THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

MWD MEETING AGENDA

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
G. Peterson
H. Repenning
H. Williams

Engineering and Operations Committee - Final - Revised 1

Meeting with Board of Directors *

January 10, 2022

10:00 a.m.

Monday, January 10, 2022 Meeting Schedule
09:00 a.m. - C&L
10:00 a.m. - E&O
11:30 a.m. - Break
12:00 p.m. - WP&S
01:30 p.m. - RP&AM

Teleconference meetings will continue through the end of the year. Live streaming is available for all board and committee meetings on mwdh2o.com (Click Here)

A listen only phone line is also available at 1-800-603-9516; enter code: 2176868#. 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 enter Code: 9601962.

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

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

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

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

2. CONSENT CALENDAR OTHER ITEMS - ACTION

A. Approval of the Minutes of the Meeting of the Engineering and Operations Committee held December 13, 2021 — **21-765**

Attachments: 01102022 EO 2A minutes.pdf

3. CONSENT CALENDAR ITEMS - ACTION

Zoom Online

7-1 Authorize on-call agreements with Aspen Environmental Group and Environmental Science Associates in amounts not-to-exceed $750,000 per year each, for a maximum of four years for environmental planning services to support O&M and board-authorized Capital Investment Plan projects; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-741**

Attachments: 01112022 EO 7-1 B-L.pdf
01102022 EO 7-1 Presentation.pdf

7-2 Award a $1,936,977 contract to All American Asphalt for pavement rehabilitation at the Robert A. Skinner Water Treatment Plant; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-742**

Attachments: 01112022 EO 7-2 B-L.pdf
01102022 EO 7-2 Presentation.pdf

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

4. OTHER BOARD ITEMS - ACTION

None

5. BOARD INFORMATION ITEMS

None

6. COMMITTEE ITEMS

a. 2021 System Operations: A Year in Review **21-771**

Attachments: 01102022 EO 6a Presentation.pdf

b. State Water Project Dependent Area Solutions Update [SUBJECT REVISED 1/5/2022] **21-792**

Attachments: 01102022 EO 6b Presentation.pdf

c. Proposed Water Quality Lab Upgrades **21-769**

Attachments: 01102022 EO 6c Presentation.pdf

d. Annual Seismic Resilience Update **21-768**

Attachments: 01102022 EO 6d Presentation.pdf

e. Overview of Construction Management **21-770**

Attachments: 01102022 EO 6e Presentation.pdf

7. MANAGEMENT REPORTS

a. Water System Operations Manager's Report **21-766**

Attachments: 01102022 EO 7a Presentation.pdf

b. Engineering Services Manager's Report **21-767**

Attachments: 01102022 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

ENGINEERING AND OPERATIONS COMMITTEE

December 13, 2021

Chair Smith called the teleconference meeting to order at 10:00 a.m.

Members present: Chair Smith, Directors Blois, Camacho, De Jesus, Dick, Faessel, Lefevre, Morris, and Williams

Members absent: Director Apodaca, Peterson, and Repenning

Other Board members present: Directors Abdo, Ackerman, Atwater, Cordero, Dennstedt, Dick, Erdman, Fellow, Fong-Sakai, Gray (entered after roll call), Jung, McCoy, Miller, Ramos, Record and Tamaribuchi

Committee staff present: Bednarski, Hagekhalil, Molette, Parsons, Scully, Upadhyay, and Yamasaki

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 November 8, 2021.

3. CONSENT CALENDAR ITEMS – ACTION

7-1	Subject:	Amend the Capital Investment Plan for fiscal years 2020/2021 and 2021/2022 to include water supply reliability improvements in the Rialto Pipeline service area; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA
	Presented by:	Keith Nobriga, Section Manager, Water System Operations Wayne Thilo, Senior Engineer, Engineering Services
	Motion:	Amend the Capital Investment Plan for fiscal years 2020/2021 and 2021/2022 to include water supply reliability improvements in the Rialto Pipeline service area

The following Directors provided comments or asked questions:

1. Lefevre
2. Abdo

Staff responded to the Directors' comments or questions.

7-2 Subject: Award a $11,499,000 contract to J.F. Shea Construction, Inc. for the seismic upgrade of the Casa Loma Siphon Barrel No. 1; and authorize $1,100,000 increase to an agreement with Carollo Engineers Inc., for a new not-to-exceed total of $3.6 million, for technical support during construction; the proposed action is in furtherance of a project that was previously determined to be exempt or otherwise not subject to CEQA

Presented by: Cathy Chau, Senior Engineer, Engineering Services

Motion: a. Award $11,499,000 contract to J. F. Shea Construction, Inc. for Casa Loma Siphon Barrel No. 1 Seismic Upgrade
b. Authorize a $1.1 million increase to an agreement with Carollo Engineers Inc. for a new not-to-exceed amount of $3.6 million.

The following Directors provided comments or asked questions:

1. Lefevre

Staff responded to the Director's comments or questions.

7-3 Subject: Award a $32,824,000 contract to J.F. Shea Construction, Inc. to upgrade the domestic water treatment systems at the five Colorado River Aqueduct pumping plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Presented by: Patrizia Hall, Engineer, Engineering Services

Motion: Award a $32,824,000 contract to J.F. Shea Construction, Inc. to upgrade the domestic water treatment systems at the five Colorado River Aqueduct pumping plants

The following Directors provided comments or asked questions:

1. Faessel
2. Smith
3. Dick

Staff responded to the Directors' comments or questions.

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

The vote was:

Ayes:	Directors Blois, Camacho, De Jesus, Dick, Faessel, Lefevre, Morris, Smith and Williams
Noes:	None
Abstentions:	None
Absent:	Director Apodaca, Peterson, and Repenning

The motion for Items 2A, 7-1, 7-2, and 7-3 passed by a vote of 9 ayes, 0 noes, 0 abstentions, and 3 absent.

END OF CONSENT CALENDAR ITEMS

4. OTHER BOARD ITEMS – ACTION

None

5. BOARD INFORMATION ITEMS

None

6. COMMITTEE ITEMS

a. Subject: Capital Investment Plan Quarterly Report for period ending September 2021 21-698

Presented by: James Hong, Principal Engineer, Engineering Services

Mr. Hong reported on the following:

- CIP Performance for Fiscal Years 2020/21 & 2021/22
- Gene Wash Reservoir Discharge Valve Rehabilitation
- Jensen & Skinner Battery Energy Storage Systems
- CRA Radial Gates Replacement
- Minor Capital Projects

The following Directors provided comments or asked questions:

1. Blois
2. Smith
3. Tamaribuchi

Staff responded to the Directors' comments or questions.

b. Subject: Regional Recycled Water Program Quarterly Update

Presented by: Bruce Chalmers, Program Manager, Engineering Services

Mr. Chalmers reported on the following:

- Demonstration Plant Testing
- Environmental Planning Phase Activities
- Agency Coordination
- Grants & Funding
- Public Outreach Meetings
- Potential RRWP Early Start Projects
- Potential Early Delivery of Water

The following Directors provided comments or asked questions:

1. Lefevre
2. Smith

Staff responded to the Directors' comments or questions.

7. MANAGEMENT REPORTS

a. Subject: Water System Operations Manager's report

Presented by: Brent Yamasaki, Water System Operations, Group Manager

Mr. Yamasaki reported on the following:

- Update on Metropolitan's participation in the State Water Resources Control Board's policy development process for microplastics in drinking water, including comments on their draft policy handbook

b. Subject: Engineering Services Manager's report

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

Mr. Bednarski reported on the following:

- Climate Action Plan update
- UV light disinfection system HQ construction update

8. FOLLOW-UP ITEMS

None

9. FUTURE AGENDA ITEMS

None

Next meeting will be held on January 10, 2022.

Meeting adjourned at 11:45 a.m.

Tim Smith
Chair

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

1/11/2022 Board Meeting

7-1

Subject

Authorize on-call agreements with Aspen Environmental Group and Environmental Science Associates in amounts not to exceed $750,000 per year each, for a maximum of four years for environmental planning services to support O&M and board-authorized Capital Investment Plan projects; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Staff utilizes on-call agreements to provide specialized environmental planning services, including biological resources, cultural resources, regulatory guidance, and other technical support in compliance with the California Environmental Quality Act (CEQA) and other state and federal environmental laws. This action authorizes two new on-call professional services agreements to Aspen Environmental Group and Environmental Science Associates to provide environmental planning support for operations and maintenance (O&M) and capital projects. The recommended annual maximum amount of these agreements is $750,000 each, with a maximum duration of four years. The increased agreement amounts are necessary in light of the increased number of overall projects and the increased cost of CEQA studies and document preparation. On-call agreements are typically used for short-term assignments, urgent projects, and projects with specialized technical needs.

Details

Background

Metropolitan's Board adopts an operating budget biennially that includes planned expenditures for O&M activities and capital programs, which are aggregated within the Capital Investment Plan (CIP). Staff's approach for environmental planning support of O&M activities and capital projects is to use available in-house staff first, with professional consultant services used only where appropriate. This approach maintains a stable, responsive, and experienced workforce and is consistent with Metropolitan's succession planning efforts.

When resource needs exceed available in-house staffing or require specialized technical expertise, Metropolitan uses a combination of project-specific and on-call professional services agreements. Firms are competitively evaluated, resulting in a prequalified list of firms from which both on-call and project-specific agreements are executed as project needs are identified. For capital programs, agreements are typically executed on a project-specific basis; those agreements over $250,000 are approved individually by the Board. On-call agreements are multi-year agreements with annual not-to-exceed amounts that can be used to support both O&M and capital projects through the execution of individual task orders identified and authorized by staff. These agreements provide a higher degree of flexibility and quicker response time to provide environmental planning support as the need arises. Generally, the Environmental Planning Section has between 11 and 14 on-call agreements available for use at any given time, in the not-to-exceed amount of $250,000 per year.

Over the next several fiscal years, a number of projects throughout Metropolitan's service area have been identified that will require environmental planning support beyond the level that can be provided by in-house staff. Support will be needed for the preparation of CEQA documentation, regulatory permitting, and other specialized services, including technical studies and reports for various environmental resource areas. The overall number of projects and the cost of the studies and document preparation have increased significantly, requiring additional contract authority. Based on the need for consultant support and associated cost for environmental

support for the anticipated workload, staff recommends executing agreements with Aspen Environmental Group and Environmental Sciences Associates with not-to-exceed amounts of $750,000 in order to minimize the number of agreements executed and to lower administrative costs associated with executing and administering separate agreements.

In support of Metropolitan's goal of increasing business opportunities for Small Business Enterprise (SBE) firms, staff establishes SBE participation levels for the majority of professional services agreements. The only exceptions are for highly specialized areas of expertise, or for the uncommon occasions when sub-consulting opportunities are limited.

Agreements for Environmental Planning Services – Aspen Environmental Group and Environmental Science Associates

Request for Qualifications (RFQ) No. 1265 was issued in April 2021 to establish a pool of qualified firms to support projects related to Metropolitan's conveyance, distribution, storage, and treatment facilities and to replace on-call agreements expiring in February 2022. Environmental services to be provided under the agreements were identified in the RFQ and included support in five categories: biological resources management, cultural resources management, regulatory permitting and guidance, general on-call environmental planning services, and environmental planning support for specific future CIP and/or special projects. Twenty-eight firms submitted Statements of Qualifications, which were evaluated on key personnel, past and ongoing project performance, work methodology, and business outreach program. Based on the evaluation process for RFQ No. 1265, two firms, Aspen Environmental Group and Environmental Science Associates are recommended for award of agreements in an amount not to exceed $750,000 each per contract year based on staff's current assessment of technical resources needed to support planned O&M and capital projects over the next four years. Additional on-call agreements will be awarded under the General Manager's authority in an amount not to exceed $250,000 per contract year.

This action authorizes on-call agreements with Aspen Environmental Group and Environmental Science Associates in an amount not to exceed $750,000 each per contract year. The maximum duration of the agreements will be four years. Funding for the work to be assigned to the consultants under on-call agreements is available within Metropolitan's biennial budget. No work is guaranteed to the consultants under these agreements. For each of the agreements, Metropolitan has established an SBE participation level of at least 25 percent of the amount of the agreement. Aspen Environmental Group is an established SBE firm, and Environmental Science Associates has committed to meet this level of participation.

Alternatives Considered

Staff considered continuing to execute all on-call roll-over agreements in an amount not to exceed $250,000 per contract year; however, this practice necessitates executing a new agreement for all projects that exceed the annual roll-over agreement limit. Given the expected higher than average workload over the next four years, the anticipated number of projects that will require more complex environmental documents, and the increasing costs associated with preparation of environmental documentation, this alternative was not selected as it would forgo an opportunity to reduce the number of agreements executed and miss an opportunity to lower administrative costs associated with executing and administering separate agreements.

Summary

This action authorizes on-call agreements with **Aspen Environmental Group and Environmental Science** Associates in an amount not to exceed $750,000 each per contract year.

Policy

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

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA because it involves the creation of government funding mechanisms or other government fiscal activities that do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Public Resources Code 21065; Section 15378(b)(4) of the State CEQA Guidelines). In addition, 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

Board Options

Option #1

Authorize on-call agreements with Aspen Environmental Group and Environmental Science Associates, in an amount not to exceed $750,000 per year each, for a maximum of four years for environmental planning services to support O&M and board-authorized Capital Investment Plan projects.

Fiscal Impact: Up to a maximum of $750,000 per year for four years; however, funding for the work to be assigned to the consultants under on-call agreements and performed this biennium is already authorized in the biennial budgets. Future costs will be accounted for and appropriated under subsequent biennial budgets. In addition, no work is guaranteed to the consultants under these agreements.

Business Analysis: Contracting with multiple firms provides flexibility and an efficient means for Metropolitan to obtain needed technical services and specialized expertise to support the completion of capital projects in accordance with board-adopted schedules. On-call agreements with higher not-to-exceed amounts reduce administrative costs associated with multiple, smaller agreements and provide additional flexibility to address urgent projects quickly.

Option #2

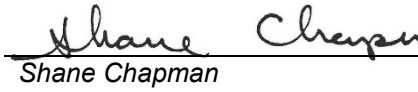
Do not authorize on-call agreements at this time.

Fiscal Impact: None

Business Analysis: Under this option, Metropolitan staff would request board authorization for agreements on a project-specific basis or would execute smaller agreements less than $250,000 per contract year. This option would forgo an opportunity to reduce administrative costs or address urgent projects promptly.

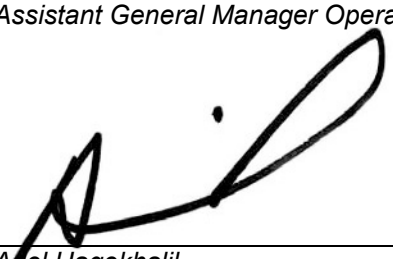
Staff Recommendation

Option #1



12/22/2021

Shane Chapman *Date*
Assistant General Manager Operations



12/27/2021

Adel Hagekhalil *Date*
General Manager

Ref# cao12681114

Authorize Professional Services Agreements for Environmental Planning Services Support

Engineering and Operations Committee

Item 7-1

January 10, 2022

Current Action

- Authorize four-year on-call agreements in an amount NTE $750K/year each
  - Aspen Environmental Group
  - Environmental Science Associates

Environmental Planning Staffing Strategy

- Rely on in-house labor to fullest extent possible
- Use consultants:
  - When resource needs exceed available staffing
  - Specialized technical expertise / skills
  - Preparation of complex environmental documentation

Professional Services Agreements

- Project Specific Agreements
  - For extended duration or larger projects
  - Approved individually by the Board over $250K
- On-Call Agreements (*Subject of This Action*)
  - Multi-year with NTE amounts
  - Typically utilized for shorter-term assignments & urgent projects
  - Allows for flexibility & expedited project delivery
  - Reduces administrative costs

Request for Qualifications (RFQ) 1265

- Issued in April 2021 to establish list of pre-qualified firms to replace on-call agreements expiring in February 2022
- Covered services in 5 categories:
  - Biological resources management
  - Cultural resources management
  - Regulatory permitting/guidance
  - General on-call environmental planning services
  - Future CIP and/or special projects

Request for Qualifications (RFQ) 1265

- Services to be provided include:
  - Technical resource studies
    - Air Quality
    - Biological
    - Cultural
    - GHG Emissions
    - Noise
    - Traffic
  - CEQA documentation
  - Regulatory permit applications
  - Construction monitoring

RFQ 1265 Recommendation to Award

- 2 on-call agreements NTE $750,000/year
  - Aspen Environmental Group
  - Environmental Science Associates
- Additional on-call agreements will be awarded for NTE $250,000/year under General Manager authority

On-Call Agreements

- No project approvals are requested in this action
- No work guaranteed to consultants
- Limit on annual maximum expenditure amount
- Agreements expire after 4 years

Board Options

- Option #1
  - Authorize on-call agreements with Aspen Environmental Group and Environmental Science Associates, in an amount not to exceed $750,000 per year each, for a maximum of four years for environmental planning services to support O&M and board-authorized Capital Investment Plan projects.
- Option #2
  - Do not authorize on-call agreements at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

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

1/11/2022 Board Meeting

7-2

Subject

Award a $1,936,977 contract to All American Asphalt for pavement rehabilitation at the Robert A. Skinner Water Treatment Plant; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Metropolitan has an ongoing program to provide timely pavement maintenance and repairs at facilities within Metropolitan's service areas. Over the past 45 years, the service roads and paved areas around the Skinner plant have received heavy use by Metropolitan forces and construction contractors. As a result, portions of these paved areas now exhibit extensive surface and sub-base deterioration. This action awards a construction contract to rehabilitate approximately 430,000 square feet of existing deteriorated asphalt pavement in and around the Robert A. Skinner Water Treatment Plant (Skinner plant).

Details

Background

The Skinner plant commenced service in 1976 and currently has a capacity of 350 million gallons per day (mgd). It delivers a blend of waters from the Colorado River and State Water Project to Eastern Municipal Water District, Western Municipal Water District of Riverside County, and the San Diego County Water Authority. The plant is located north of Temecula in Riverside County.

Over the past 45 years, the paved roads around the Skinner plant have begun to deteriorate due to aging and surface wear. The roads are used to perform routine operation and maintenance activities and have received heavy use during rehabilitation efforts by Metropolitan forces and construction contractors. The deteriorated pavement exhibits raveling caused by wear and tear under traffic loads, surface deterioration, and fatigue and edge cracking caused by saturated subgrades from poor drainage and standing water. Staff recommends that the existing deteriorated paving be removed, grading be performed to improve drainage, and asphalt paving be installed to provide all-weather paved surfaces for the Skinner area facilities. In areas where the deterioration is not as severe, staff recommends that slurry seal coating be applied to extend the life of the paved area.

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 rehabilitation of the asphalt concrete pavement at the Skinner plant, pending board award of the contract described below. Based on the current Capital Investment Plan (CIP) expenditure forecast, funds for the work to be performed, pursuant to this action during the current biennium, are available within the Capital Investment Plan Appropriation for Fiscal Years 2020/21 and 2021/22 (Appropriation No. 15519). 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 System Reliability Program.

Skinner Facility Area Paving – Construction

The scope of the construction contract work consists of the rehabilitation of approximately 430,000 square feet of asphalt pavement in and around the Skinner plant, which includes removing the existing pavement, placing new

asphalt pavement, and applying slurry seal on existing portions of asphalt pavement that do not need to be completely replaced. Metropolitan forces will perform surveying, conduct soil and concrete tests as required, and establish traffic controls to reroute onsite chemical deliveries and traffic.

A total of $2.88 million has been budgeted for this work. In addition to the amount of the contract described below, other funds to be allocated include $280,000 for construction inspection; $210,000 for Metropolitan force activities as described above; $155,000 for submittals review, technical support during construction, responding to requests for information, and preparation of record drawings; $149,000 for contract administration, environmental monitoring, and project management; and $149,023 for the remaining budget.

Attachment 1 provides the allocation of the required funds. The total estimated cost of the Skinner Facility Area Paving, including the amount allocated to date and funds allocated for the work described in this action, is approximately $3.21 million.

Award of Construction Contract (All American Asphalt)

Specification No. 1984 to rehabilitate the asphalt paving at the Skinner plant was advertised for bids on October 22, 2021. As shown in **Attachment 2**, five bids were received and opened on December 2, 2021. The low bid from All American Asphalt in the amount of $1,936,977 complies with the requirements of the specifications. The other bids ranged from approximately $2.1 million to $2.6 million, while the engineer's estimate for this project was $3.15 million. Staff attributes the difference between the engineer's estimate and the bids received to the highly competitive construction market for asphalt rehabilitation. For this contract, Metropolitan established a Small Business Enterprise participation level of at least 25 percent of the bid amount. All American Asphalt has agreed to meet this level of participation. This action awards a $1,936,977 contract to All American Asphalt for the rehabilitation of asphalt paving at the Skinner plant.

As described above, Metropolitan staff will perform construction management and inspection. Engineering Services' performance metric target range for inspection of projects with construction less than $3 million is 12 to 15 percent. For this project, the performance metric goal for inspection is 13 percent of the total construction cost ($2,146,977), which includes the construction contract ($1,936,977) and Metropolitan force construction ($210,000). The subcontractors for this contract are listed in **Attachment 3**.

Alternatives Considered

Staff considered addressing pavement rehabilitation by issuing multiple contracts, with each contract addressing specific regions of the Skinner plant. This approach would minimize operational impacts; however, it would be more expensive due to the multiple design, advertisement, and contractor mobilization efforts that would be undertaken. The current approach expeditiously addresses the significant deterioration of the existing asphalt pavement at the Skinner plant in the most cost-effective manner. Finally, staff assessed alternatives to rehabilitate pavement areas that were not significantly deteriorated but needed some improvements to extend the useful life. In these areas, a slurry seal application will be used, instead of replacing the pavement. This approach provides a cost-effective alternative when compared to a complete pavement removal/replacement in areas where deterioration is not severe.

Summary

This action awards a $1,936,977 contract to All American Asphalt for the rehabilitation of asphalt pavement at the Skinner plant. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, **Attachment 3** for the listing of Subcontractors for Low Bidder, and **Attachment 4** for the Location Map.

Project Milestone

September 2022 – Completion of construction

Policy

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

Metropolitan Water District Administrative Code Section 8140: Competitive Procurement

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 49512, dated August 20, 2013, Metropolitan's Board authorized preliminary design of the pavement repairs at Skinner area facilities.

By Minute Item 51963, dated April 13, 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)

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. In particular, the proposed action consists of awarding a construction contract and 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 replacement and reconstruction of existing structures and facilities where the new structure will be located on the same site and as the structure replaced and will have the same purpose and capacity as the structure replaced. Further, 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 and Class 4 Categorical Exemptions (Sections 15301 and 15304 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Award a $1,936,977 contract to All American Asphalt for the rehabilitation of asphalt pavement at the Skinner plant.

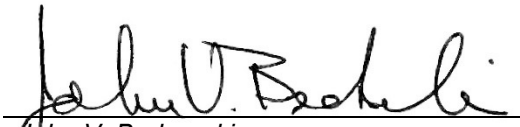
Fiscal Impact: Expenditure of $2.88 million in capital funds. Approximately $1.8 million will be incurred in the current biennium and have been previously authorized.
Business Analysis: This option will protect Metropolitan's assets and help maintain reliability of the plant.

Option #2

Do not proceed with the project at this time.
Fiscal Impact: None
Business Analysis: Under this option, staff will continue to assess the condition of the deteriorated pavement, which may lead to higher repair costs in the future.

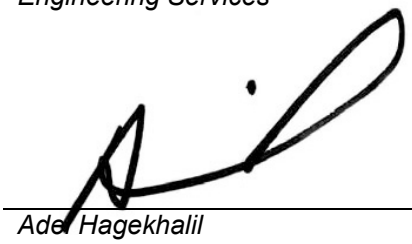
Staff Recommendation

Option #1



12/16/2021

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



12/21/2021

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Subcontractors for Low Bidder

Attachment 4 – Location Map

Ref# es01112022

Allocation of Funds for Pavement Rehabilitation at the Skinner plant

	Current Board Action (Jan. 2021)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	149,000
Submittals Review & Record Drwgs.	155,000
Construction Inspection & Support	280,000
Metropolitan Force Construction	170,000
Materials & Supplies	-
Incidental Expenses	40,000
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	-
All American Asphalt	1,936,977
Remaining Budget	149,023
Total	**$ 2,880,000**

The total amount expended to date for pavement rehabilitation at the Skinner plant is approximately $330,000. The total estimated cost to complete the pavement rehabilitation, including the amount appropriated to date, and funds allocated for the work described in this action, is $3.21 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on December 2, 2021, at 2:00 P.M.

Specifications No. 1984
Robert A. Skinner Water Treatment Plant
Facility Area Paving

The work consists of the rehabilitation of approximately 430,000 square feet of asphalt concrete, which includes removing the existing asphalt and placing new asphalt, and applying slurry seal on existing asphalt.

Engineer's estimate: $3,150,000

Bidder and Location	Total	SBE $	SBE %	Met SBE[1]
All American Asphalt **Corona, CA**	**$1,936,977**	**$493,854**	**25.5**	**Yes**
Calmex Engineering, Inc. Bloomington, CA	$2,139,946	-	-	-
Asphalt, Fabric, & Engineering, Inc. Signal Hill, CA	$2,311,000	-	-	-
ATP General Engineering Contractors San Diego, CA	$2,356,514	-	-	-
Griffith Company Santa Fe Springs, CA	$2,585,164	-	-	-

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

The Metropolitan Water District of Southern California

Subcontractors for Low Bidder

Specifications No. 1984
Robert A. Skinner Water Treatment Plant
Facility Area Paving

Low bidder: All American Asphalt

Subcontractor and Location
Cal Stripe, Inc. Colton, CA
CL Surveying and Mapping, Inc. Rancho Cucamonga, CA
Mission Paving & Sealing Irwindale, CA


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

Skinner Facility Area Paving

Engineering and Operations Committee
Item 7-2
January 10, 2022

Current Action

- Award a $1,936,977 contract to All American Asphalt for pavement rehabilitation at the Robert A. Skinner Water Treatment Plant

Distribution System

Background

- Deteriorated surfaces after 45 years of service
  - Many areas are original asphalt installations
  - Uneven/eroded surfaces, potholes, cracks & raveling
- Deterioration caused by:
  - O&M activities & construction activities
  - Poor drainage

Skinner Plant Lower Patrol Road Deterioration

Skinner Facility: Pavement Rehabilitation

Areas of pavement rehabilitation

Alternatives Considered

- Issue multiple construction contracts
  - Would incur more cost due to multiple designs, advertisements, & construction mobilizations
- Selected alternative – single contract
  - Expeditiously addresses asphalt deterioration in cost-effective manner
  - Utilizes alternative asphalt pavement restoration methods based on deterioration conditions

Contractor Scope

- Rehabilitate approximately 430,000 square feet of asphalt pavement
  - Remove existing pavement
  - Install new or re-compacted existing crushed aggregate base
  - Install new asphalt pavement
  - Perform concrete drainage improvements
  - Install new traffic striping
- Apply sealcoat on existing asphalt pavement to preserve less damaged areas

Metropolitan Scope

- Force construction
  - Perform soil & material testing, & surveying
  - Establish traffic control
- Conduct construction inspection
- Perform submittal reviews & prepare record drawings
- Provide project management, contract admin., & environmental monitoring

Bid Results

Specifications No. 1984

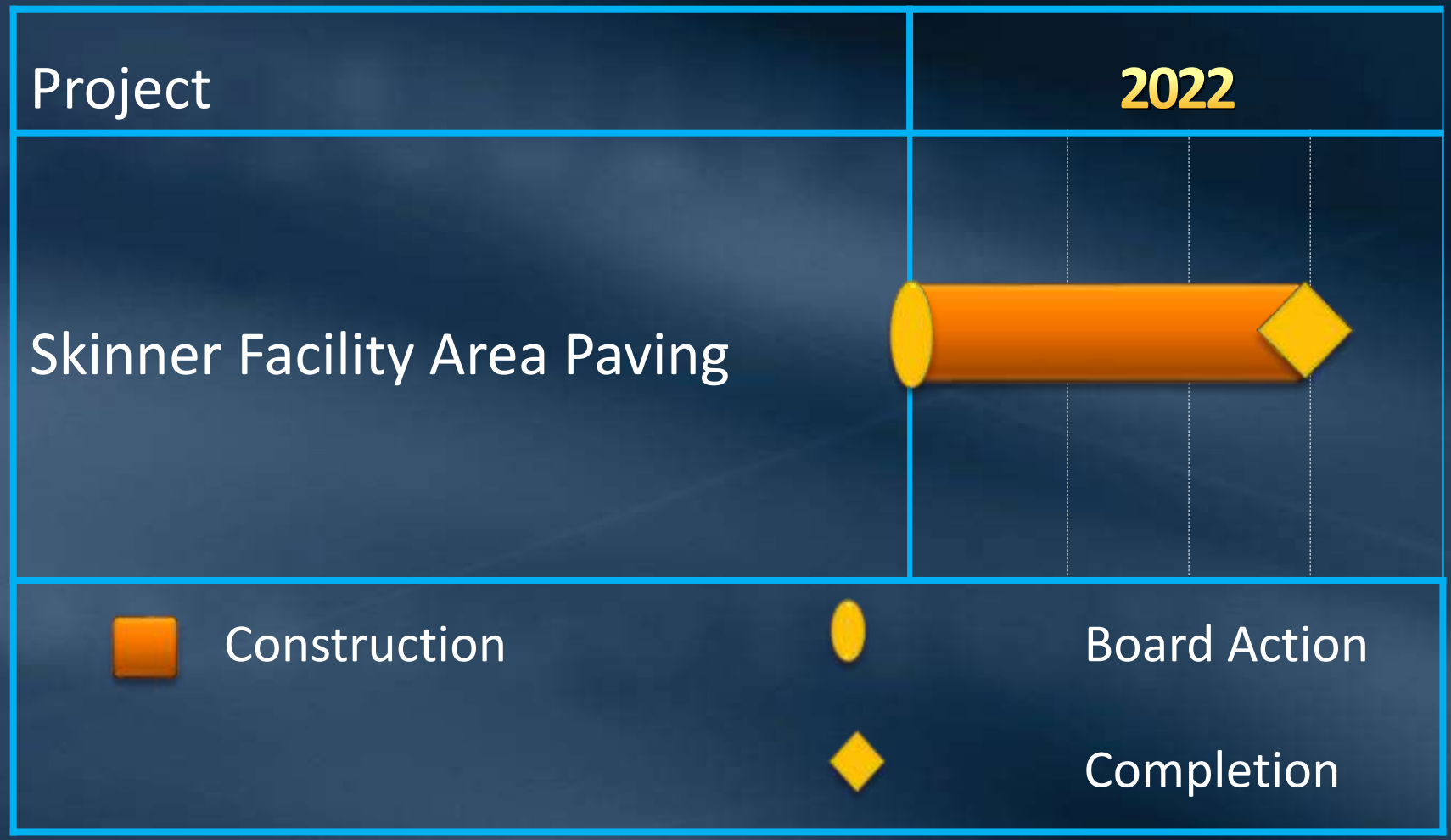
Bids Received	December 2, 2021
No. of Bidders	5
Low Bidder	All American Asphalt
Low Bid	$1,936,977
Range of Higher Bids	$2,100,000 to $2,600,000
Engineer's estimate	$3,150,000
SBE Participation*	25.5%

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

Allocation of Budgeted Funds

Contract	
All American Asphalt	$1,936,977
Labor	
Program mgmt., contract admin. & envir. monitoring	149,000
Force construction	170,000
Const. inspection & support	280,000
Submittal review & record drwgs.	155,000
Materials & Incidentals	40,000
Remaining Budget	149,023
Total	$2,880,000

Project Schedule



Board Options

- Option #1
  - Award a $1,936,977 contract to All American Asphalt for the rehabilitation of asphalt pavement at the Skinner plant.
- Option #2
  - Do not proceed with the project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

2021 System Operations
A Year in Review

Engineering and Operations Committee
Item 6a
January 10, 2022

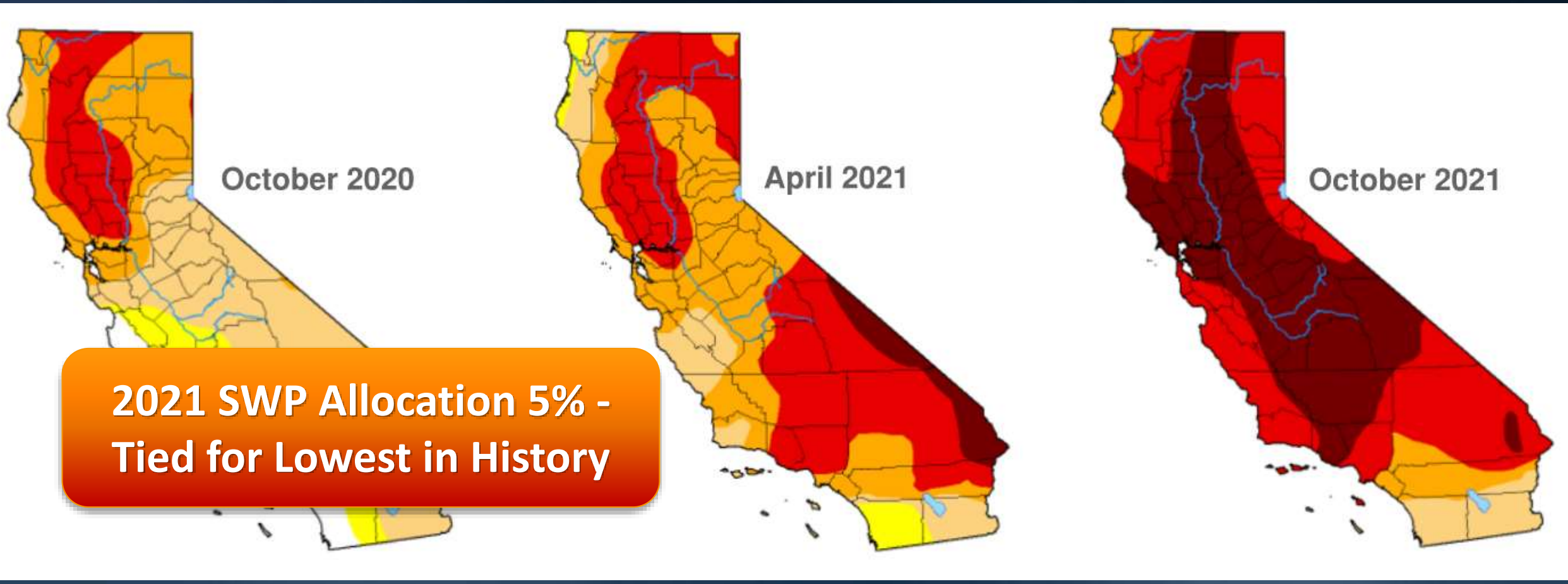
Extreme Drought Conditions

None
D0 (Abnormally Dry)
D1 (Moderate Drought)
D2 (Severe Drought)
D3 (Extreme Drought)
D4 (Exceptional Drought)

White areas on map indicate no drought

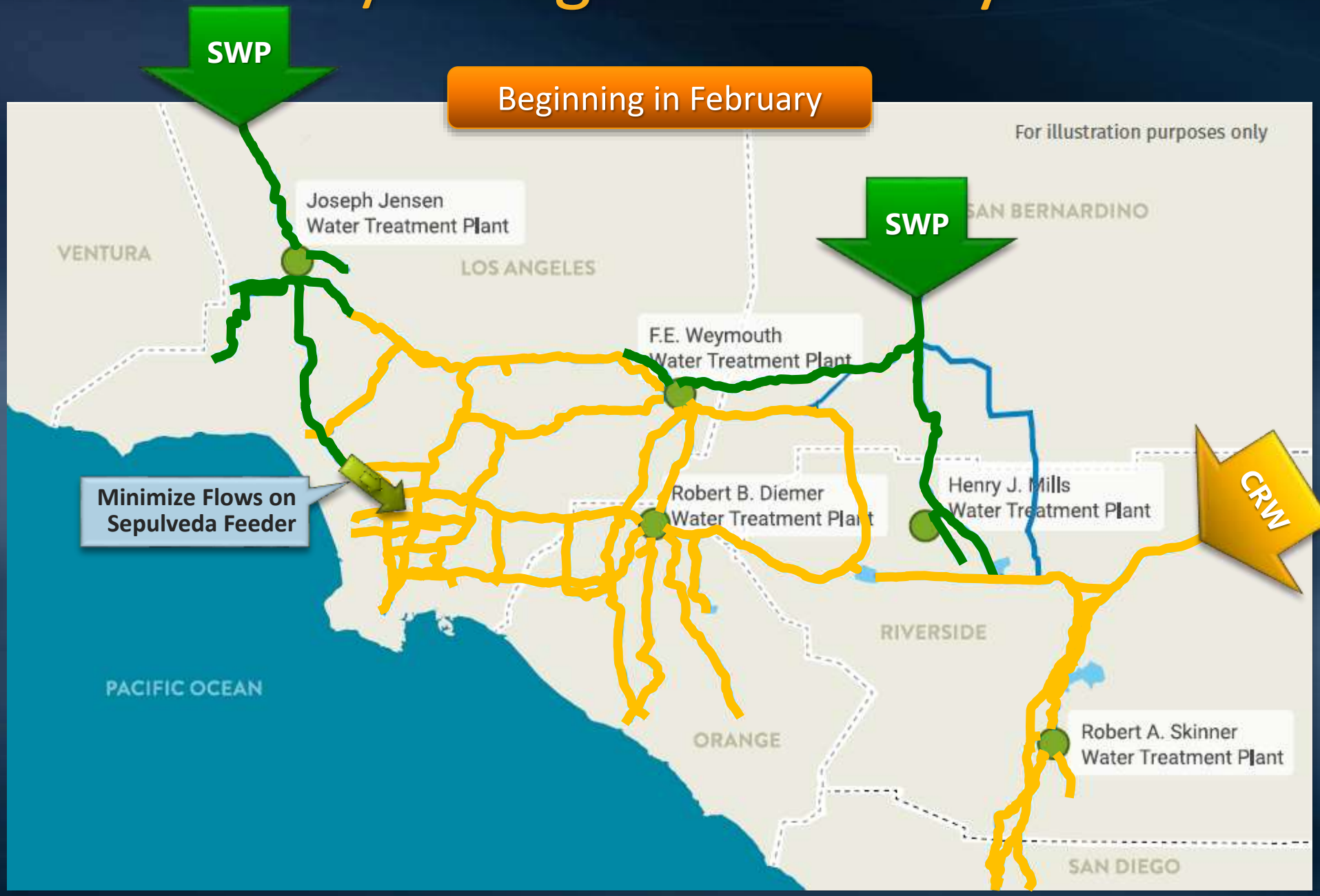
Images from the United States Drought Monitor

Extreme Drought Conditions



Early 2021: Continue Low SWP Supply Operations

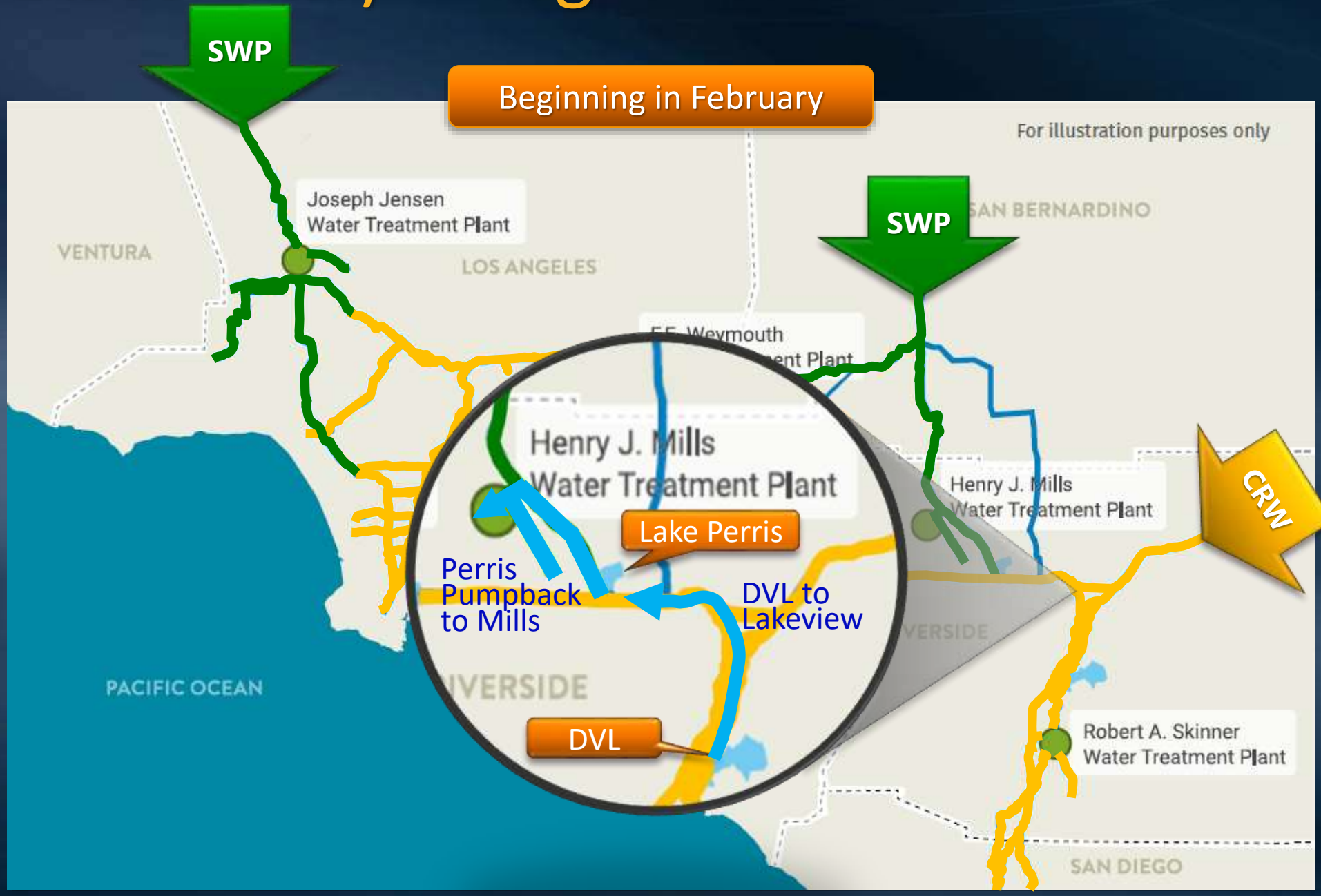
Extraordinary Drought Actions: System Modifications



Minimize flow to CRW service area

24 TAF of SWP supply preserved

Extraordinary Drought Actions: DVL to Lakeview



Supply Lakeview Pipeline demands from DVL

17 TAF of SWP supply preserved

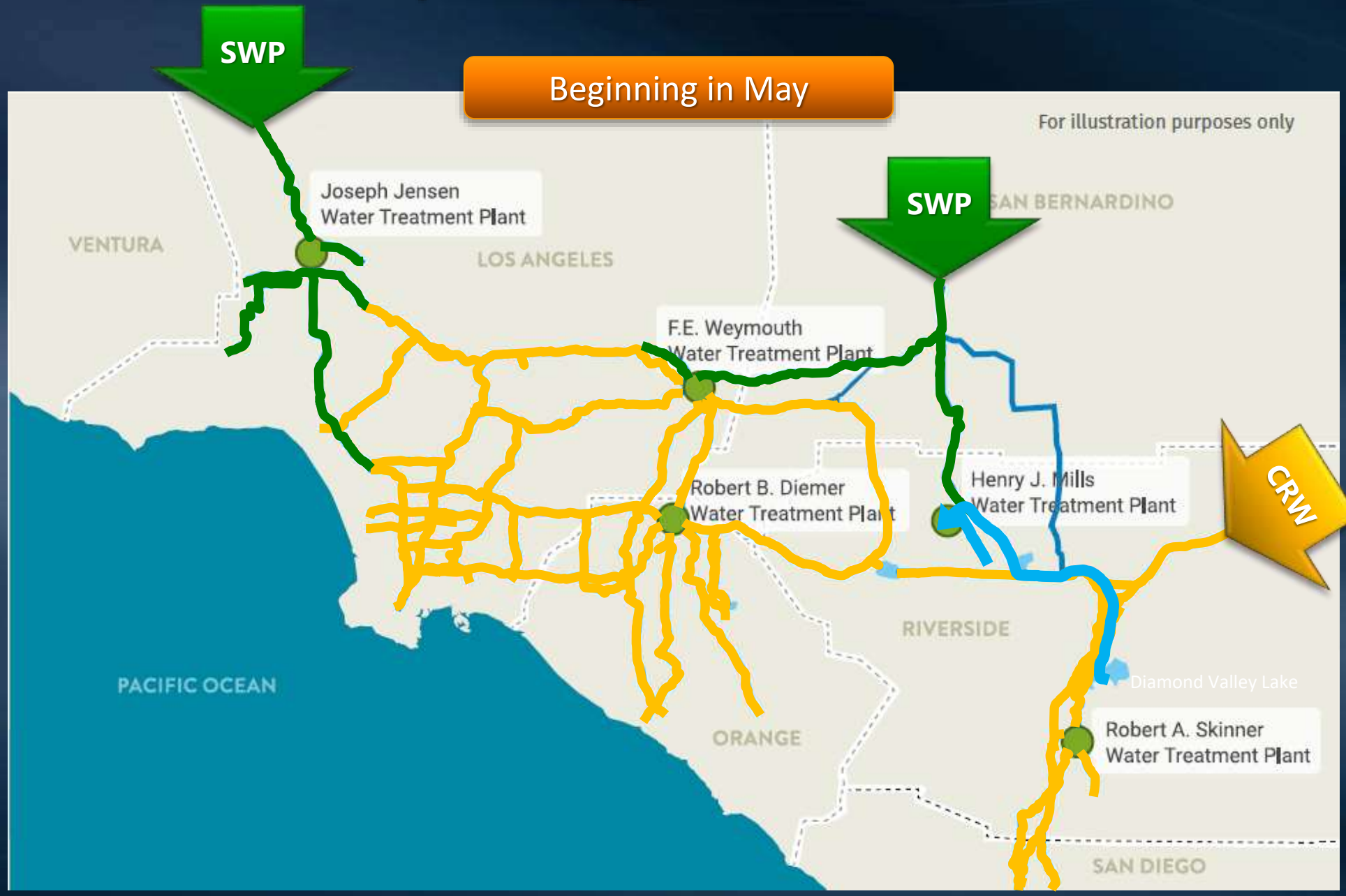
First CRA 8-Pump Operation Since October 2015

Beginning in April

For Illustration Only

- Pinch discharge gates to reduce flow
- Requires more coordination, patrols, and monitoring
- Balancing act with changing conditions
- Supports operation of minimizing SWP deliveries

Extraordinary Drought Actions: DVL to Mills



Supply Mills plant demands from DVL

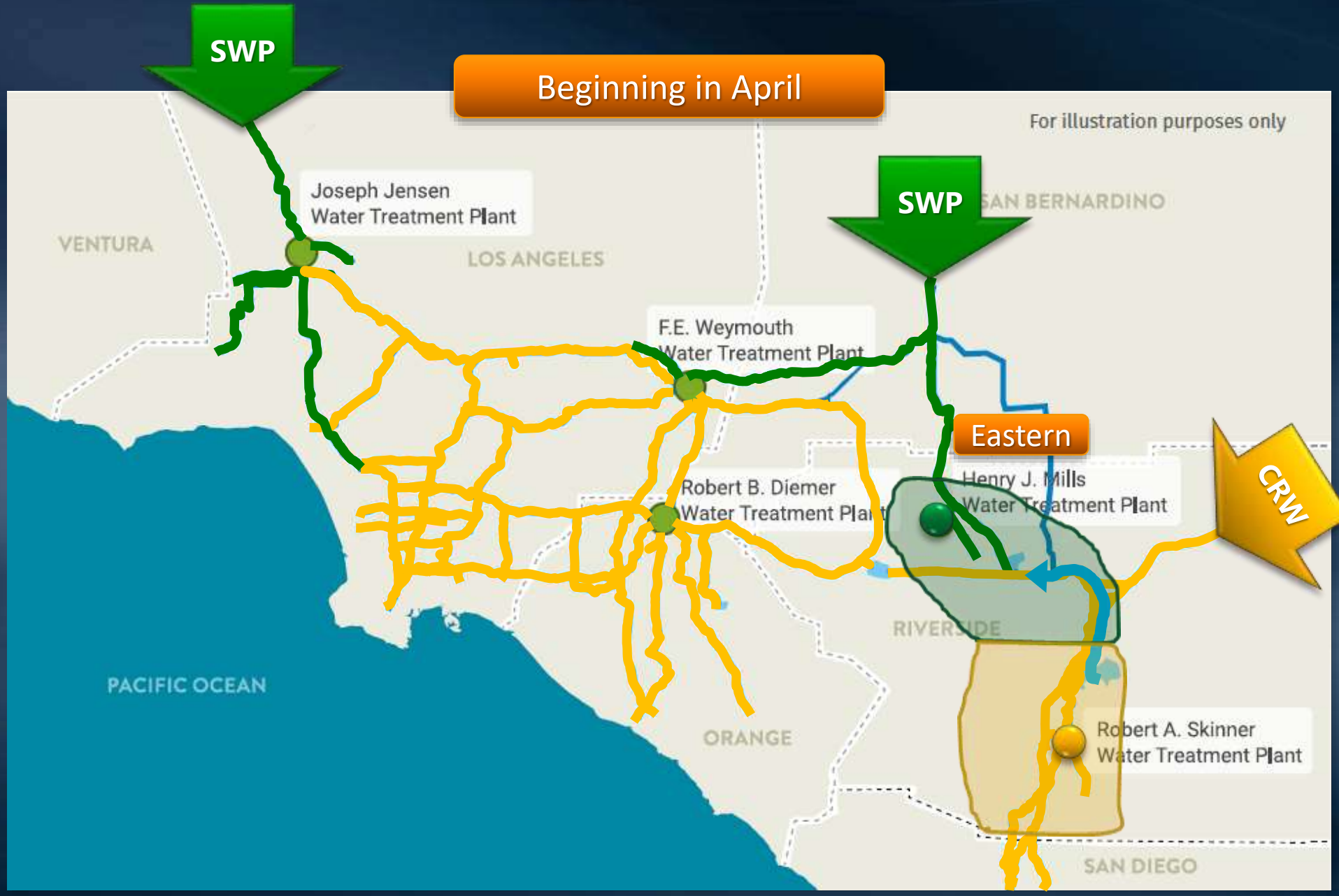
44 TAF of SWP supply preserved

Extraordinary Drought Actions: Greg Ave Pumping

Pump treated CRW from Weymouth to help meet Jensen demands

20 TAF of SWP supply preserved

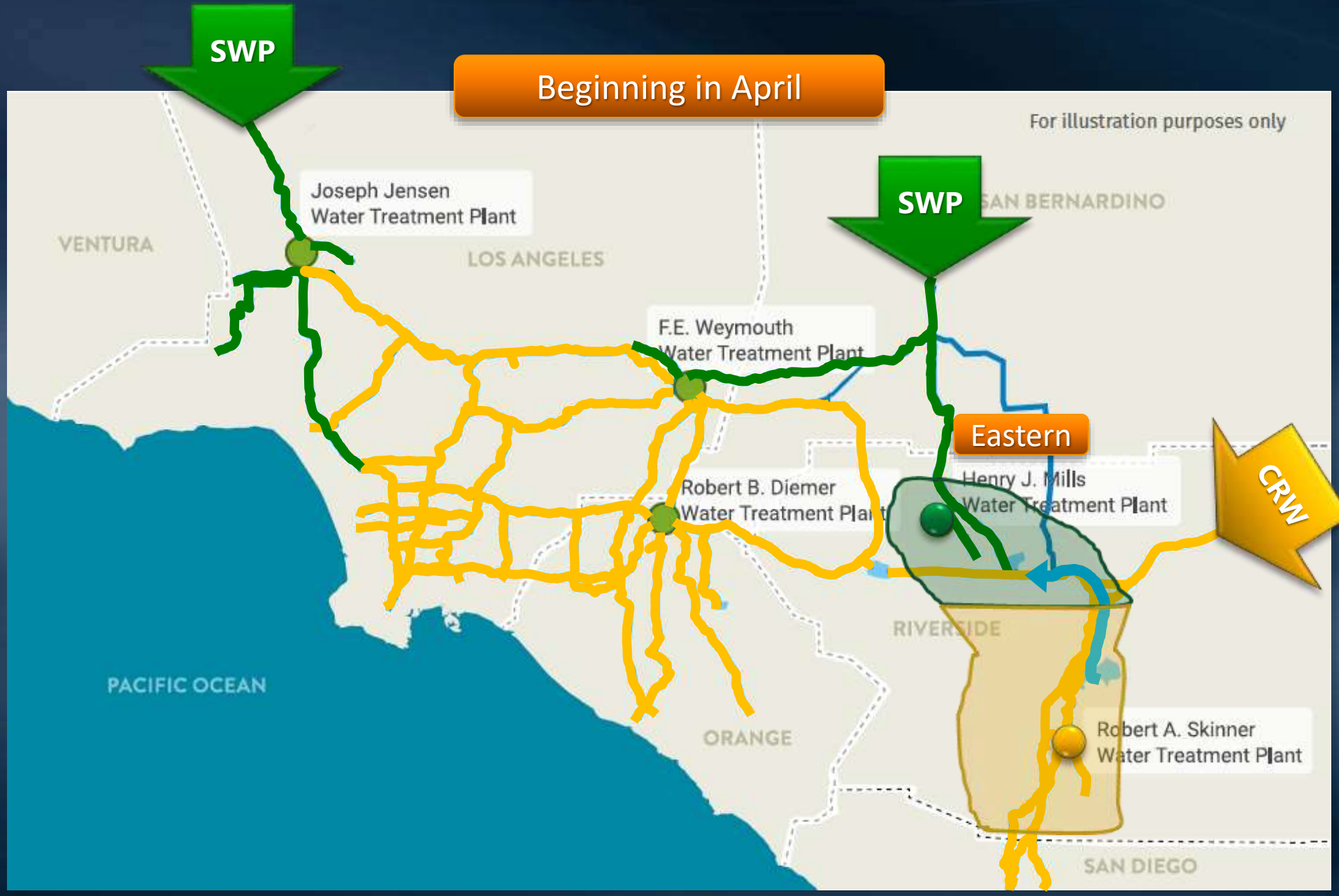
Extraordinary Drought Actions: Shift to CRW Connections



Shift from SWP connections to CRW Connections

37 TAF of SWP supply preserved

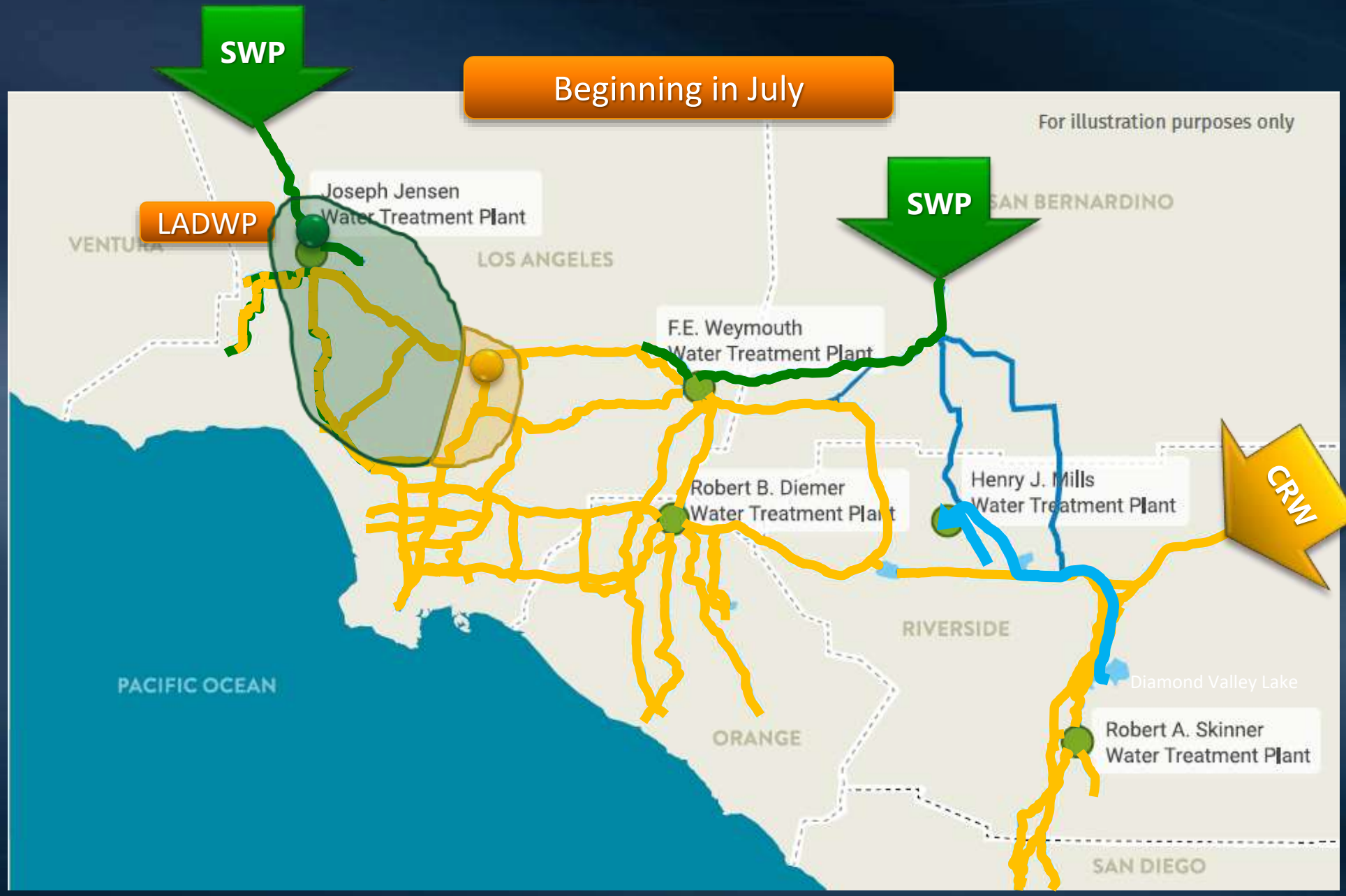
Extraordinary Drought Actions: Shift to CRW Connections



Shift from SWP connections to CRW Connections

37 TAF of SWP supply preserved

Extraordinary Drought Actions: Shift to CRW Connections



Shift from SWP connections to CRW Connections

37 TAF of SWP supply preserved

Extraordinary Drought Actions: Shift to CRW Connections

Shift from SWP connections to CRW Connections

37 TAF of SWP supply preserved

Extraordinary Drought Actions: Shift to CRW Connections

Shift from SWP connections to CRW Connections

37 TAF of SWP supply preserved

Extraordinary Drought Operations Conserve SWP Supplies

Drought Operation	2021 (AF)
Defer Deliveries	54,000
Defer Shutdowns	8,000
DVL to Lakeview Pipeline	17,000
DVL to Mills	43,000
Greg Avenue Pumping	20,000
Shift to CRW Connections	37,000
System Modifications	23,000
Total	**202,000 AF**

Total conserved supply is more than a 10% SWP allocation, and over double the 2021 allocation

Addressing Water Quality Challenges

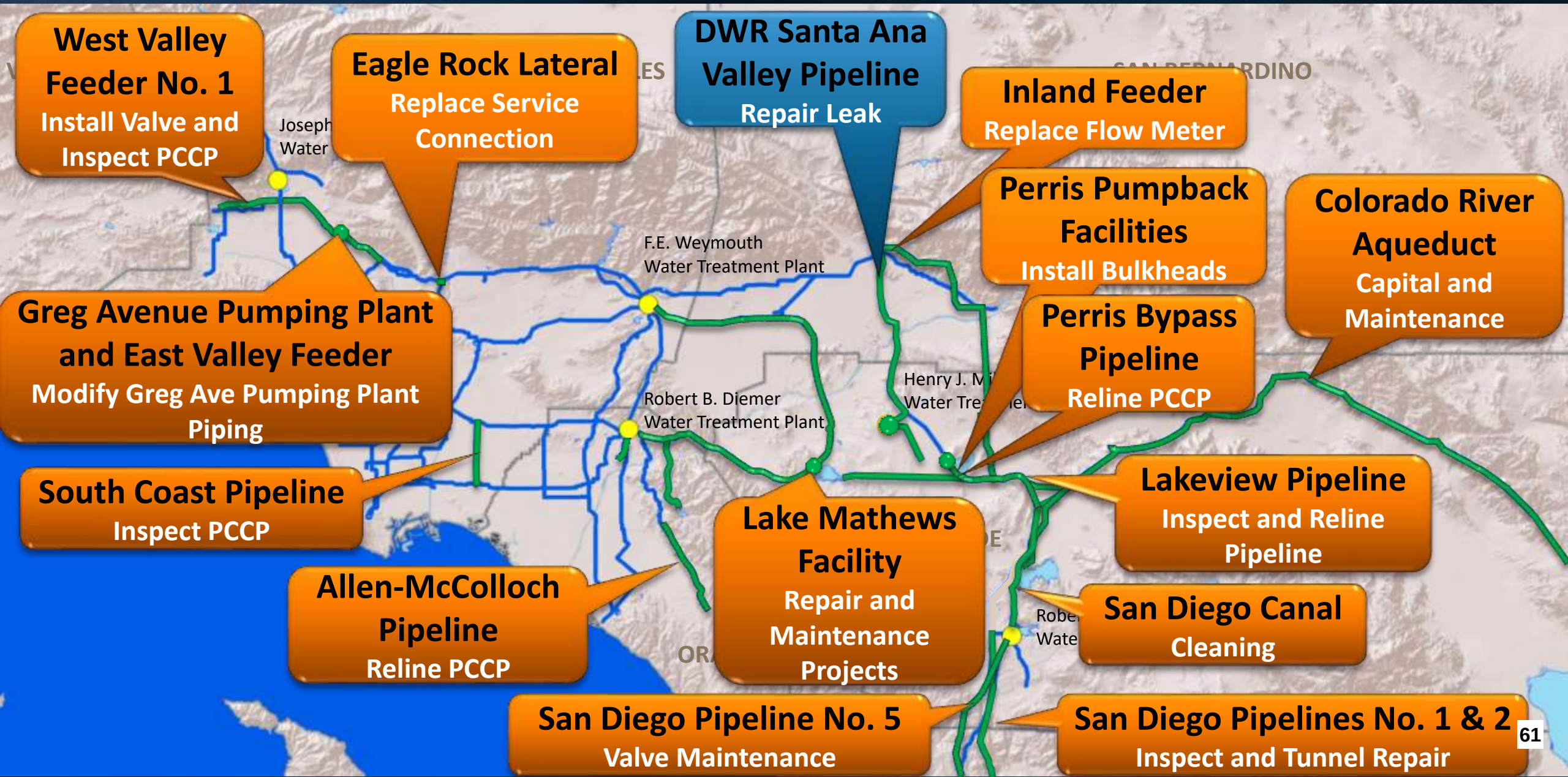
Diamond Valley Lake

- Cyanobacterial bloom increasing taste and odor levels at surface
- Anoxic conditions in majority of water column increasing manganese levels

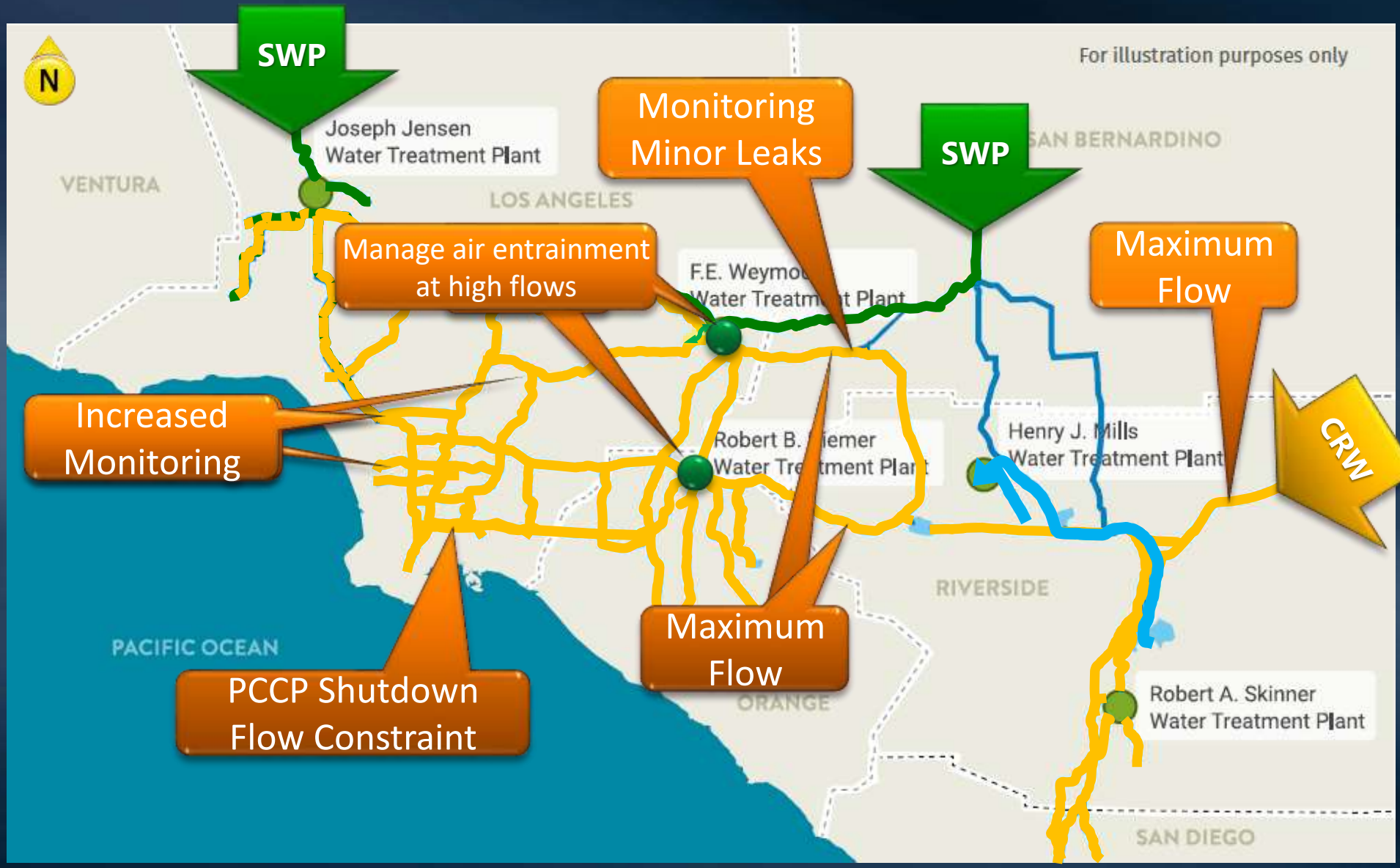
Distribution System

- Increased nitrification potential with low flows in parts of our system
- Increased monitoring, coordination, and system changes

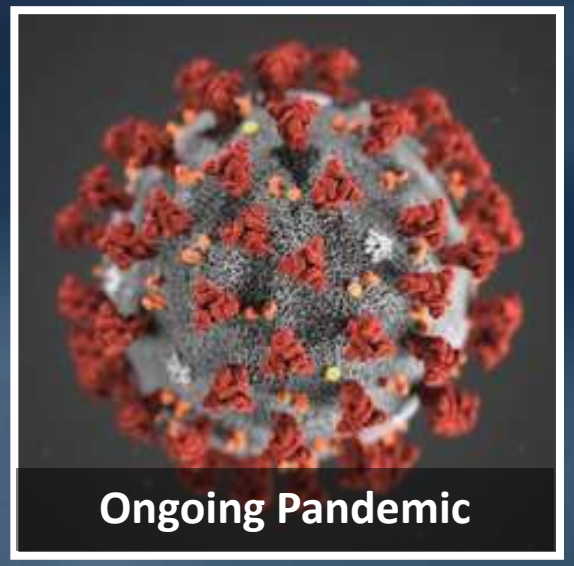
Ensuring Continued System Reliability



Maximizing CRW: Operating Near the Limit

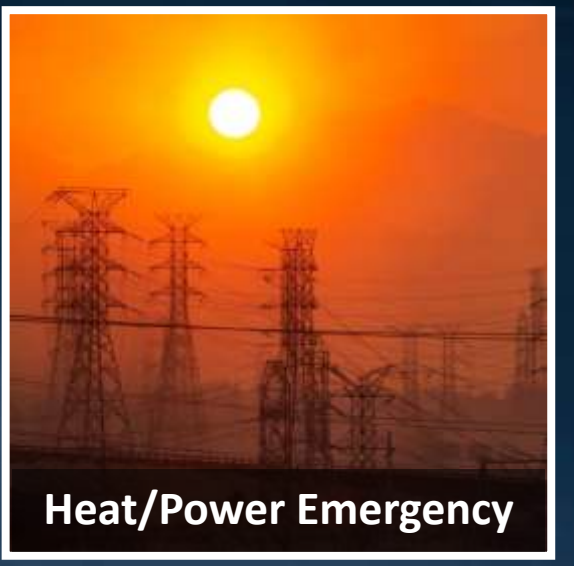


Responding to Emergencies and Unexpected Challenges in 2021


Ongoing Pandemic


Cracked Slide Gate


Minor Leak Repairs

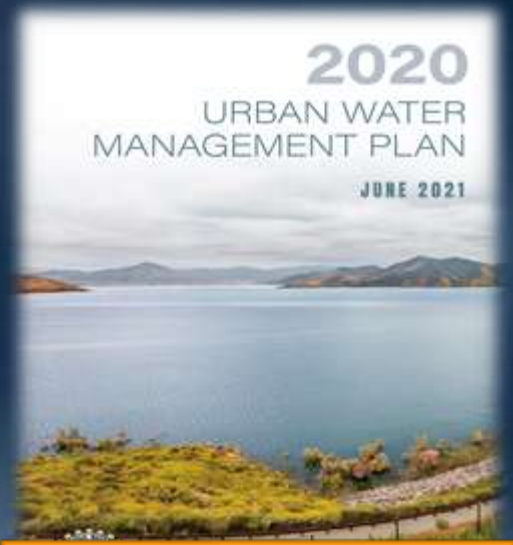

Heat/Power Emergency

Chemical Supply Chain Disruptions


Liquid Oxygen


Year-Round Reservoir WQ Challenges

Success through Teamwork



Planning

Leading

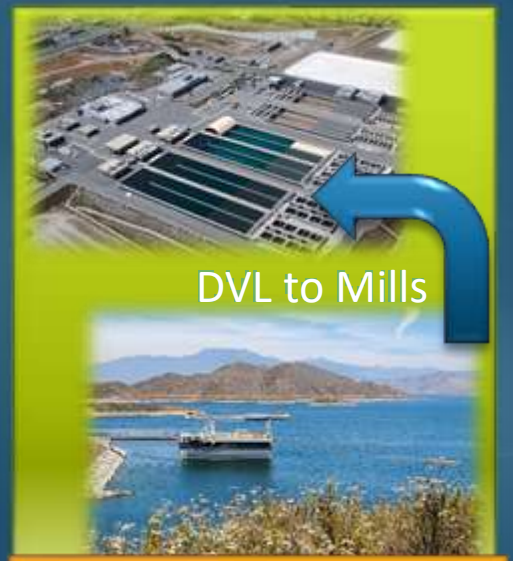
Engineering

Constructing

Operating

Maintaining

Partnering



Innovating

What will 2022 bring?

Whatever 2022 brings we know we can rise to the challenge as we've done before through collaboration, planning, and teamwork and at all levels, so that we're in the best position possible to successfully operate through 2022 and beyond.


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

State Water Project Dependent Area Solutions Update

Engineering and Operations Committee
Item 6b
January 10, 2022

SWP Dependent Area Solutions: Overview

Issue

Some areas are particularly vulnerable to severe drought on the SWP system: SWP Dependent Areas

Committed to Resolve this Issue

Identifying and implementing measures to ensure all portions of the service area attain a high level of reliability against multi-year, severe droughts

Current Drought Emergency

Actively manage through current severe conditions

Future Severe Drought

Urgently prepare for the next severe drought

SWP Dependent Area Solutions: Overview

Issue

Some areas are particularly vulnerable to severe drought on the SWP system: SWP Dependent Areas

Committed to Resolve this Issue

Identifying and implementing measures to ensure all portions of the service area attain a high level of reliability against multi-year, severe droughts

What we have done

Took incremental and continuous action in preparation to respond to drought

Got through the two driest years on record

What we are doing

Continuing to take urgent action to address this potentially ongoing unprecedented drought emergency

What we will do

Continue to address this drought and prepare for the next with expedited drought action planning and development

Resolve this issue in collaboration with our member and partner agencies

What We Have Done

Took Incremental and Continuous Action to Address the Issue

- Made some big gains since the last severe drought in 2014-15
- Provided increased reliability for this current severe drought

Added new interconnections and strengthened existing infrastructure to enable DVL water to be delivered to Mills

Developed a new storage program with AVEK and began construction on facilities for increased supply availability

Rehabilitated Greg Ave. Pump Station for improved reliability of Colorado River water to the SWP Dependent Area

Implemented WSDM actions, shored up CRA delivery capabilities, continued investments in water-use efficiency and local supplies

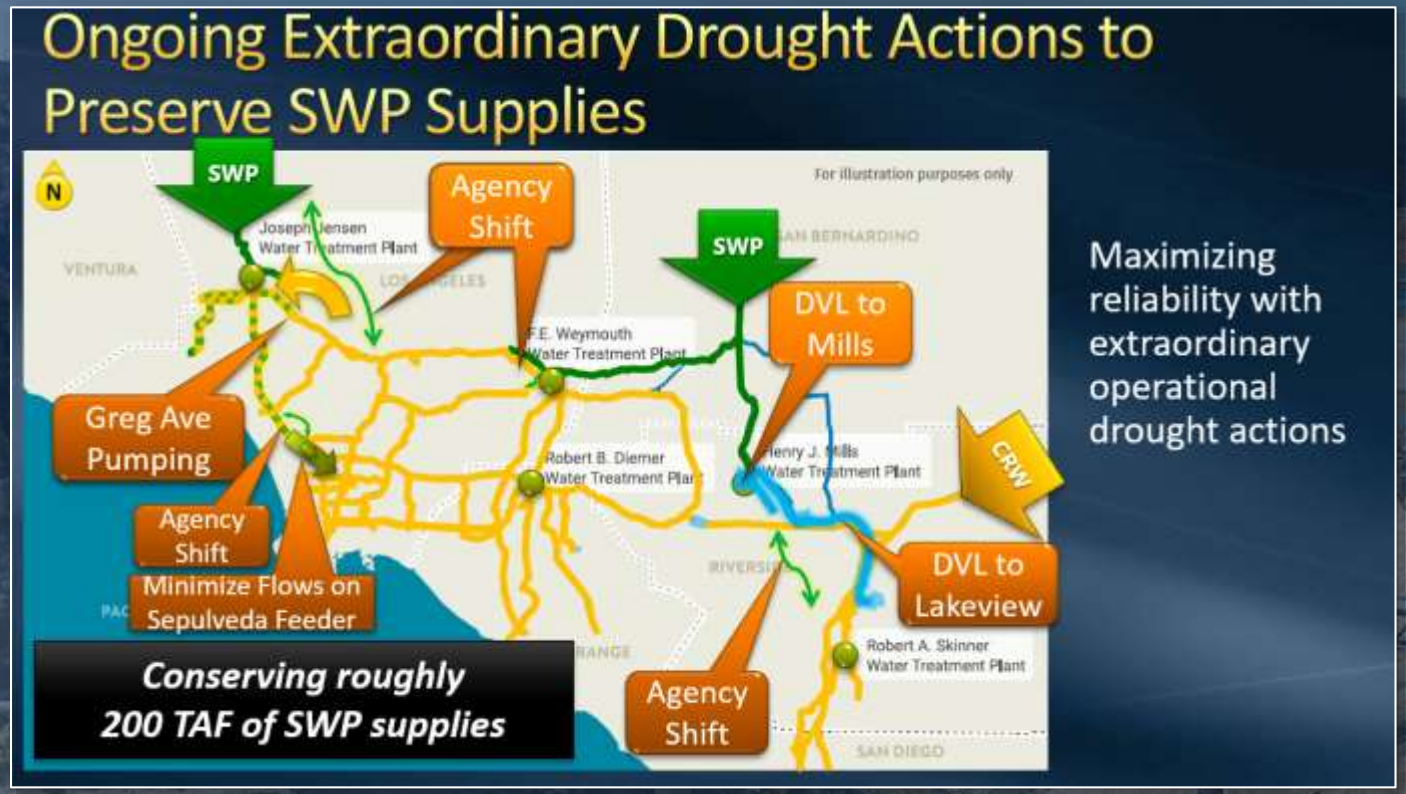
What We Are Doing

Taking Urgent Action to Address this Current Drought Emergency

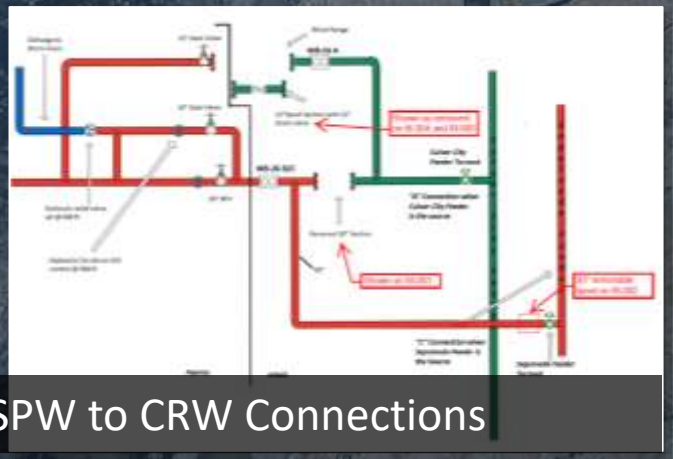
Lake Oroville on October 28, 2021

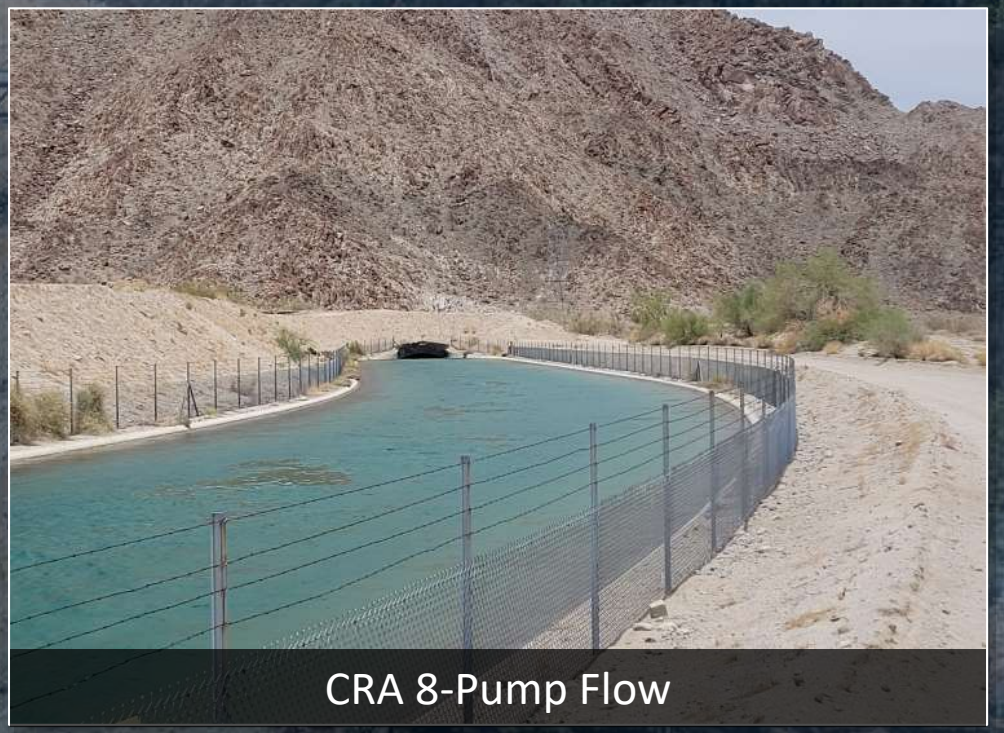
What We Are Doing

Taking Extraordinary Operational Drought Actions



New Program to Shift from SPW to CRW Connections





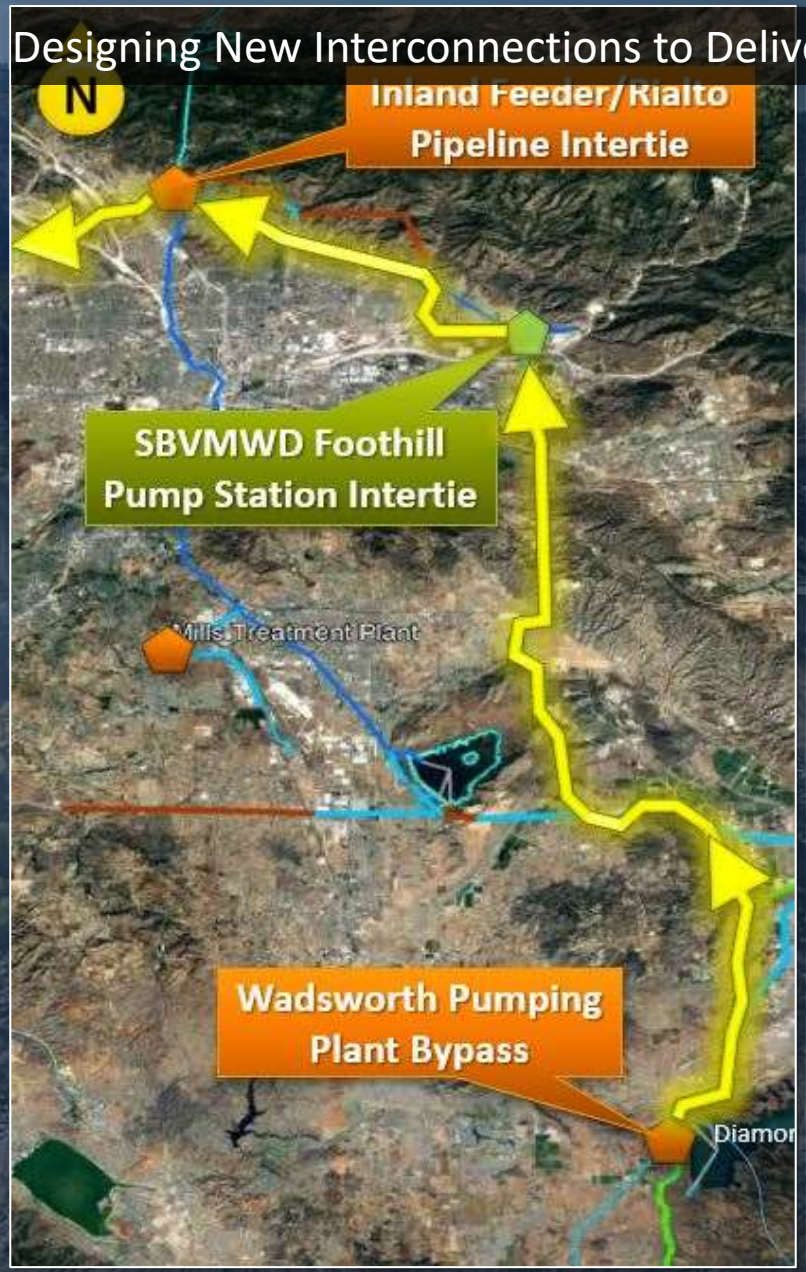
CRA 8-Pump Flow

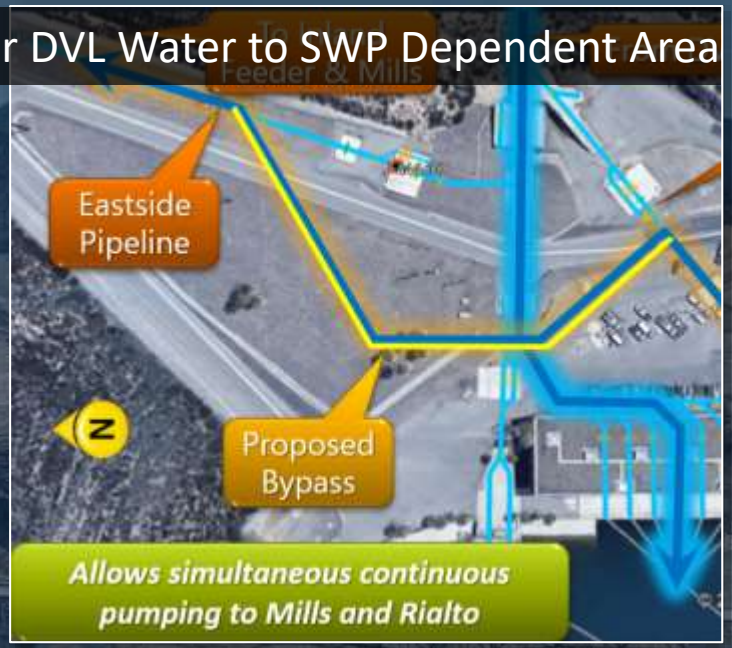
Lake Oroville on October 28, 2021

What We Are Doing

Taking Action on New Infrastructure Investments to Deliver Other Sources of Water

Designing New Interconnections to Deliver DVL Water to SWP Dependent Area





News for Immediate Release

Metropolitan Board Takes Actions to Alleviate Drought

New investments, partnerships increase reliability during challenging times

Dec. 14, 2021

Lake Oroville on October 28, 2021

What We Are Doing

Taking Action on Water Exchanges

Water Purchase and Use of Capacity at Semitropic

News for Immediate Release_

Agencies Partner to Boost Water Supplies for Southern California

Metropolitan-Water Authority agreement responds to governor's call for drought actions

Dec. 1, 2021

Friant Exchange

Mutual Aid Agreements with Other SWP Contractors

Lake Oroville on October 28, 2021

What We Are Doing

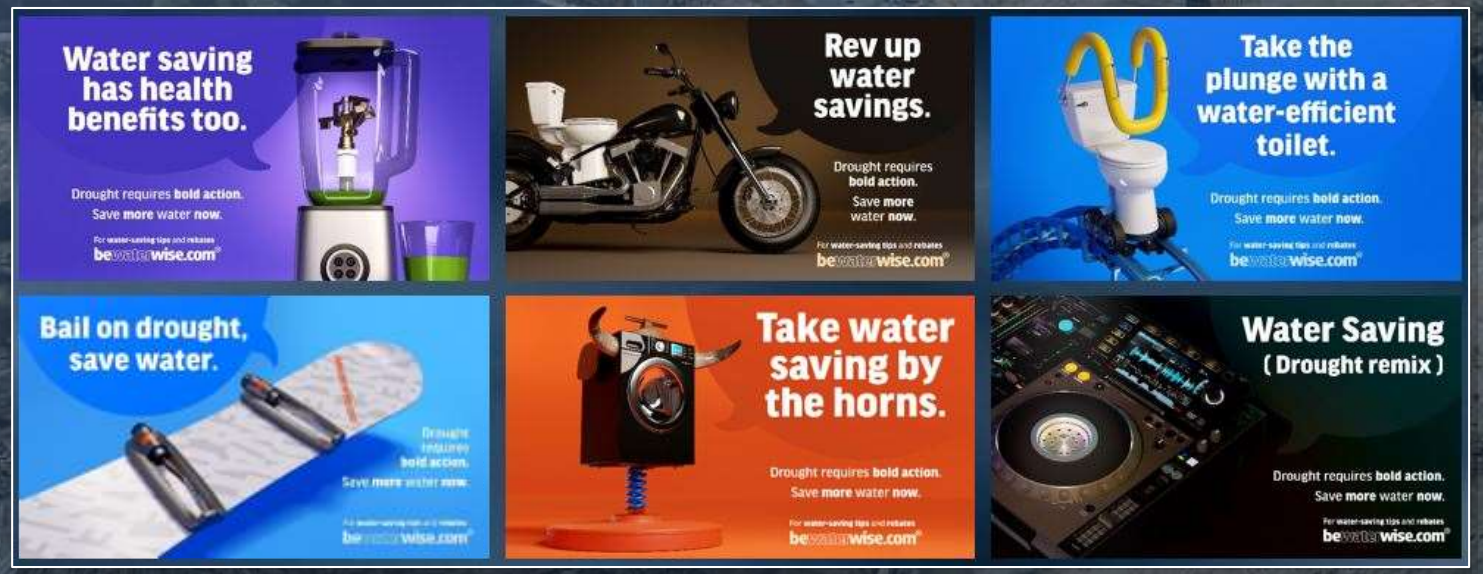
Taking Strategic WSDM and Water Management Actions

News for Immediate Release__

Metropolitan Declares Drought Emergency

Metropolitan Board of Directors calls for increased conservation and expands water efficiency programs

Nov. 9, 2021



Strategically Utilizing WSDM Storage

Lake Oroville on October 28, 2021

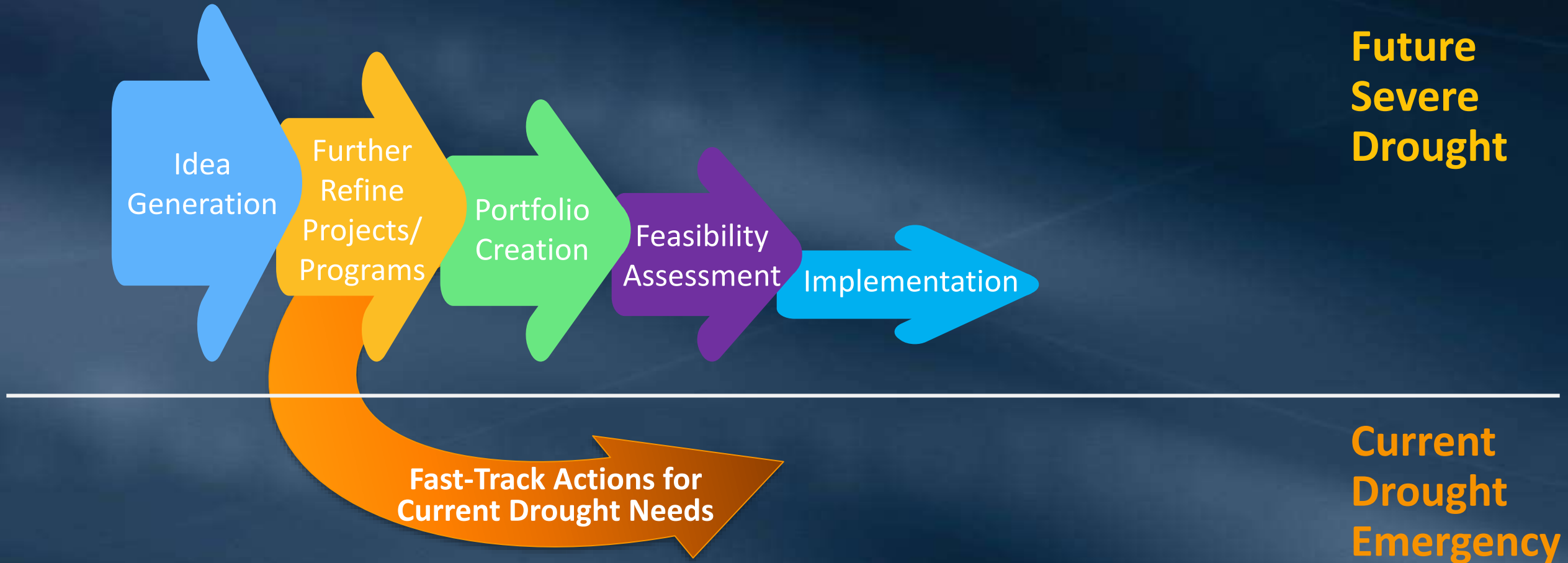
What We Will Do

Continue to Address this Drought and Prepare for the Next

> ***Identify and implement measures to ensure all portions of the service area attain a high level of reliability against multi-year, severe droughts. Measures include, but are not limited to, system improvements, local water supply development, new water storage opportunities, and water efficiency gains***
>
> *— November 2021 Resolution of the Board of Directors of MWD*

Drought Action Planning and Development

Accelerated Actions for the Near- and Long-Term



Collaborative Process with Member and Partner Agencies

Drought Action Planning and Development

Addressing Potential Severe Drought Extending into 2022+

Current Drought Emergency

Actively manage through current severe conditions

Opportunities w/ Member Agencies

More operational shift cost-offset opportunities, new programs (e.g., reverse cyclic), deferring deliveries, other

Additional Supplies

Exchanges/transfers, expediting withdrawal capability from new AVEK program, SBVMWD groundwater, CRA flow improvement projects

Near-Term Infrastructure Drought Actions

Expedite relatively near-term projects, such as DVL to Rialto projects

WSDM and Water Management

Strategic withdrawals from storage, managing Human Health & Safety water, utilization of additional Flex storage

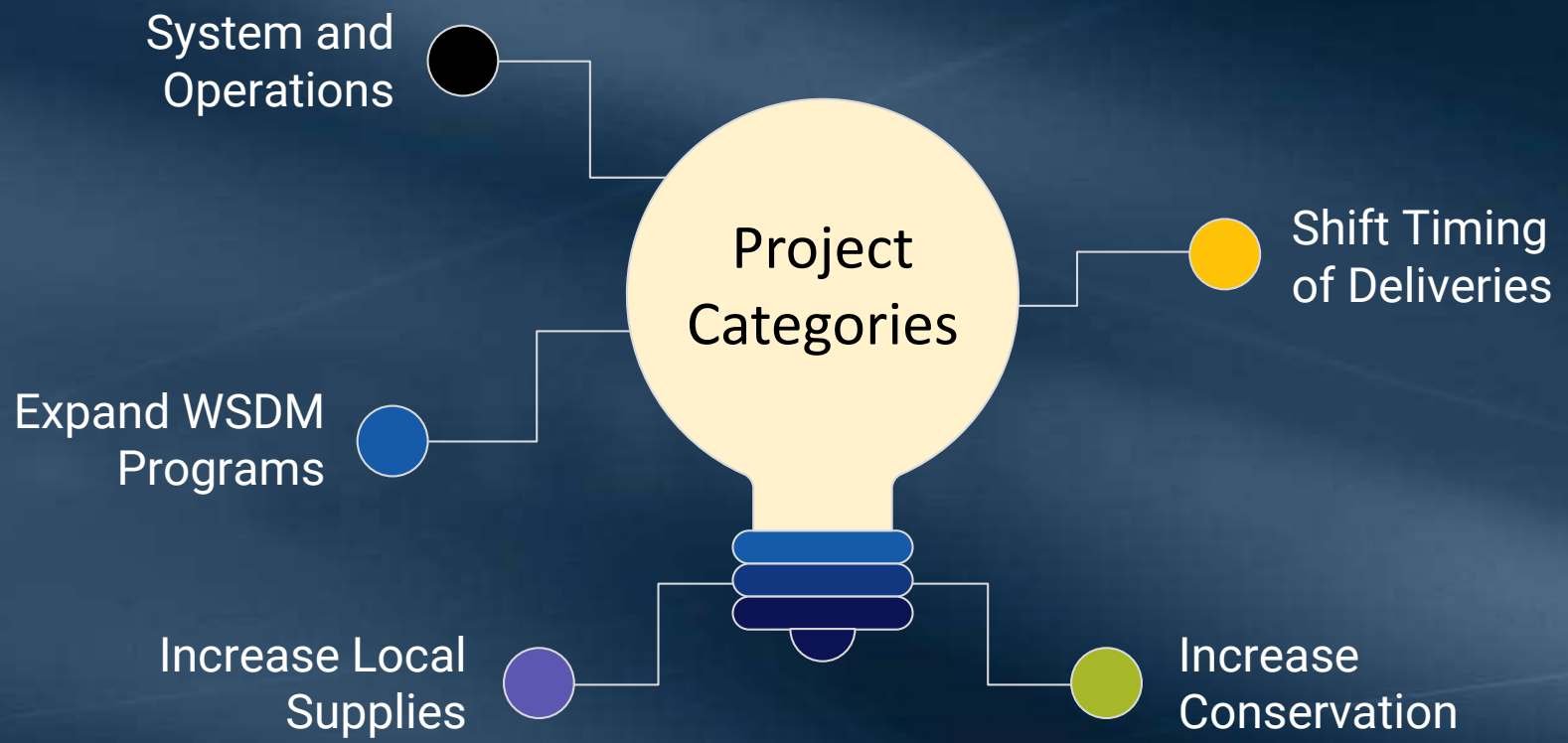
Future Severe Drought

Drought Action Planning and Development

Proactively Ramped Up Drought Action Planning

Idea Generation

- Generated 130+ creative ideas
- About 50 ideas selected for further study and potential development
- Various project/program types and timing



Drought Action Planning and Development

Continue to Expedite Planning for Mid- and Long-Term Actions

Potential Long-Term Project: Greg Avenue Pump Station Expansion

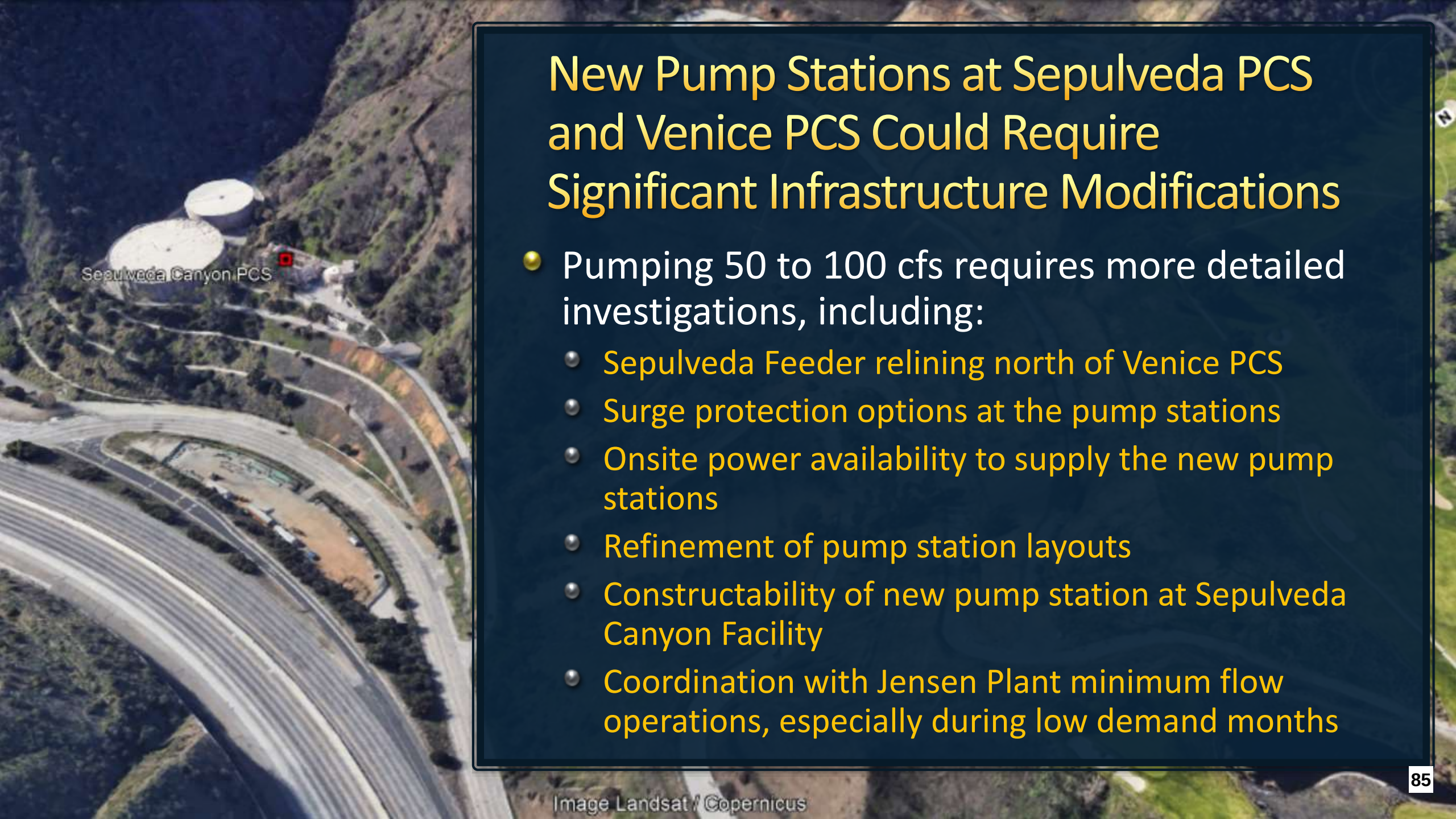
- Greg Avenue Pump Station currently providing up to 55 cfs of CRW to the West Valley area
- Reconnaissance-level studies completed to expand the pump station:
  - Hydraulics/surge protection
  - Pipeline capacity
  - Preliminary facility sizing
  - System operations constraints
- Feasibility study funds required to investigate in greater detail

Greg Avenue Pump Station Expansion Could Require Significant Infrastructure Modifications

- Doubling the pumping capacity requires more detailed investigations, including:
  - Possible parallel piping: upstream and downstream portions of the 48” diameter East Valley Feeder through Burbank, Sun Valley, and San Fernando
  - Increased surge protection capability
  - Various options: additional parallel piping vs. additional booster pump; power service, additional equipment, space availability
  - Coordination with Jensen Plant minimum flow operations, especially during low demand months

Potential Long-Term Project: New Pump Stations at Sepulveda PCS and Venice

- Deliver CRW to the West Valley area from the Central Pool
- Supplement Greg Ave Pump Station deliveries
- Reconnaissance-level studies completed to expand the pump station:
  - Hydraulics/surge protection
  - Pipeline capacity
  - Preliminary facility sizing
  - System operations constraints
- Feasibility study funds required to investigate in greater detail

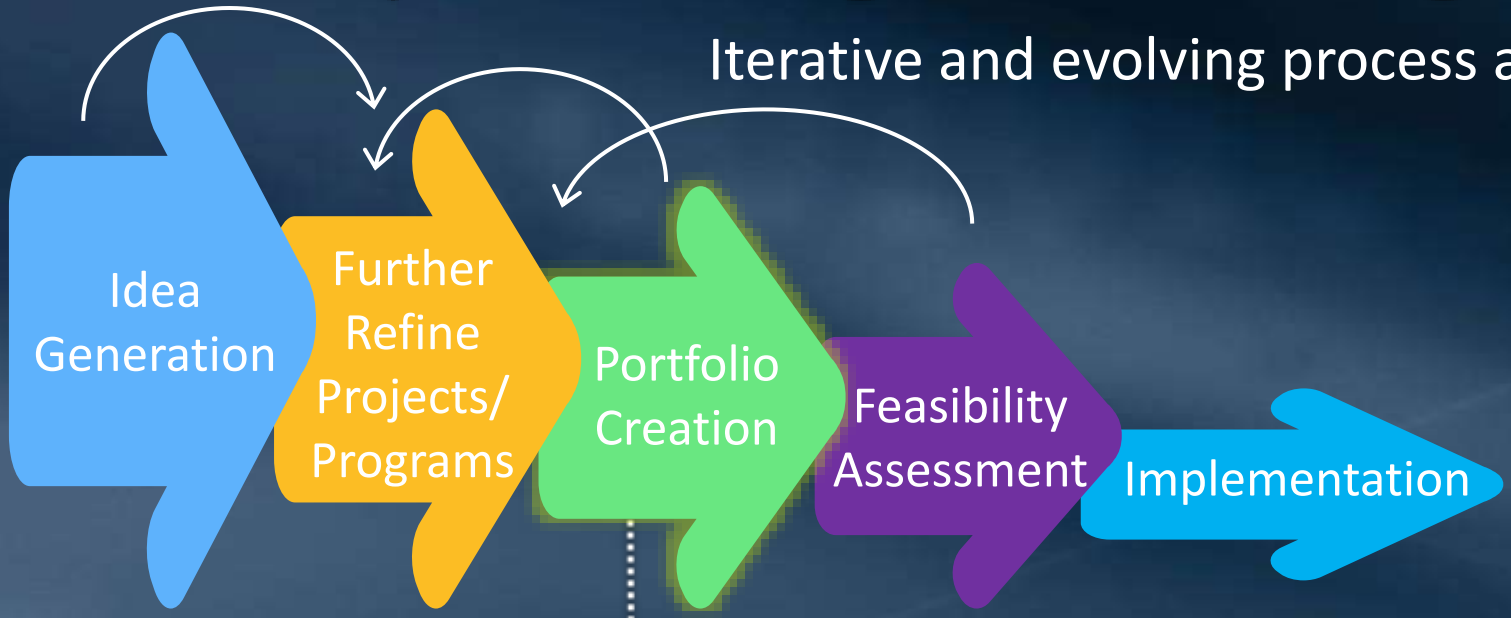


New Pump Stations at Sepulveda PCS and Venice PCS Could Require Significant Infrastructure Modifications

- Pumping 50 to 100 cfs requires more detailed investigations, including:
  - Sepulveda Feeder relining north of Venice PCS
  - Surge protection options at the pump stations
  - Onsite power availability to supply the new pump stations
  - Refinement of pump station layouts
  - Constructability of new pump station at Sepulveda Canyon Facility
  - Coordination with Jensen Plant minimum flow operations, especially during low demand months

Drought Action Planning and Development

Continue to Expedite Planning for Mid- and Long-Term Actions



Iterative Planning Effort

High-level evaluation of facilities/programs to manage through the next series of consecutive low SWP allocation years

Understanding of individual projects/programs and of the collection of actions as a whole

Drought Action Planning and Development

Severe Drought Assessment and Portfolio Creation

Potential needs during a multi-year, severe drought sequence (low SWP allocations)

Ability to meet demands with existing actions/resources

What more may be needed and potential options to get there

High-level evaluation of drought action alternatives and portfolio creation

Drought Action Planning and Development

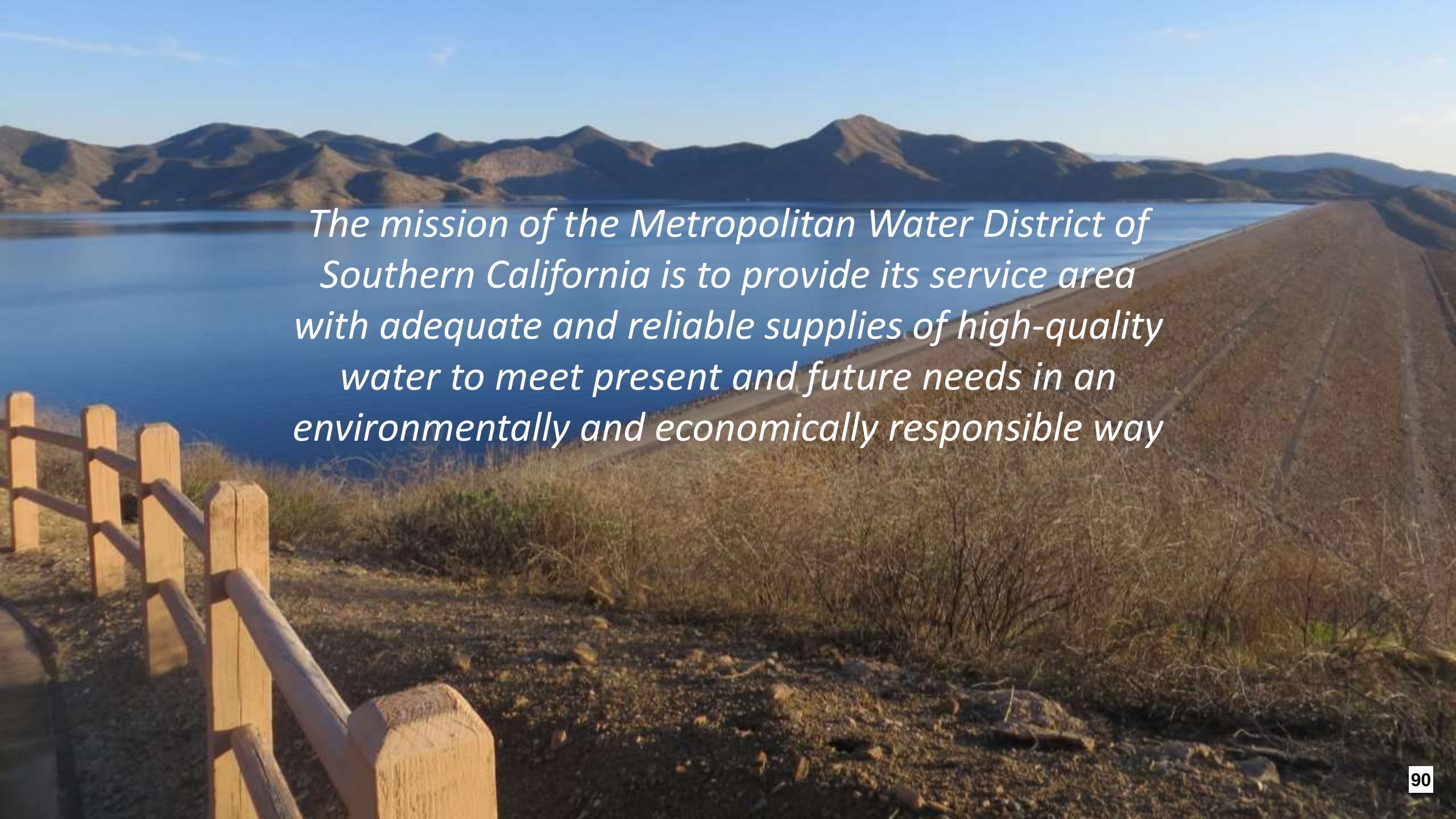
Evaluating a Variety of Options in Creating a Portfolio

Examples:

	Storage	Groundwater, surface reservoirs	AVEK High Desert Water Bank New surface water reservoir(s) Expansion of existing storage Additional Castaic Flex storage
	Exchanges	Partnerships and agreements for additional water supply	Semitropic Banking increased takes Friant/Arvin-Edison water exchange SBVMWD water exchanges
	Pumping	Reverse flow to deliver other sources of supply	DVL to Rialto (new interconnections) Venice/Sepulveda new pump stations Greg Avenue Pump Station expansion
	Programs	In-region programs with Member Agencies	More Operational Shift Cost-Offset opportunities Reverse Cyclic/ deferred deliveries/ groundwater utilization

6-Month Outlook

Continue to take urgent actions for this and future droughts, including collaboratively creating a high-level drought action portfolio


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


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

Proposed Water Quality Lab Upgrades

Engineering and Operations Committee
Item 6c
January 10, 2022

Outline

- Water Quality Background
- Project Drivers
- Rigorous Project Planning
- Recommended Approach

Water Quality Lab – An Essential Facility

- Compliance monitoring and testing
  - Bacteria, disinfection byproducts
  - Metals and minerals, organic chemicals
- General water quality monitoring
  - pH, temperature, turbidity, alkalinity
- Distribution system integrity
  - Shutdowns and repairs/maintenance
  - Nitrification monitoring (nitrite, ammonia)
- Customer satisfaction
  - TDS, taste & odor, color
- Applied research
  - Emerging contaminants, treatment processes, analytical methods, alternative source waters

Essential Monitoring and Analysis

- Routine analysis
  - ~70,000 samples/year
  - 266 analytical procedures
  - 300,000 - 350,000 analytical results per year
- Samples from Metropolitan's entire system
  - Treated water distribution system
  - Treatment plants
  - Lakes and other source waters
  - Pipelines, facility shutdowns, and repairs
- 102 staff
  - Chemists, Microbiologists, Limnologists, Engineers, Biologists, Lab Technicians, Quality Assurance, Data Management, Business Support
- $30M annual budget

Innovation & Leadership in Water Quality

- Nitrification
- Ozone disinfection
- Treatment processes
- Cryptosporidium
- Nitrosamines
- Disinfection byproducts
- Flavor Profile Analysis
- Cyanotoxins
- Water reuse

United States Patent [19]

De Leon et al.

[54] CRYPTOSPORIDIUM DETECTION METHOD

[75] Inventors: Ricardo De Leon, Irvine; Paul A. Rochelle, Manhattan Beach, both of Calif.

[73] Assignee: Metropolitan Water District of Southern California, Los Angeles, Calif.

[21] Appl. No.: 647,351

[22] Filed: May 9, 1996

[51] Int. Cl.* C12Q 1/68

[52] U.S. Cl. 435/6; 435/29; 435/34; 435/912

[58] Field of Search 435/6, 32, 29, 435/34, 205, 7, 91, 91.2; 536/24.3

[56] References Cited

U.S. PATENT DOCUMENTS

4,683,195 7/1987 Mullis et al. 435/6

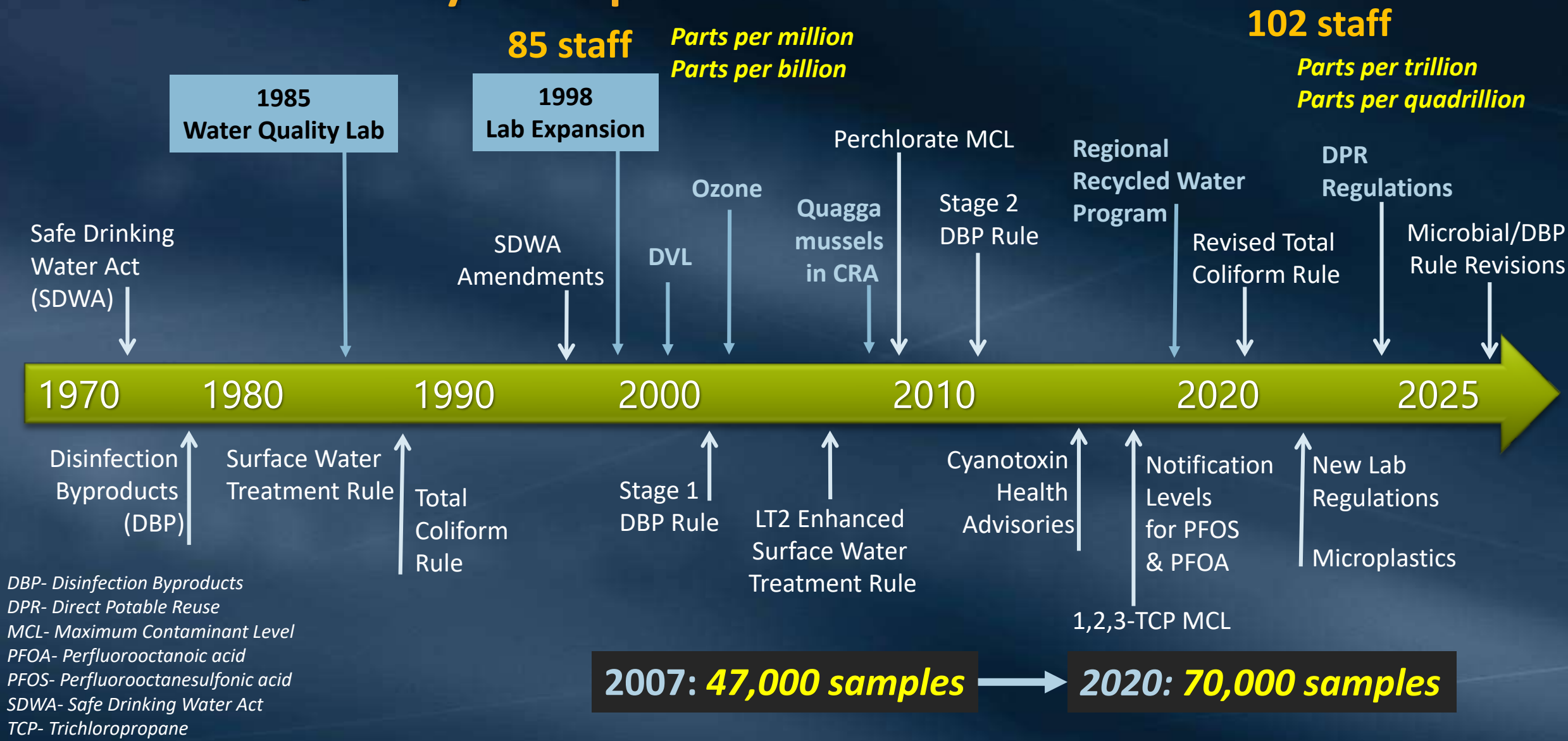
4,683,202 7/1987 Mullis et al. 435/91.2

Peer Reviewed Expanded Summary

Analysis of Microcystins in Drinking Water by ELISA and LC/MS/MS

YINGBO C. GUO, ANTHEA K. LEE, RICHARD E. YATES, SUN LIANG, AND PAUL A. ROCHELLE

Water Quality's Expanded Functions



DBP- Disinfection Byproducts
DPR- Direct Potable Reuse
MCL- Maximum Contaminant Level
PFOA- Perfluorooctanoic acid
PFOS- Perfluorooctanesulfonic acid
SDWA- Safe Drinking Water Act
TCP- Trichloropropane

2007: *47,000 samples* → ***2020: 70,000 samples***

Water Quality Challenges

New and Revised Regulations

- New lab accreditation
- Revised Total Coliform Rule
- Revised Microbial/DBP Rules

New and Emerging Contaminants

- 1,2,3-TCP
- PFAS, Microplastics
- Pharmaceuticals
- New disinfection byproducts

Low Flow in Distribution System

- Nitrification
- Coliform regrowth
- Corrosion control

Lakes and Source Waters

- Taste and odor
- Cyanotoxins
- Stratification and anoxia
- Invasive quagga mussels

Recycled Water Program

- Detecting and removing contaminants
- Blending strategies
- Direct potable reuse

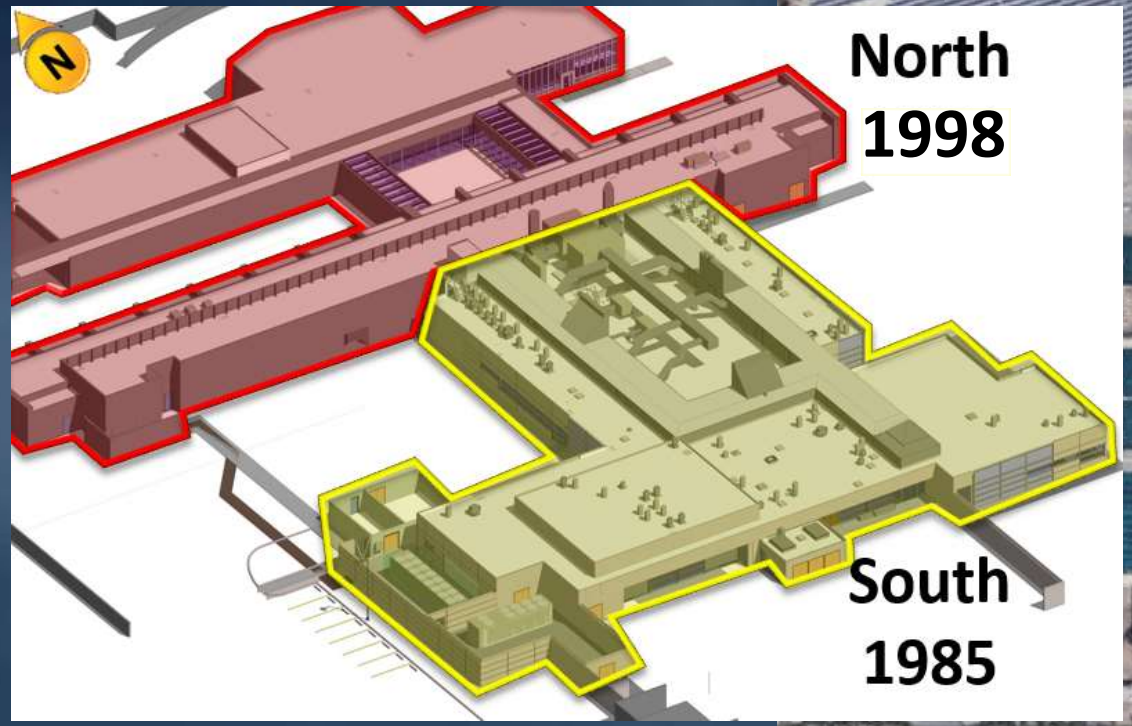
Current Building Limitations

- Spaces fully utilized or beyond capacity
- Lab spaces open to common areas
- Overlap between office and lab spaces
- Staff cubicles in corridors
- Under-utilized and inefficient spaces
- Inadequate record storage

Laboratory No Longer Meets Requirements

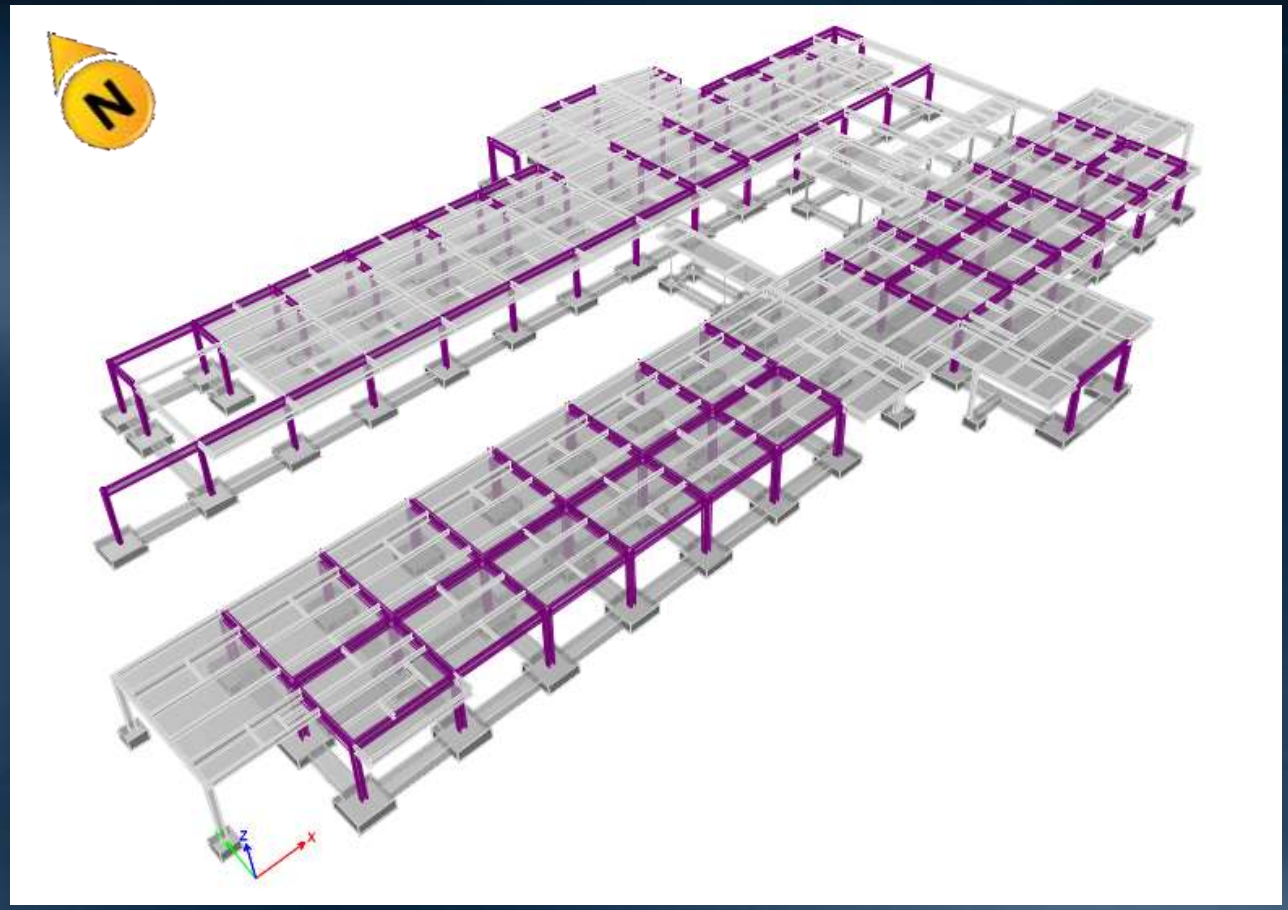
- Laboratory requirements
  - Maintain regulatory compliance
  - Emerging issues and contaminants
- Need dedicated spaces and equipment for reuse, PFAS, and microplastics, etc.
  - Clean rooms, pathogen containment, specialized instruments
- Workflow improvements within the building
  - Redesign lab spaces to accommodate expanded functions
  - Need better separation between lab and office areas
  - Improved records and document storage
- Metropolitan needs a state-of-the-art facility that meets all current and future requirements

Seismic Resiliency for an Essential Facility

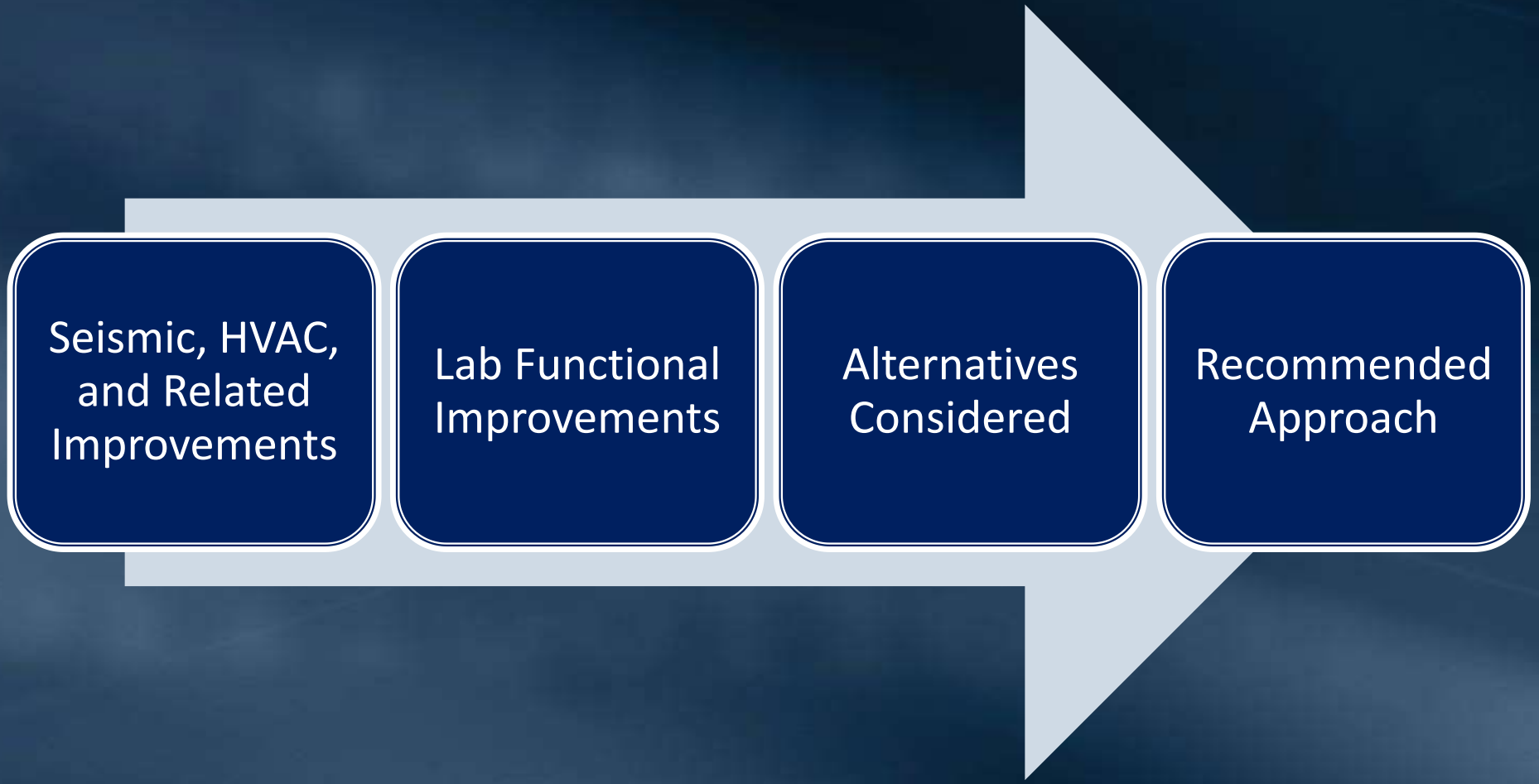


Seismic Resiliency for an Essential Facility

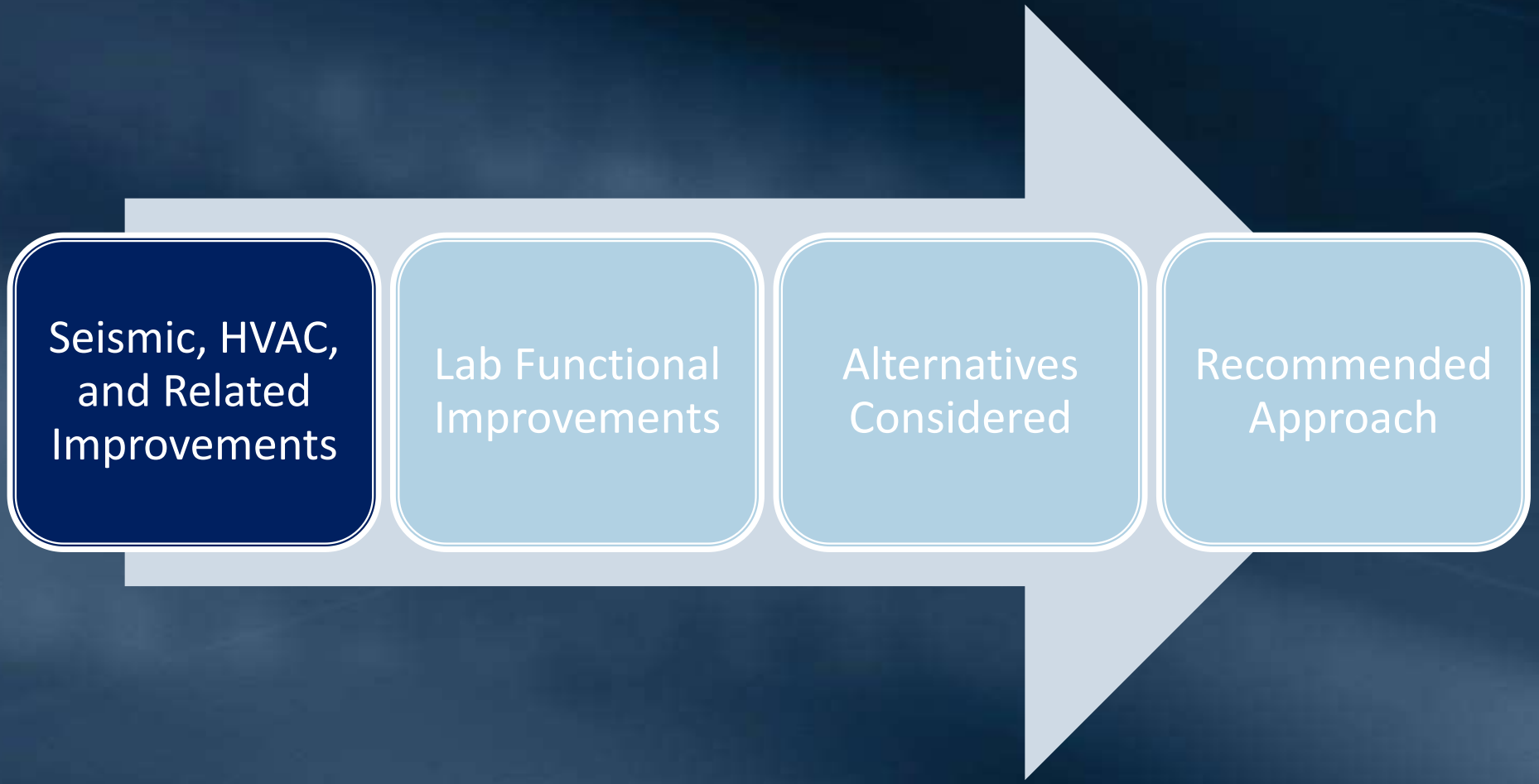
- Building Structure
  - North and south wings are deficient with respect to “essential facility” seismic design criteria
- Building Systems
  - HVAC, fire system, and mechanical, electrical, and plumbing systems require updates



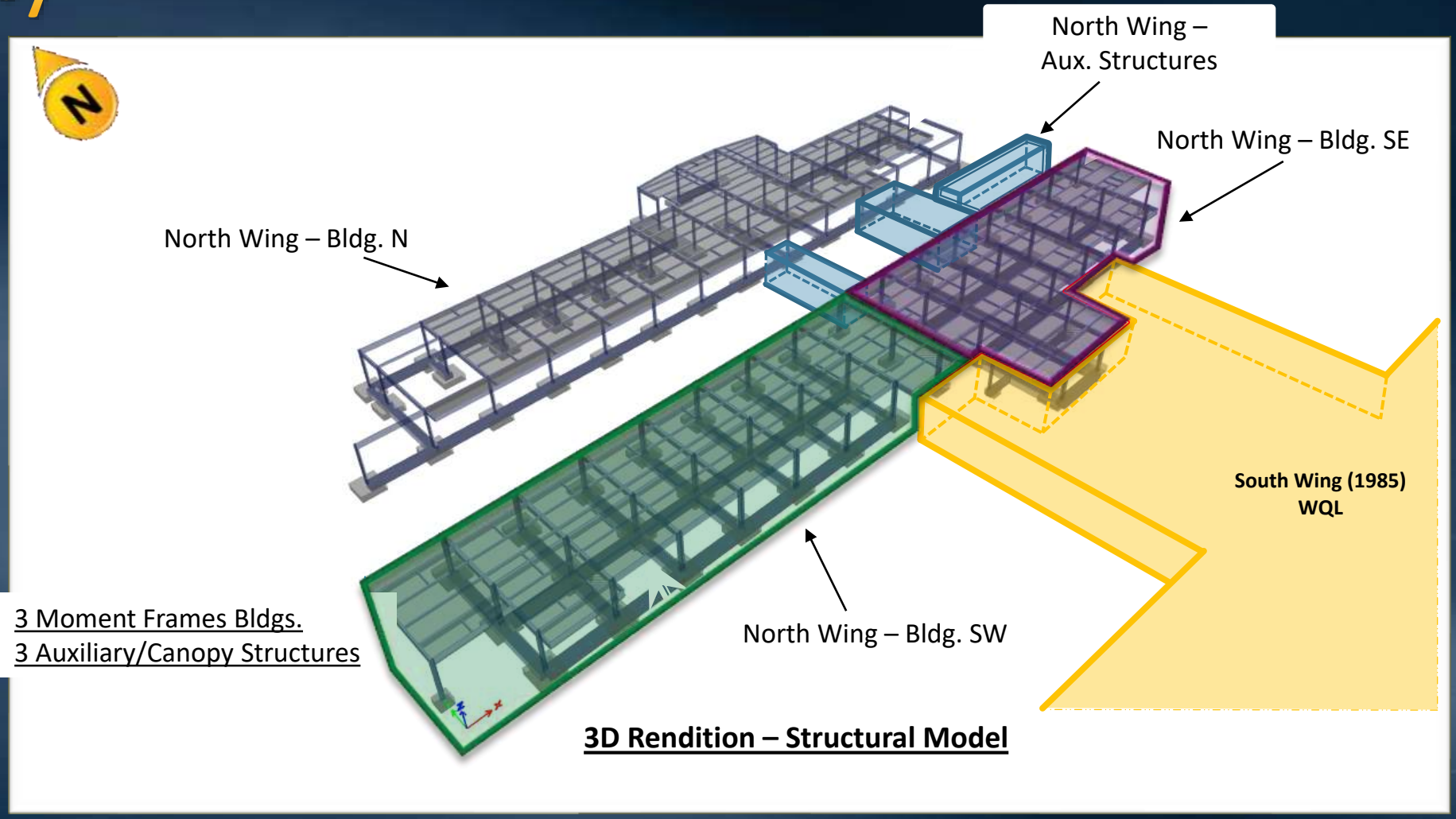
Approach to Planning the WQ Lab Upgrades



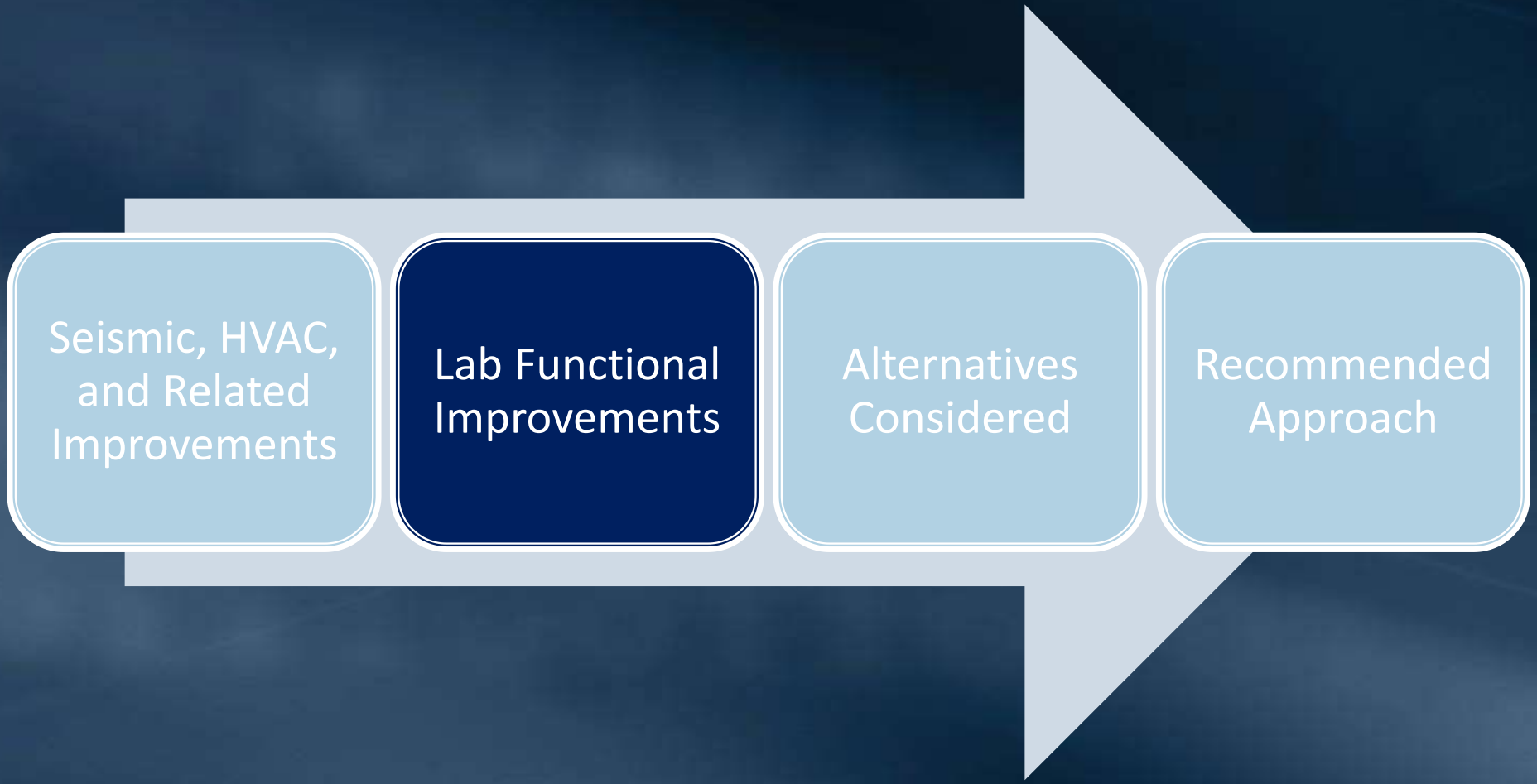
Approach to Planning the WQ Lab Upgrades



Structural Modifications to Achieve Essential Facility

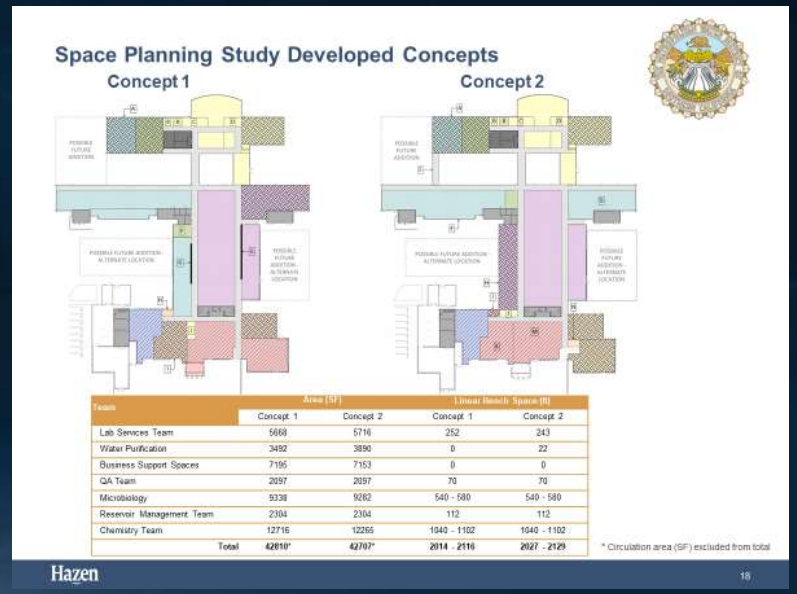


Approach to Planning the WQ Lab Upgrades



Space Planning Study

- Study Execution
  - 9 months, 23 workshops, 4 detailed concepts
    - 3 retrofit alternatives
    - 1 new facility alternative
- Multi-disciplinary team of experts
  - Metropolitan engineering and water quality staff combined with specialty lab consulting support
- Study Goals and Objectives
  - Provide Metropolitan with a path forward to address critical needs
    - Seismic resiliency
    - Water quality analyses and research
    - Support operations to optimize water treatment
    - Continue leading the industry on emerging water quality issues



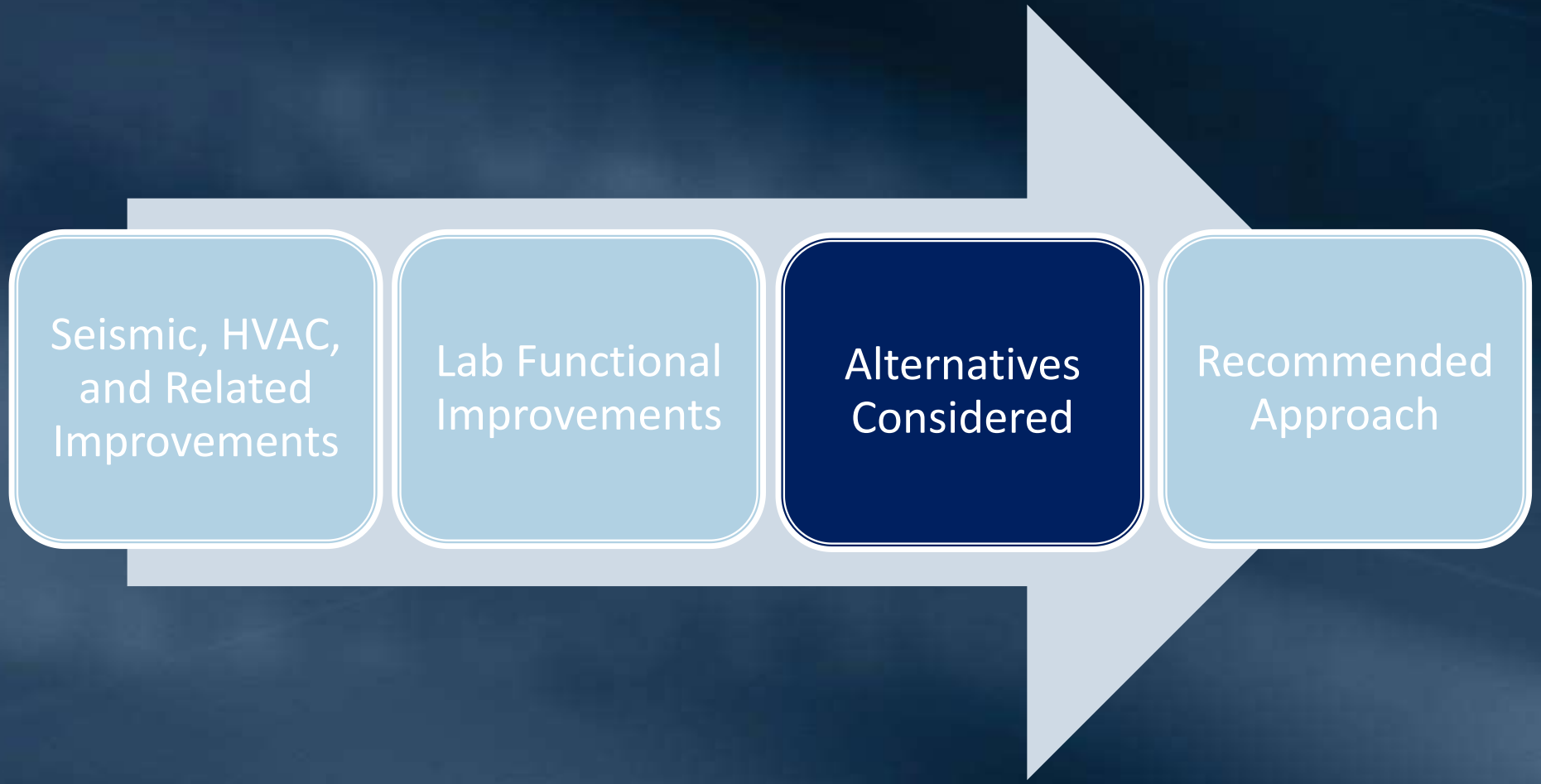
	Area (SF)		Linear Bench Space (ft)	
Team	Concept 1	Concept 2	Concept 1	Concept 2
Lab Services Team	5668	5716	252	243
Water Purification	3492	3890	0	22
Business Support Spaces	7195	7153	0	0
QA Team	2097	2097	70	70
Microbiology	9338	9282	540 - 580	540 - 580
Reservoir Management Team	2304	2304	112	112
Chemistry Team	12716	12265	1040 - 1102	1040 - 1102
Total	42810*	42707*	2014 - 2116	2027 - 2129

* Circulation area (SF) excluded from total

Space Planning Study Conclusions and Recommendations

- Current layout not optimized for staff, visitors, and sample movement
  - Create lab space that reduces potential for cross contamination
  - Create purpose-built visitor/tour amenities
- Additional usable space will be required in 5 to 10 years
  - Add additional 30,000 sq ft of new laboratory space
  - Optimize use of existing spaces
- Construction is too disruptive for lab activities
  - Relocate staff during construction to temp facility
  - Combine seismic upgrades and lab upgrades

Approach to Planning the WQ Lab Upgrades



Alternatives Considered

- Retrofit and expansion of existing building
  - Cost-effective alternative
  - Involves relocation of staff during construction
- New building
  - More expensive than retrofit/expansion option
  - Utilizes extensive vacant property at La Verne site

Both alternatives result in a seismically resilient, state-of-the-art laboratory prepared for future needs

Retrofit versus New Building – Space Considerations

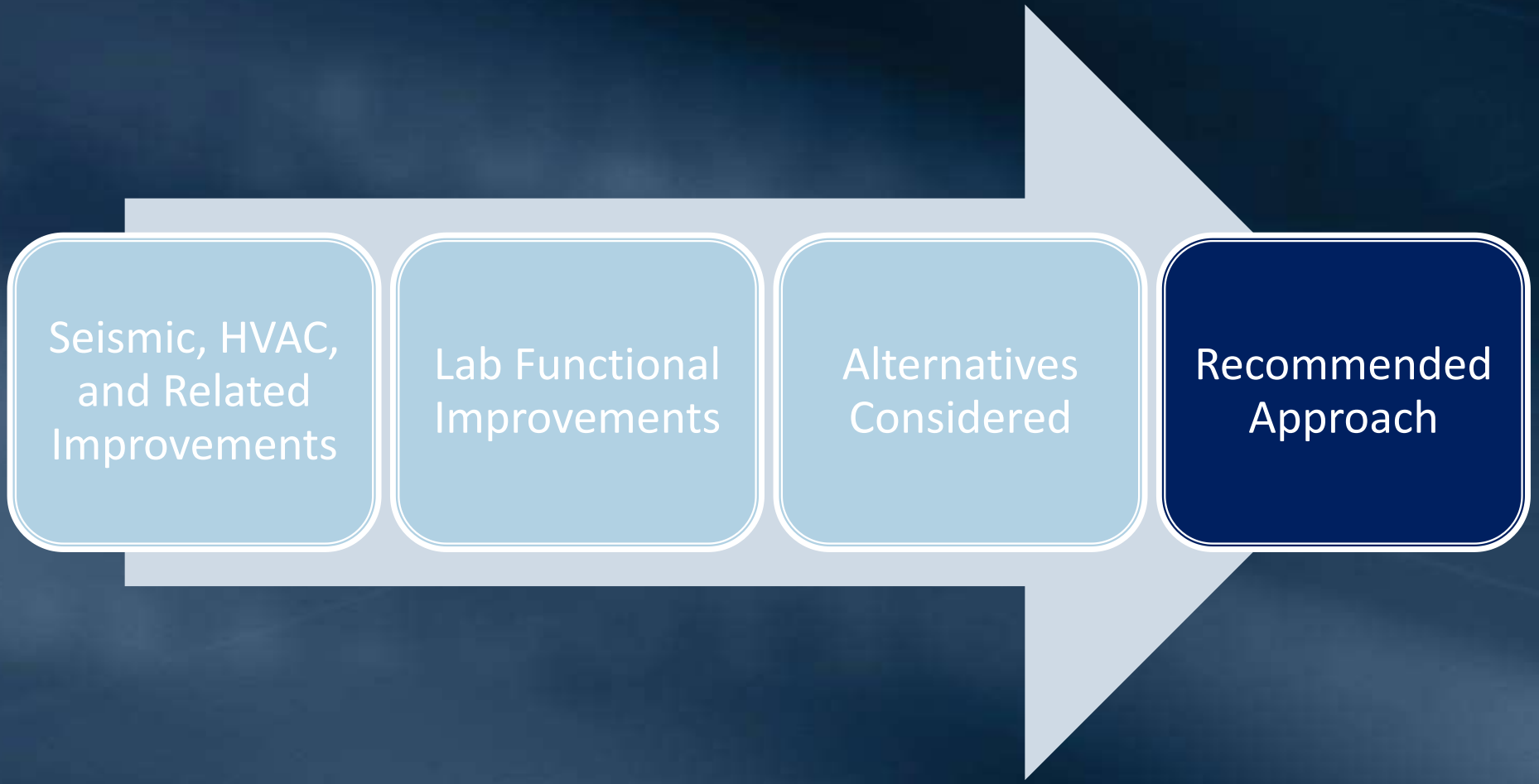
- Existing Lab location
  - Maximizes use of existing footprint
  - Uses existing utility connections
  - Can be isolated from plant operations
- New Building
- Space is limited for new improvements
  - Proposed new location may impact plant operations and future needs
    - Supplemental treatment for recycled water
  - New utilities for lab will impact future projects
    - Crossings and interferences

Retrofit versus New Building – Construction Contract

	Retrofit Utilize/expand existing site	New Building Develop new site at La Verne
Building Cost Total Finished sq ft Total Finished sq ft	$900 / sq ft 90k	$1,200/ sq ft 90k
Building Cost Temp Facilities New Utilities	$81M $5M -	$110M $1M $8M
Total*	$86M	$119M

*Does not include soft costs (i.e., construction management, engineering support, etc.)

Approach to Planning the WQ Lab Upgrades



Recommended Approach – Retrofit Existing Lab

- Build a seismically resilient, state-of-the-art laboratory to meet requirements and challenges for the next 30 years
  - Retrofit Existing Building
    - Seismic retrofit to essential facility criteria
    - Functional space improvements and necessary utility upgrades
  - Add Additional Space to Existing Building
    - Up to 30,000 sq ft of new lab space
- New Lab Equipment
  - Coordinate existing CIP for new lab equipment with overall building construction schedule

Next Steps

- Receive committee feedback on proposed improvements to Water Quality Lab
- February 2022 Board Action
  - Authorization of new consulting agreements to support planning/design effort for retrofit/expansion of Water Quality Lab
    - Technical Design Services
    - Environmental Planning Support


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

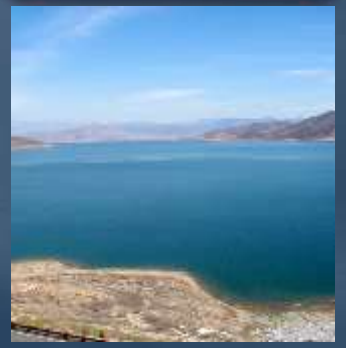
Annual Seismic Resilience Update

Engineering and Operations Committee
Item 6d
January 10, 2022

Metropolitan's Seismic Resilience Strategy

Seismic Resilience

Planning



Reliable Water Supply

Engineering

Infrastructure Seismic Reliability

1. Assessment
2. Prioritization
3. Mitigation

Operations

In-house Emergency Response Capability

Agency Partnerships

Regionally-Based Preparation & Response

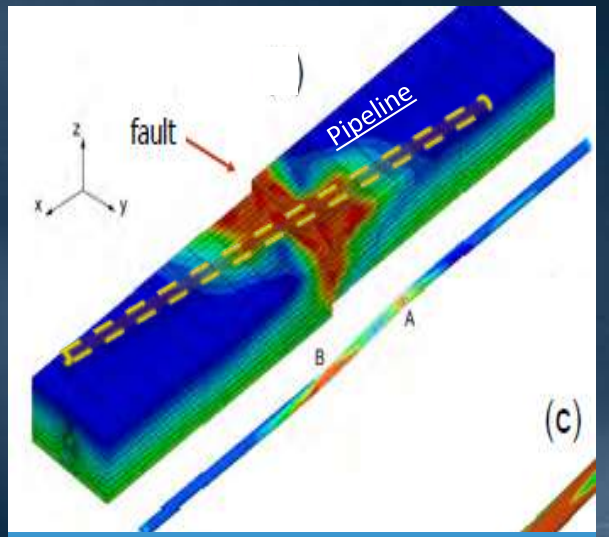
Reporting

Seismic Resilience Report

1. Comprehensive Assessment

- Primary seismic hazards to Metropolitan's infrastructure
  - Intense ground shaking (IGS)
  - Permanent ground displacement (PGD)
- Components of Infrastructure
  - Dams & reservoirs – IGS
  - Aboveground facilities – IGS & PGD
  - Underground structures - PGD
  - Lifelines (CRA & C&D) - PGD

Damage caused by ground shaking



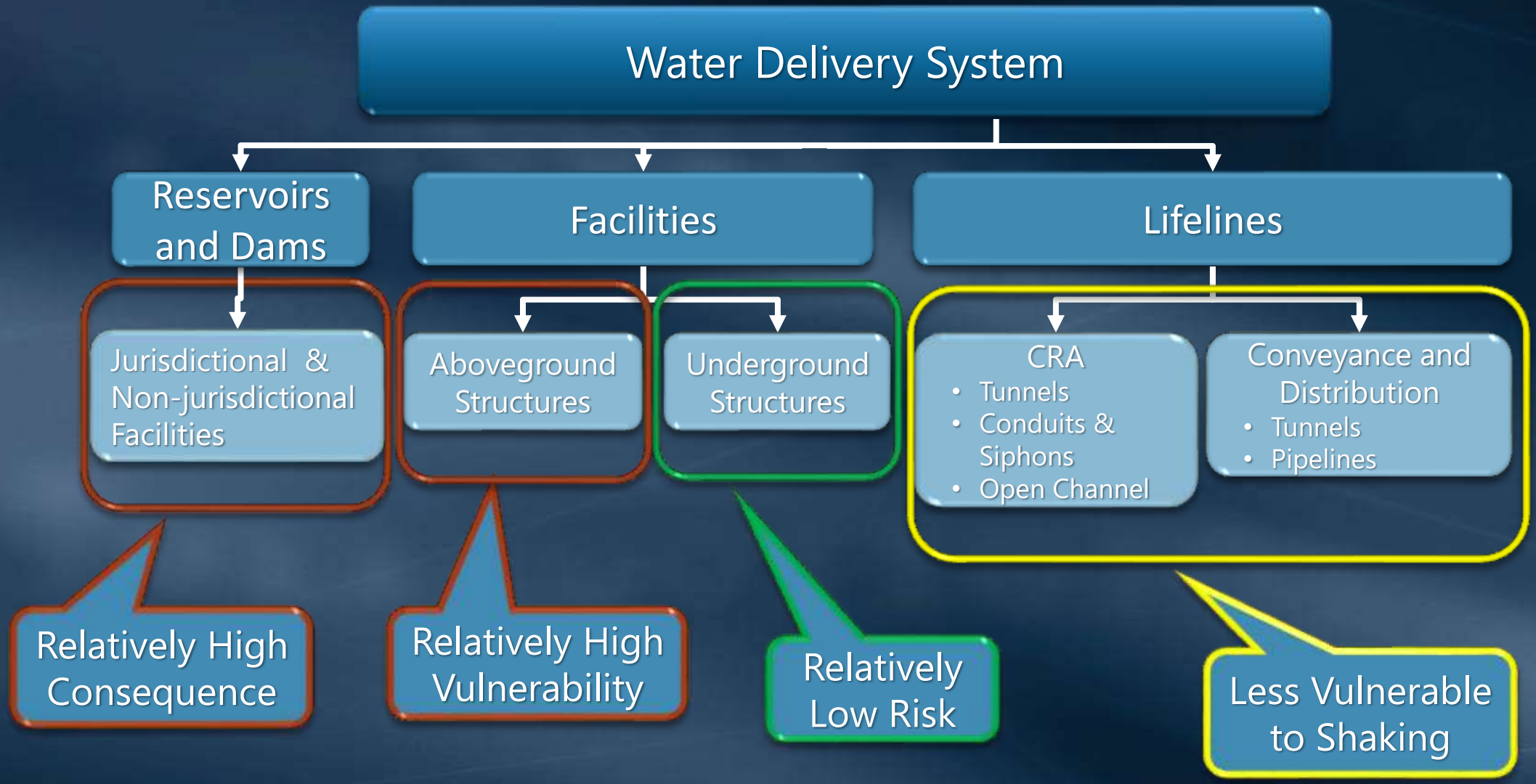
Simulated pipe displacement caused by fault rupture

2. Risk-Based Prioritization

- Risk is the combination of likelihood of damage and its consequences
- Prioritization by risk level of each component

Component	Likelihood of Damage	Consequences
Aboveground facilities	Relatively high	Medium/high
Underground structures	Relatively low	Relatively low
Lifelines	Relatively low except under PGD	Medium/high
Dams & reservoirs	Relatively low	Relatively high

Main Components of Water Delivery System



3. Effective Mitigation

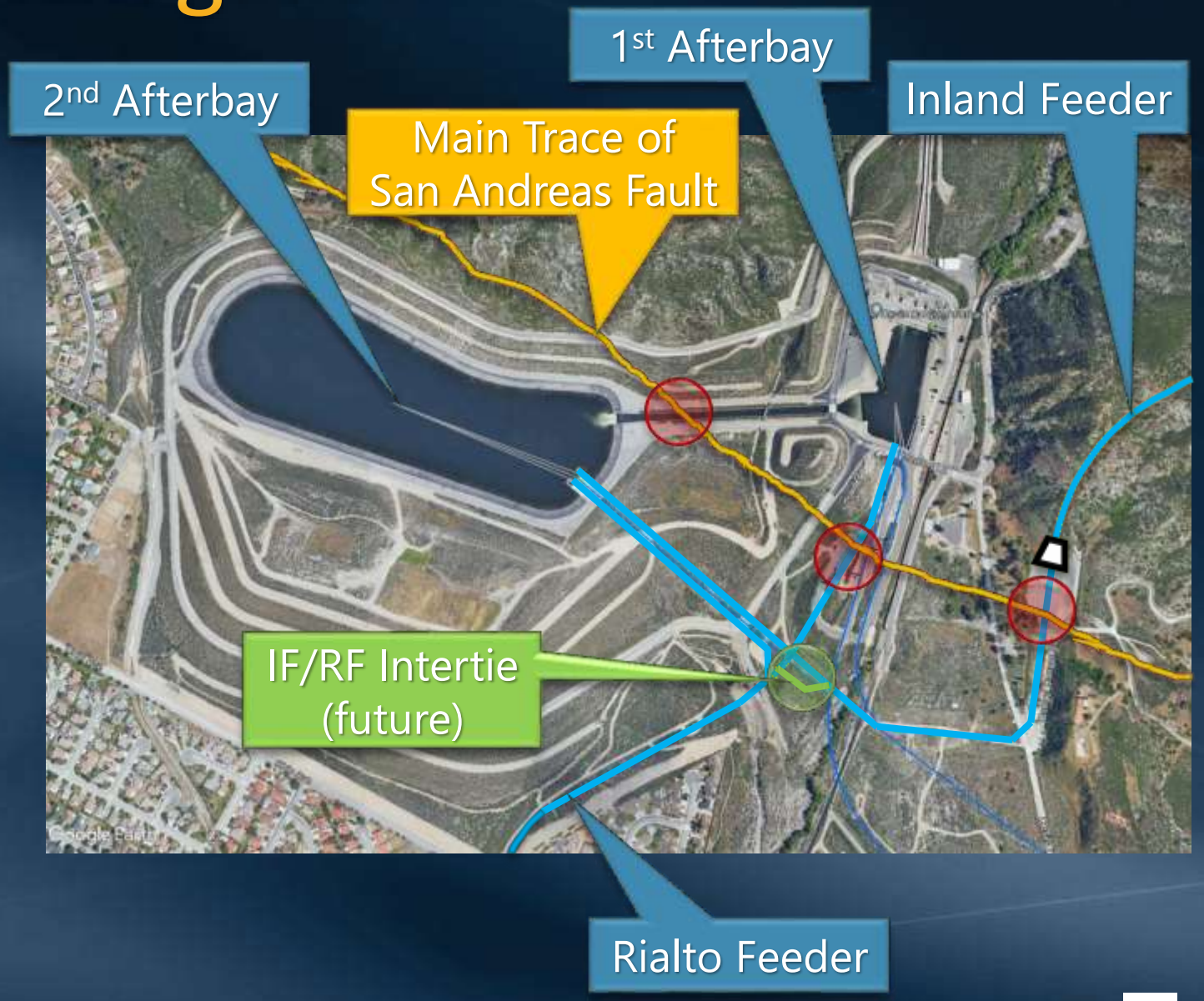
- Develop component-specific mitigation strategies/measures
- Apply resilient tools including flexibility & redundancy
- Improve cost/benefit with multi-purpose projects
- Continue refining mitigation measures to take advantage of latest technologies

Earthquake-Resistant Ductile Iron Pipe

Example of Effective Mitigation

Devil Canyon Facility

- Crossed by San Andreas Fault
- Mitigation measures
  - Structures were designed to meet state-of-the-practice seismic design standards
  - “Fuses” in the system were installed to isolate affected areas, protect crucial components and facilitate restoration
  - Continue preparing for post-event repair and restoration
  - Plan for alternative supplies to further mitigate the risk

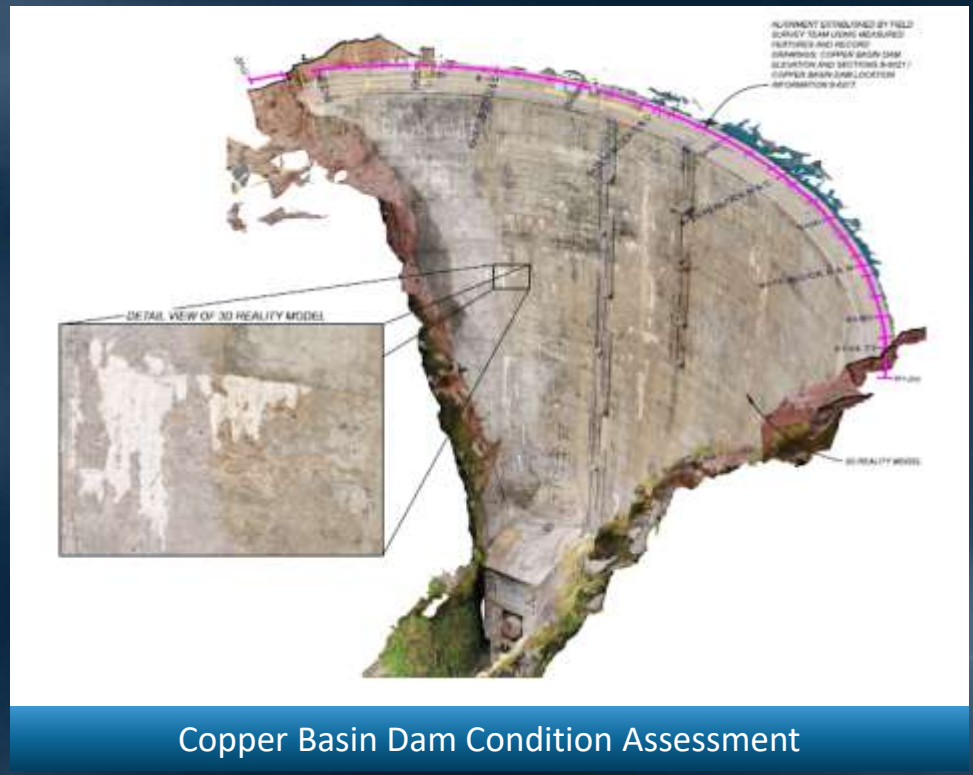


Status Update

1. Dams & Reservoirs

- Mitigation measures
  - Continuous monitoring by instrumentation
  - Regular inspections
  - Periodical review & assessment
  - As-needed upgrade
- Examples of ongoing projects
  - DVL monitoring system upgrade
  - Copper Basin Dam assessment
- Planned improvements
  - Real-time monitoring
  - Scenario-based risk assessment

Diamond Valley Lake – West Dam



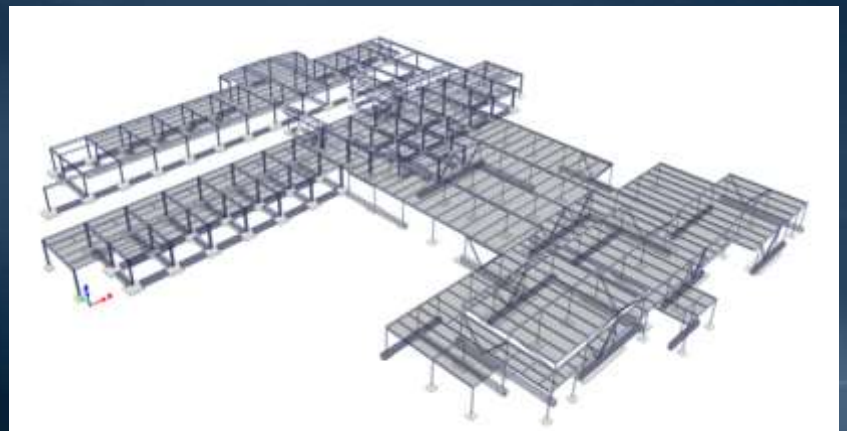
Copper Basin Dam Condition Assessment

Status Update

2. Aboveground Facilities

- Current status
  - 311 pre-1990 aboveground structures:
    - 195 are seismically sufficient
    - 75 have been upgraded
    - 41 under evaluation, design, or construction
  - 28 post-1990 aboveground structures
    - 10 have been evaluated and confirmed to be adequate
    - 1 has been upgraded
    - 5 under evaluation or design
    - 12 to be evaluated
- Examples of recent projects
  - Construction: Diemer W. Basins & Filter Bldg.
  - Design: La Verne WQL, Weymouth Headhouse Bldg., Foothill PCS, etc.

Diemer West Basins and Filter Building Rehabilitation Project



La Verne WQL 3-D Structural Model

Status Update

3. Lifelines

- Mitigation strategies
  - Identify high-risk segments with large potential PGD
  - Incorporate seismic improvement into rehabilitation projects
  - Improve flexibility to enhance resilience
- Examples of ongoing projects
  - Casa Loma Siphon No. 1
  - PCCP Rehabilitation
  - DVL to Rialto Flexibility Improvement
- Planned tasks
  - Update tunnel risk assessment
  - Update pipeline vulnerability assessment

Casa Loma Siphon Improvement

PCCP Rehabilitation

Status Update

4. Underground structures

- Current status
  - Created a comprehensive inventory (more than 6300 underground structures)
  - Categorizing based on functions and seismic risk
- Examples of high-risk structures
  - Bifurcation structures
  - Vault structures in liquefaction zone
- Planned tasks
  - Conduct initial screening of high-risk structures
  - Develop mitigation measures for high-risk structures identified as seismically deficient

Bifurcation Structure

Vault Structure

Status Update

Agency Partnerships

- Seismic Resilience Water Supply Task Force
  - Improve regional resilience through collaboration between three main imported-water agencies
- Conducted Task Force meeting in June 2021
  - Exchanged knowledge by sharing recent seismic resilience efforts
  - Collaborated on emergency response exercises
  - Supported studies to improve connectivity between systems
  - Continued to explore other collaborative efforts to improve regional resilience

Colorado River Aqueduct

California Aqueduct

Los Angeles Aqueduct

Summary

- Conduct comprehensive assessment to include all major assets
- Prioritize mitigation based on risk level
- Develop mitigation strategies tailored to each component of infrastructure
- Continue implementation of mitigation measures
- Report progress regularly
  - Periodic written reports
  - Annual oral updates


THE METROPOLITAN WATER DISTRICT OF
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Overview of Construction Management

Engineering and Operations Committee
Item 6e
January 10, 2022

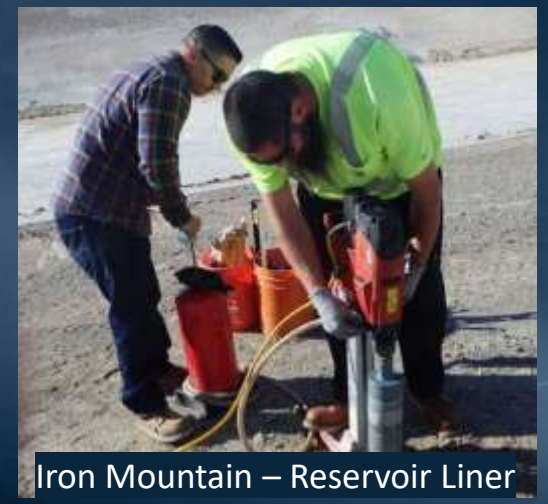
Construction Management

- Five teams
- Diverse staff of fifty inspectors and engineers


Weymouth - ORP


Team Managers


Northwest Pipe Co. – Casa Loma Siphon


Iron Mountain – Reservoir Liner

Construction Management Involved in All Project Phases

- Planning & Design
  - Constructability review
- Advertisement & Contract Award
  - Pre-bid conference
  - Pre-construction meeting
- Construction
  - On-site contract administration
  - On-site inspection & testing
  - Off-site fabrication inspection
- Warranty & Legal Support

Second Lower Feeder – PCCP Rehabilitation

What We Work To Avoid

Northwest Pipe Co. – Pipe Fabrication

Goals for Projects

- No accidents or injuries
- Work meets specifications
- Complete on time & within budgets
- Minimize impacts to operations

Diemer – West Basin & Filter Building Rehabilitation

Project Partnering

- Drive a project-first mentality
- Approach challenges as a team
- Resolve problems at the lowest level

Greg Ave. PCS – Pump Modification & New Control Building

Project Teams

- Resident
- Assistant Resident
- Field Office Engineers
- Construction Inspectors
- Fabrication Inspectors
- Materials Testing Technicians
- Multiple career paths

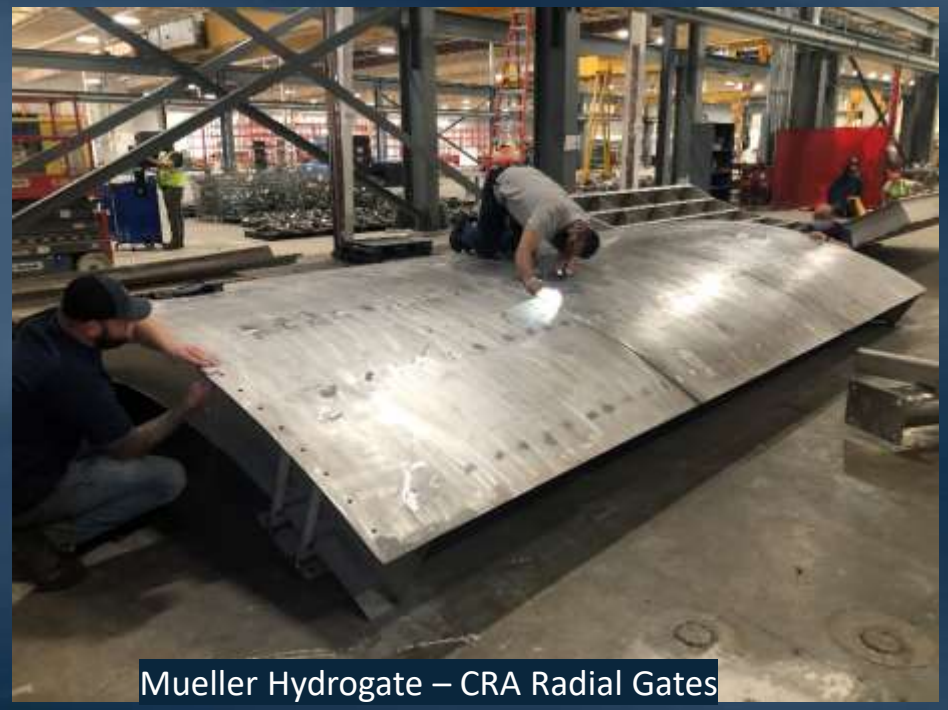
Allen-McColloch Pipeline – PCCP 2021 Urgent Relining

Construction Inspection

- Continuous & hold point
- Documentation
  - Work & issues
- Track extra and disputed work
- Work coordination

Fabrication Inspection

- Fabrication of MFE & CFE
  - Mechanical & electrical equipment
  - Pipe, tanks & structural steel
- In-shop & virtual



Mueller Hydrogate – CRA Radial Gates

Rite Pro Co. – CRA Pumping Plant Sump Replacement

Implementation of Technology in Field

- Assessed technology options
  - Software & hardware
- Piloted mobile device technologies
- Deployed Bluebeam & iPads
- Benefits
  - Access documents & reports
  - Collaborate with design teams and users

MWD HQ – Building Improvements

Project Performance

- Construction management budget
  - Inspection & owner costs
  - Construction costs
- Performance metrics
  - Inspection cost as a percentage of total construction cost
    - 9% - 12% for construction cost > $3,000,000
    - 9% - 15% for construction cost ≤ $3,000,000
- Change order
  - Tracked on every project
  - Current rolling annual average is 1.55%

Project Benefits

- Improved design & constructability
- Reduced cost of contracts and extra work
- Higher quality, functionality, and longevity

Diemer – West Basin & Filter Building Rehabilitation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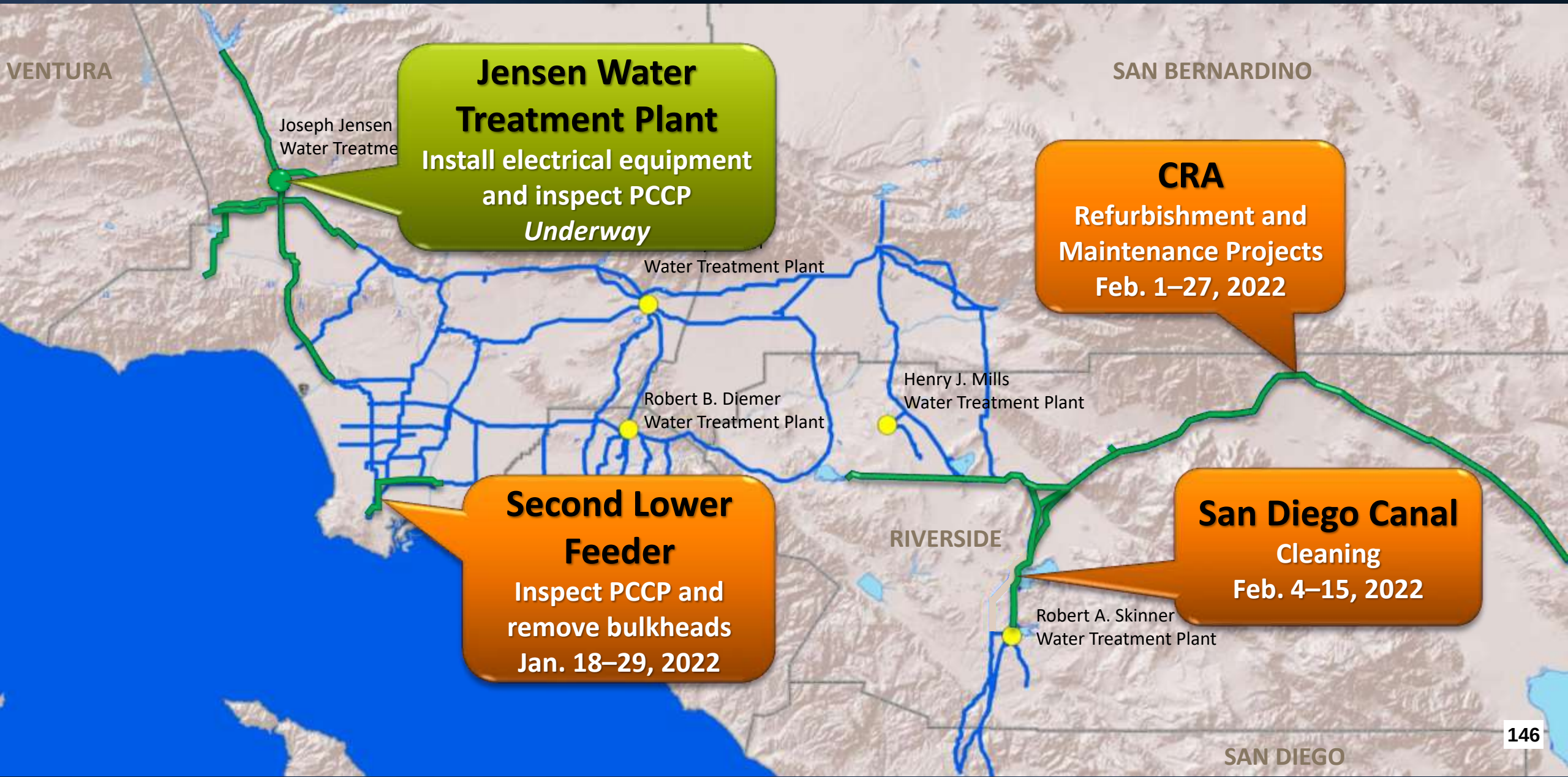
Water System Operations Manager's Report

Engineering and Operations Committee
Item 7a
January 10, 2022

Current Operational Conditions

- 2022 SWP Allocation is 0% with an additional Human Health and Safety Allocation if needed later in the year
- All available drought actions are underway
- SWP Carryover, Flex Storage, and Banking Programs meeting remaining SWP Reliant Area demands
- SWP blend targets are 0% at Weymouth, Diemer, and Skinner plants
- CRA is at 7-pump flow
- December 2021 deliveries of 100 TAF were 16 TAF lower than December 2020

Ensuring Continued System Reliability

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Engineering Services Manager's Report

Engineering and Operations Committee
Item 7b
January 10, 2022

Construction and Procurement Contracts November 2021

Construction & Procurement Contracts Through November 2021	
Number of Contracts at end of November 2021	39
Total Bid Amount of Contracts in Progress at end of November 2021	$272M
Contracts Awarded in November 2021	3
Contracts With Notice To Proceed Issued in November 2021	0
Contracts Completed in November 2021	0
Contract Gross Earnings in November 2021	$3.9M

CRA – Gene Wash Reservoir Discharge Valve Replacement

Removing the Old Valve

Transporting the Fixed Cone Valve

CRA – Gene Wash Reservoir Discharge Valve Replacement

Fixed Cone Valve Installation Complete

CRA Mile 12 Flow Monitoring Station Upgrades Project

- Completed Tasks:
  - Installation of the new CMU wall extension.
- On-Going Tasks:
  - Excavation for the electrical grounding circuit and rods.
  - Installation of the electrical grounding grid.
- Contract Amount:
  - $2,022,000 / Paid to Date: 4.5%
- Original Contract Duration:
  - 220 Working Days / 45.5% to date

CRA Mile 12 Flow Monitoring Station Upgrades Project

Headquarters Security Contract

The Security Desk Area (Inside the Dust Containment) under Construction


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