordinate with DWR on follow-up monitoring and potential control strategies
- Increase monitoring and infrastructure inspections at Metropolitan facilities receiving SPW
  - Routine (monthly) monitoring to date has not found quagga mussels or veligers, including samples at Jensen plant influent and DVL
- With much lower calcium levels in SPW, unlikely to see impacts as found in CRA system
  - Few quagga mussels found in Pyramid Lake in 2016 but no established populations
- No impacts to water deliveries at this time
  - Further investigation needed to fully assess operational impacts





# Taste-and-Odor Event: August 2021

- In mid-August, some member agencies reported several consumer complaints of unpleasant odor in water
- Flavor Profile Analysis (FPA) for Weymouth and Diemer plants revealed sulfurous odor – *only aesthetic, no public health issue*
- Further investigation found low oxygen levels and sulfides deep in Lake Mathews
  - Natural lake phenomenon during warm weather
- Alternate outlet tower used during routine quagga mussel maintenance of primary tower
  - Pulling deeper water with no tier flexibility





# Actions to Resolve Taste-and-Odor Event

- Turned ozone on at Weymouth and Diemer plants for effective control of aesthetic compounds
  - Chlorine was used during Lake Mathews outlet tower maintenance
- Transitioned back to primary outlet tower with tier flexibility
  - Able to withdraw better quality water
  - Rescheduled maintenance to later this year
- Conducted daily FPA for plant and distribution system samples until event resolved
- Member agencies updated throughout event



*Flavor Profile Analysis*

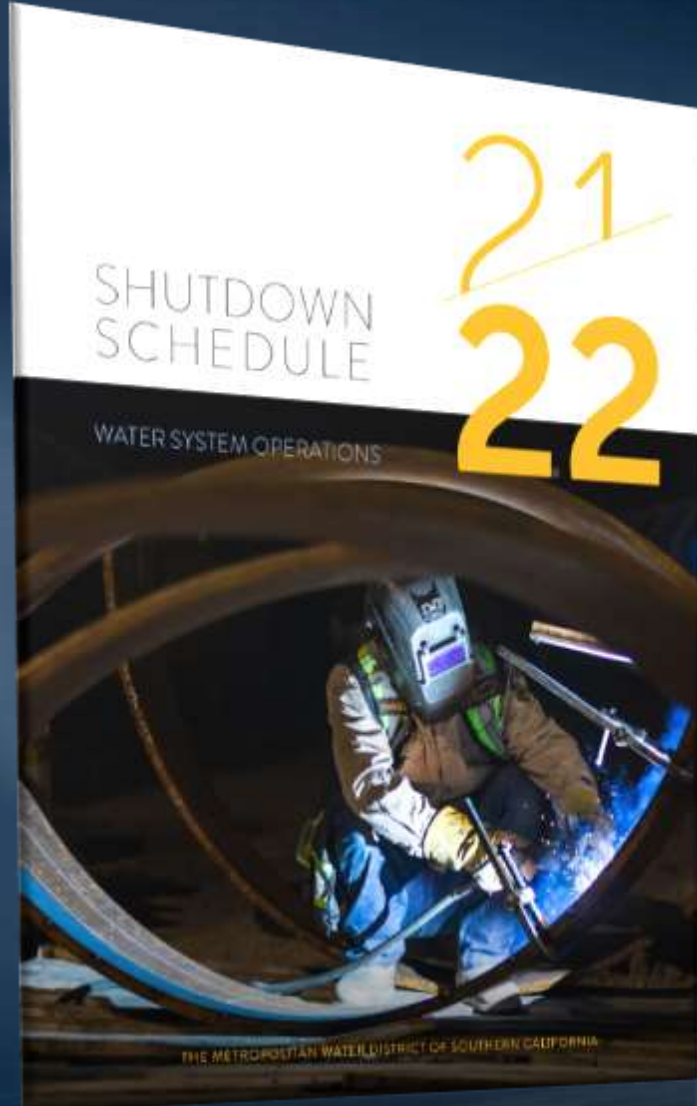
# Lake Skinner Cyanobacterial Bloom: August 2021

- Cyanobacteria producing T&O and cyanotoxin
  - Low concentrations but proactive control warranted to prevent rapid escalation
- Actions taken to respond to event
  - Ozone and peroxide at Skinner plant – no impact to treated water
  - Voluntary recreational “caution” signs posted at Lake Skinner park areas
  - Lake placed on bypass during event
  - Lake successfully treated with copper sulfate
  - Member agencies updated throughout event



# Ensuring Continued System Reliability

## 2021-22 Shutdown Schedule



- Publish and present to member agencies in September
- 17 major shutdowns planned
- Schedule also includes three-year look-ahead



# Ensuring Continued System Reliability

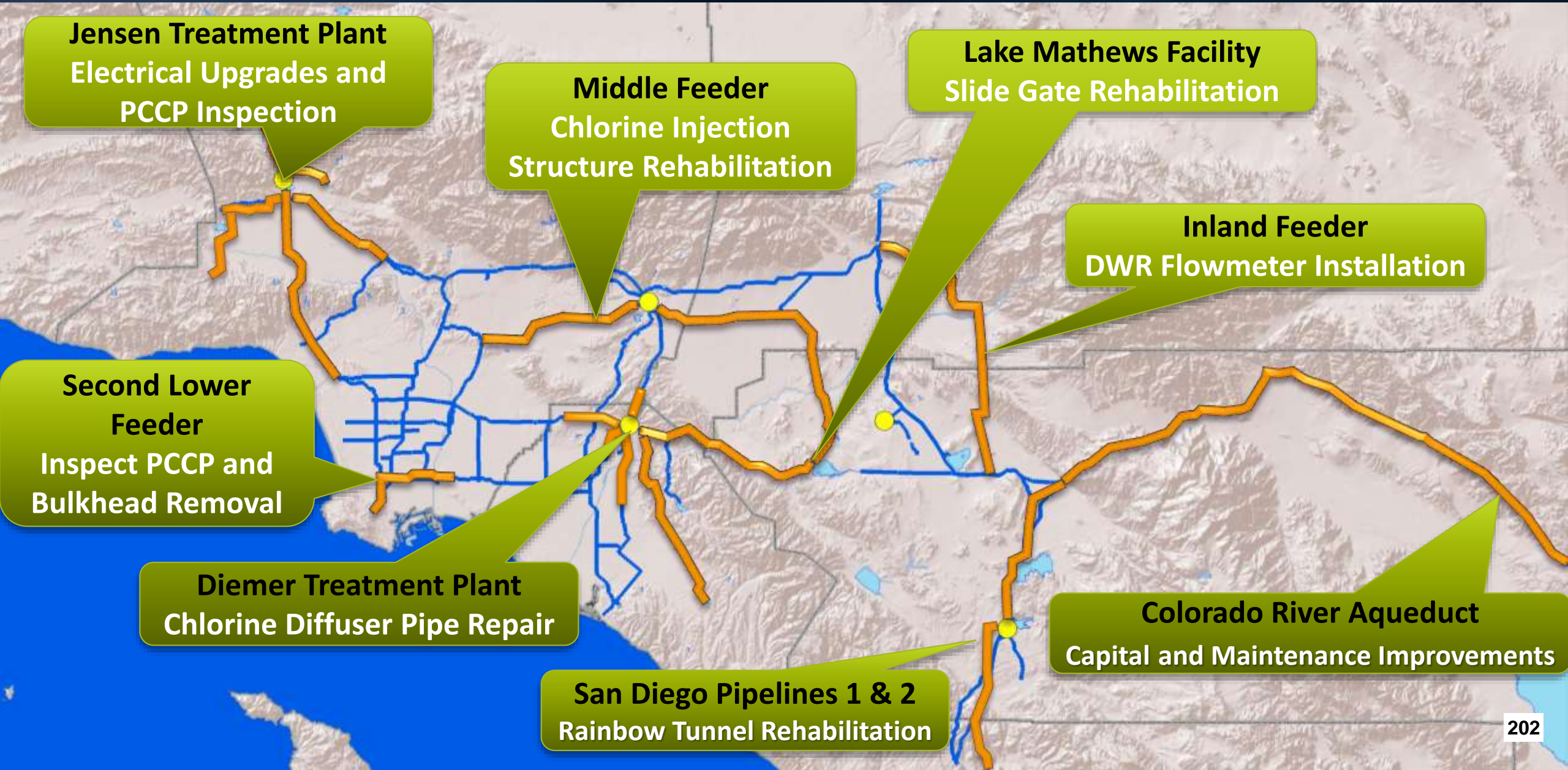
## Planning for a Successful Shutdown Season



- Closely coordinate with stakeholders
- Ensure safety as top priority
- Manage finite resources and complex logistics
- Maintain reliability for member agencies



# 2021-22 Shutdown Schedule Highlights





# 2021-22 Shutdown Schedule Highlights



***Lake Mathews Gate Repair***



***Jensen/Diemer Treatment Plant Shutdowns***



***CRA Flow Meter Installation***



***Sepulveda PCCP Inspection***







# Engineering Services Manager's Report

Engineering and Operations Committee  
Item 7b  
September 13, 2021



# Construction and Procurement Contracts

## July 2021

Construction & Procurement Contracts Through July 2021	
Number of Contracts at end of July 2021	29
Total Bid Amount of Contracts in Progress at end of July 2021	\$251M
Contracts Awarded in July 2021	0
Contracts With Notice To Proceed Issued in July 2021	0
Contracts Completed in July 2021	1
Contract Gross Earnings in July 2021	\$2.5M

# Garvey Reservoir Site Drainage contract

- Contract Amount:
  - \$1,294,800
- Contractor:
  - Kaveh Engineering and Construction, Inc.
- Percent Complete:
  - 60 %
- On-Going Construction Tasks:
  - Onsite work is currently suspended as of July 22, 2021



# Upper Feeder Protection Structure Damage



Cal Trans I-10 Express Lane Project  
at the Monte Vista off-ramp (westbound)



Upper Feeder beneath damaged protection structure





# Metropolitan's Ozonation Systems

- Critical ozone components require upgrade, replacement, or rehabilitation to maintain operational reliability
  - Ozone control systems
  - Ozone generation systems
  - Other ozone facilities and subsystems
    - Oxygen feed gas, nitrogen, generator cooling water, & diffusion systems
- Metropolitan's oldest ozone systems
  - Mills: 2003
  - Jensen: 2005
  - Skinner: 2010
- Phased approach to address ozone rehabilitation underway



# Ozone Control System Upgrades

- Replace PLCs and control panels
  - Jensen plant
    - Completed in 2018, approximately \$1.6 M
  - Skinner plant
    - Completed in 2021, approximately \$1.5 M
  - Mills plant
    - Underway, Board action August 2021
    - Scheduled to be completed by Dec. 2022
    - Capital investment approximately \$2.1 M

# Rehabilitation of Other Ozone Components

- Jensen Plant
  - Power supply units (PSUs)/dielectrics replacement underway
  - Capital investment: approx. \$7.1 M
  - Contract award planned: November 2021
- Skinner & Mills Plants
  - PSU/dielectric assessment planned to start in spring 2022
  - Skinner ozone contactors 3 and 4 rehabilitation – complete
  - Skinner ozone contactors 1 and 2 rehabilitation – design underway
- Diemer & Weymouth Plants
  - Diemer on-line 2013: monitoring
  - Weymouth on-line 2017: monitoring

# Staff Presentations to Recent and Upcoming Conferences

- ASCE: Specialty Meetings and Conferences
  - Applications of Metropolitan's Hydraulic Modeling Capabilities
  - Strategies to Improve Large Diameter Pipeline Seismic Resilience
  - Infrastructure Resilience – Eight presentations
- AWWA 2021 ACE Conference
  - Metropolitan's System Reliability Strategy and Resilience
- Earthquake Engineering Research Institute: Panel Discussion
  - Resilience of Lifeline Networks
- Japan/Taiwan/US 2022 Seismic Conference
  - Two presentations accepted

Metropolitan Los Angeles Branch, ASCE  
Hydrology & Hydraulics Group  
Presents

**Applications of  
Metropolitan Water District's  
Hydraulic Modeling Capabilities**

Sonnie Kashay, P.E. • Sameh Momtaz, P.E. • Saurabh Shekhar, P.E.

September 22, 2021  
11:30am to 12:30pm

Zoom Webinar Link  
ID: 919 6699 8209  
Passcode: 041644

Or Telephone: +1 669 219 2599 or +1 669 900 9128

