

WORKSHOP MEETING OF THE
BOARD OF DIRECTORS WITH MET DIRECTORS
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
18700 Ward Street, Board Room, Fountain Valley, California
April 3, 2019, 8:30 a.m.

AGENDA

PLEDGE OF ALLEGIANCE

ROLL CALL

PUBLIC PARTICIPATION/COMMENTS

At this time members of the public will be given an opportunity to address the Board concerning items within the subject matter jurisdiction of the Board. Members of the public may also address the Board about a particular Agenda item at the time it is considered by the Board and before action is taken.

The Board requests, but does not require, that members of the public who want to address the Board complete a voluntary "Request to be Heard" form available from the Board Secretary prior to the meeting.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED

Determine need and take action to agendize item(s), which arose subsequent to the posting of the Agenda. (ROLL CALL VOTE: Adoption of this recommendation requires a two-thirds vote of the Board members present or, if less than two-thirds of the Board members are present, a unanimous vote.)

ITEMS DISTRIBUTED TO THE BOARD LESS THAN 72 HOURS PRIOR TO MEETING

Pursuant to Government Code Section 54957.5, non-exempt public records that relate to open session agenda items and are distributed to a majority of the Board less than seventy-two (72) hours prior to the meeting will be available for public inspection in the lobby of the District's business office located at 18700 Ward Street, Fountain Valley, California 92708, during regular business hours. When practical, these public records will also be made available on the District's Internet Web site, accessible at <http://www.mwdoc.com>.

(NEXT RESOLUTION NO. 2081)

ACTION ITEM

1. REQUEST BY MWDOC MET DIRECTOR LINDA ACKERMAN TO SEEK THE POSITION OF MET BOARD SECRETARY

Recommendation: Consider authorizing MWDOC MET Director Linda Ackerman to seek the position of MET Board Secretary.

PRESENTATION/DISCUSSION/INFORMATION ITEMS

2. INPUT OR QUESTIONS ON MET ISSUES FROM THE MEMBER AGENCIES/MET DIRECTOR REPORTS REGARDING MET COMMITTEE PARTICIPATION

Recommendation: Receive input and discuss the information.

3. WATER SUPPLY CONDITIONS UPDATE

Recommendation: Review and discuss the information presented.

4. PRESENTATION REGARDING THE 2018 EVALUATION OF REGIONAL STORAGE PORTFOLIO OF METROPOLITAN'S EMERGENCY STORAGE OBJECTIVE

Recommendation: Review and discuss the information presented.

5. CALIFORNIA WATERFIX ACTIVITIES UPDATE

Recommendation: Review and discuss the information presented.

6. MET ITEMS CRITICAL TO ORANGE COUNTY (The following items are for informational purposes only – a write up on each item is included in the packet. Discussion is not necessary unless requested by a Director)

- a. MET's Water Supply Conditions
- b. MET's Finance and Rate Issues
- c. Colorado River Issues
- d. Bay Delta/State Water Project Issues
- e. MET's Ocean Desalination Policy and Potential Participation in the Doheny and Huntington Beach Ocean (Poseidon) Desalination Projects
- f. South County Projects

Recommendation: Discuss and provide input on information relative to the MET items of critical interest to Orange County.

7. METROPOLITAN (MET) BOARD AND COMMITTEE AGENDA DISCUSSION ITEMS

- a. Summary regarding March Board Meeting
- b. Review items of significance for MET Board and Committee Agendas

Recommendation: Review and discuss the information presented.

ADJOURNMENT

Note: Accommodations for the Disabled. Any person may make a request for a disability-related modification or accommodation needed for that person to be able to participate in the public meeting by telephoning Maribeth Goldsby, District Secretary, at (714) 963-3058, or writing to Municipal Water District of Orange County at P.O. Box 20895, Fountain Valley, CA 92728. Requests must specify the nature of the disability and the type of accommodation requested. A telephone number or other contact information should be included so that District staff may discuss appropriate arrangements. Persons requesting a disability-related accommodations should make the request with adequate time before the meeting for the District to provide the requested accommodations.



ACTION ITEM

April 3, 2019

TO: Board of Directors

FROM: Robert J. Hunter
General Manager

**SUBJECT: REQUEST BY MWDOC MET DIRECTOR LINDA ACKERMAN TO SEEK
THE POSITION OF MET BOARD SECRETARY**

STAFF RECOMMENDATION

Staff recommends the Board of Directors: Consider authorizing MWDOC MET Director Linda Ackerman to seek the position of MET Board Secretary.

COMMITTEE RECOMMENDATION

This item has not been presented to a Committee.

SUMMARY

MWDOC MET Director Linda Ackerman has expressed interest in seeking the position of MET Board Secretary. Administrative Code Section 1501 requires a MWDOC MET Director to obtain the concurrence of the MWDOC Board prior to seeking any elected office at MET. Please see Section 1501 below.

**§1501 REQUEST BY MWDOC MET DIRECTORS TO SEEK ELECTED
OFFICE AT MET**

A MWDOC/MET Director desiring to seek any elected office of the MET board shall first obtain concurrence of the MWDOC Board.

Budgeted (Y/N): N/A	Budgeted amount: N/A	Core <u>X</u>	Choice <u> </u>
Action item amount:		Line item:	
Fiscal Impact (explain if unbudgeted):			



INFORMATION ITEM

April 3, 2019

TO: Board of Directors

FROM: Robert Hunter, General Manager

Staff Contact: Kevin Hostert

SUBJECT: WATER SUPPLY CONDITION UPDATE

STAFF RECOMMENDATION

Staff recommends the Board of Directors to review and discuss this information.

REPORT

The 2018-19 Water Year officially began October 1, 2018. Thus far, the Northern California accumulated precipitation (8-Station Index) is reporting **55.3 inches or 136% of normal** as of March 26th. In the month of March 2019, accumulated precipitation reached 7.7 inches, which is **0.8 inches above normal** compared to the historical average (As of March 26th). The Northern Sierra Snow Water Equivalent was at **43.8 inches on March 21st**, which was **155% of normal** for that day.

As of March 25th Lake Oroville storage is at **77% of total capacity and 103% of normal**. As of March 25th San Luis Reservoir has a current volume **of 99% of the reservoirs total capacity and is 111% of normal**. Due to the high levels in San Luis Reservoir, California Department of Water Resources (DWR) has made Article 21 water available (Deliveries are ongoing and started February 20, 2019).

The Department of Water Resources (DWR) in February increased the State Water Project (SWP) **"Table A" allocation to 70%**. This allocation provides Metropolitan with approximately **1,338,050 AF in SWP deliveries this water year**. DWR's approval considered several factors including existing storage in SWP conservation reservoirs, SWP operational

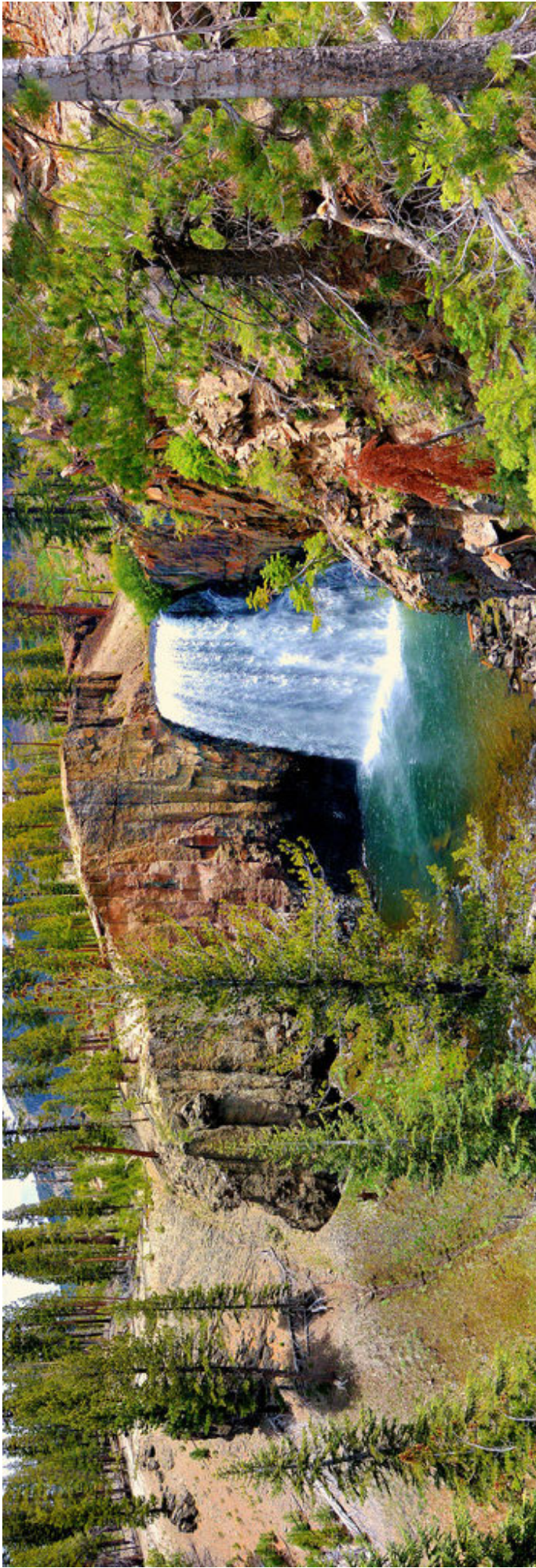
Budgeted (Y/N): N	Budgeted amount: N/A	Core <u> X </u>	Choice <u> </u>
Action item amount:	Line item:		
Fiscal Impact (explain if unbudgeted):			

regulatory constraints, and the 2019 contractor demands.

On the Colorado River system, snowpack is measured across four states in the Upper Colorado River Basin. As of **March 25, 2019, snowpack measured at 135% of normal** for that date. The ongoing decline in the Colorado River watershed has impacted storage levels in Lake Powell and Lake Mead, which in turn affects the likelihood of surplus or shortage conditions in the future. The Bureau of Reclamation is projecting that there is a 69% chance of a shortage on the Colorado River in 2020, increasing to 82% in 2021 (Lake Mead outlook will be updated in April 2019 when the Bureau of Reclamation publishes the next 24-month study).

With estimated total demands and losses of 1.68 million acre-feet (MAF) and with a 70% SWP Table A Allocation plus an additional 100 thousand acre-feet (TAF), Metropolitan is projecting that demands will exceed supply levels in CY 2019. Based on this, estimated total dry-year storage for Metropolitan at the end of **CY 2019 will go down to 3.3 MAF**.

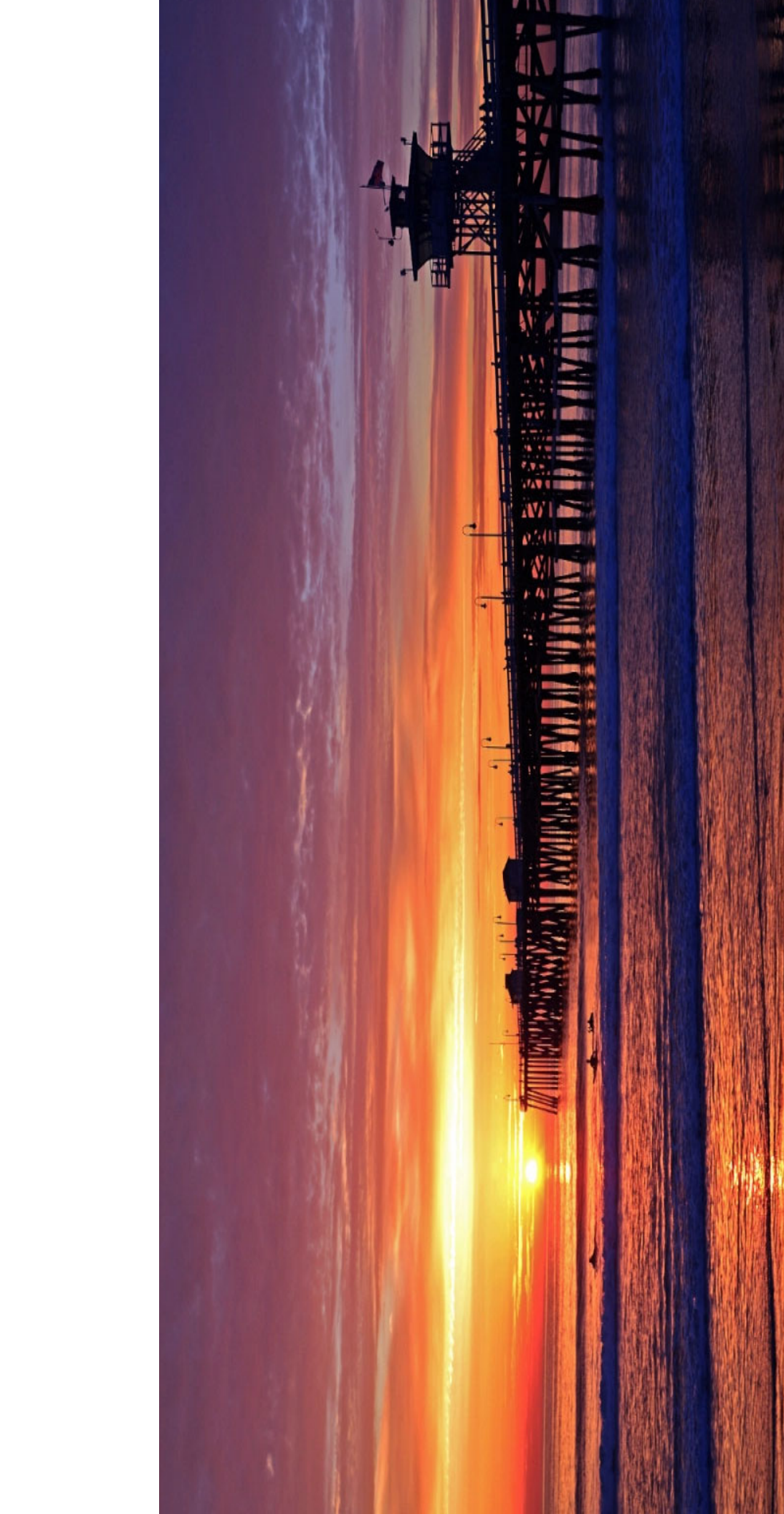
Attachment: Water Supply Conditions Presentation



Water Supply Conditions

Kevin Hostert, Water Resources Analyst
Municipal Water District of Orange County

March 21st 2019



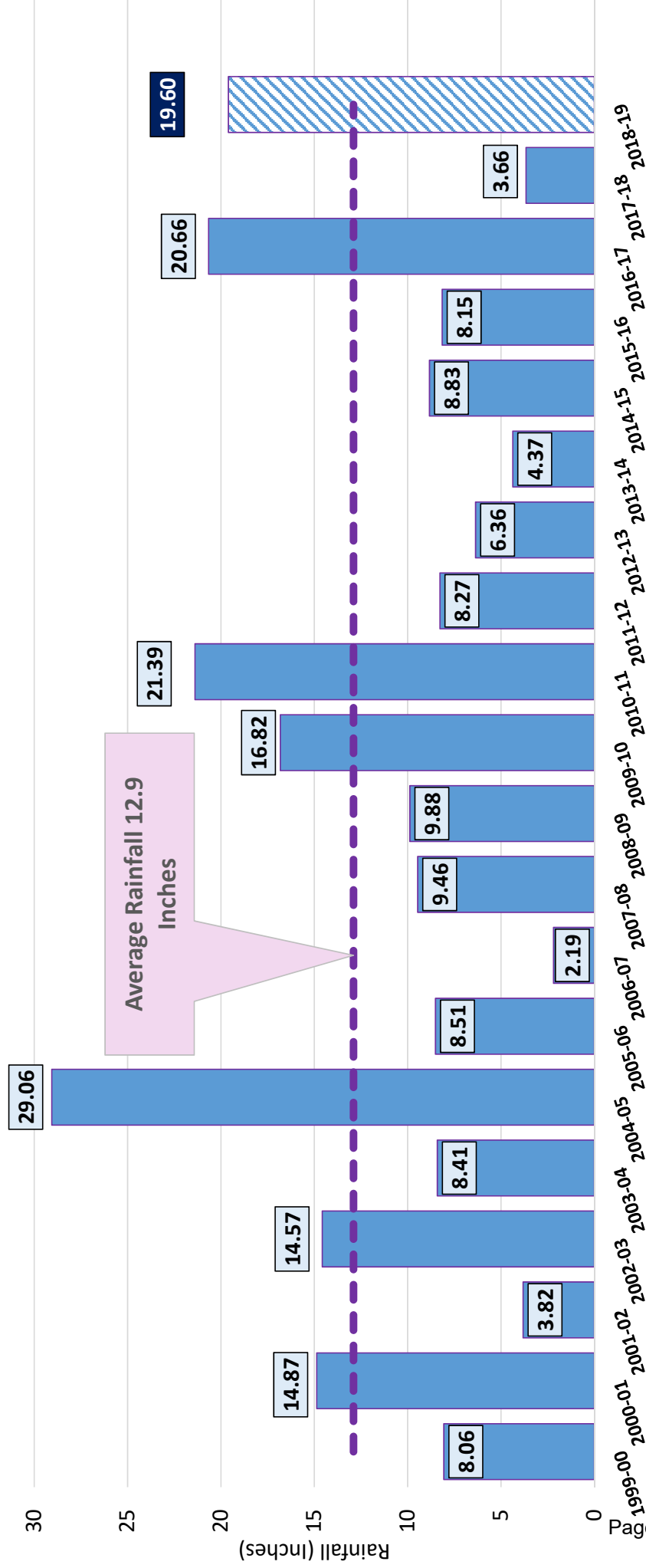
Orange County Weather and Water Supply Conditions

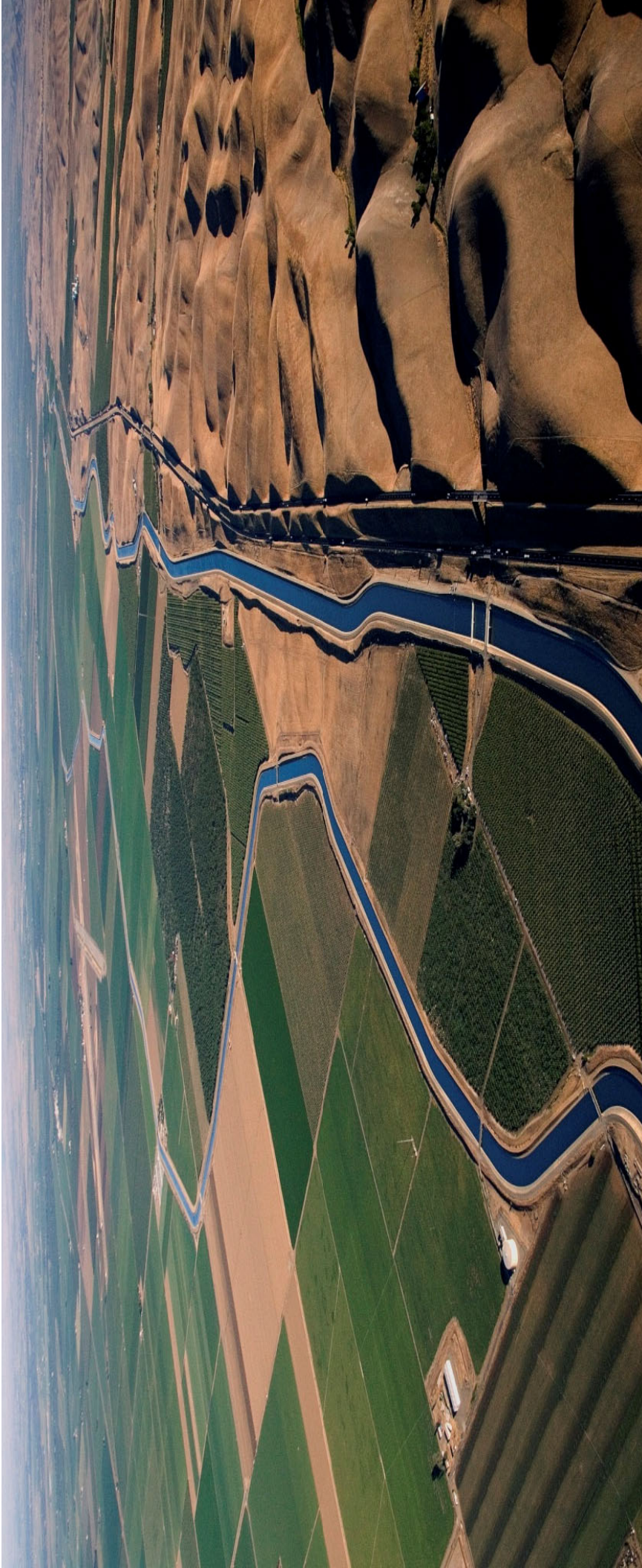
Insight to local weather conditions that affect Orange County's water supply and water demand

Santa Ana Precipitation



Santa Ana Annual Precipitation Statistics (Fiscal Year July-June)





Regional Weather and Water Supply Conditions

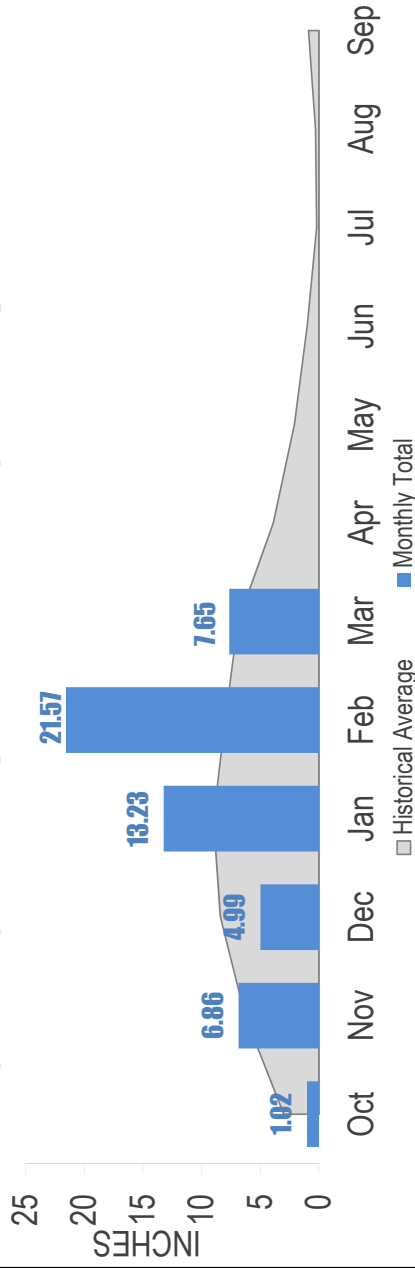
Insight to regional weather conditions that affect California's water supply



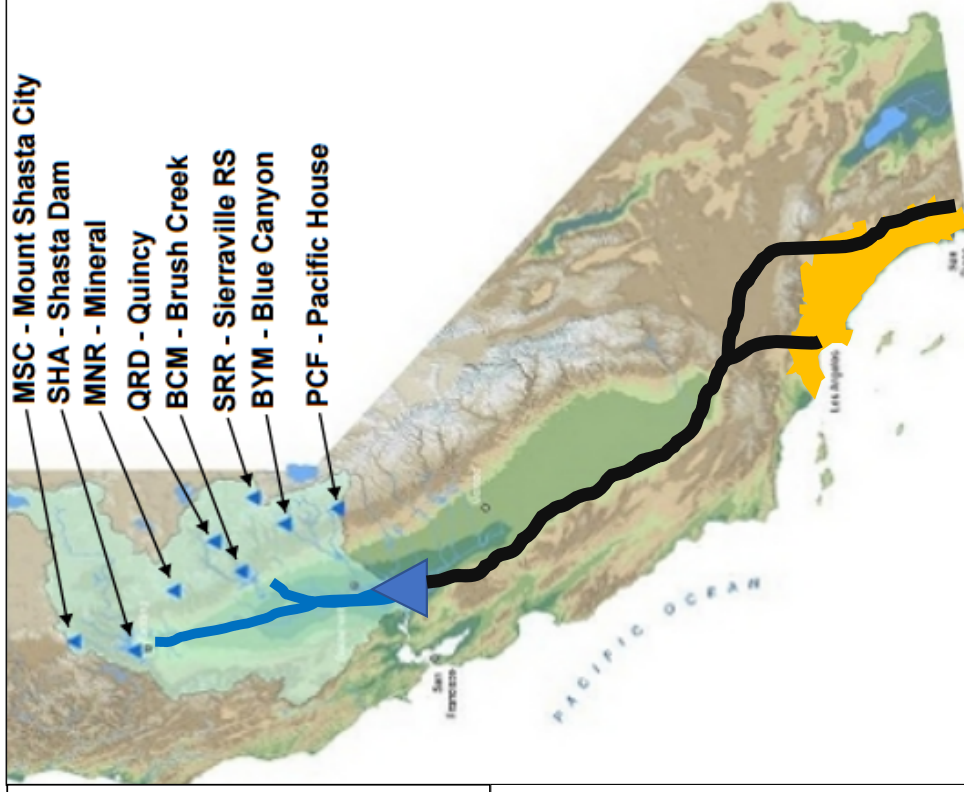
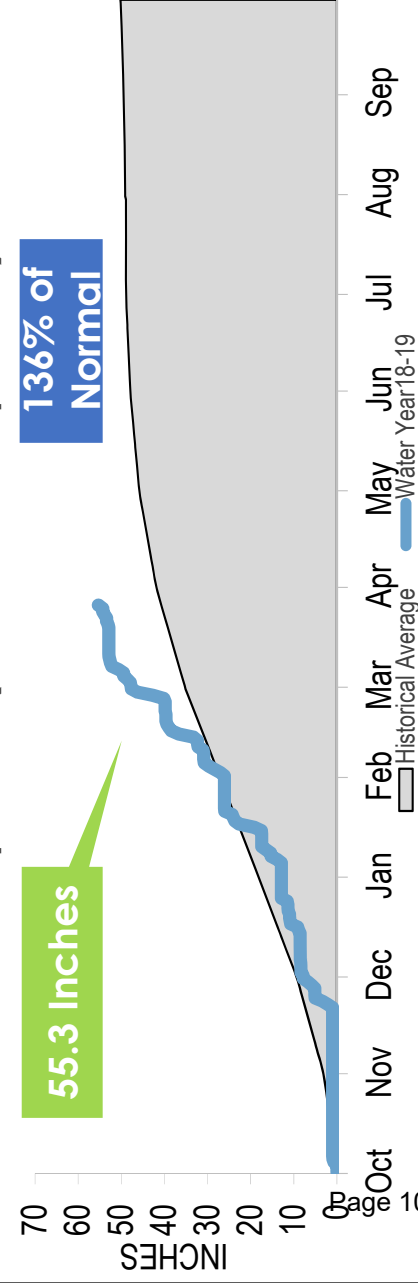
Northern California Accumulated Precipitation



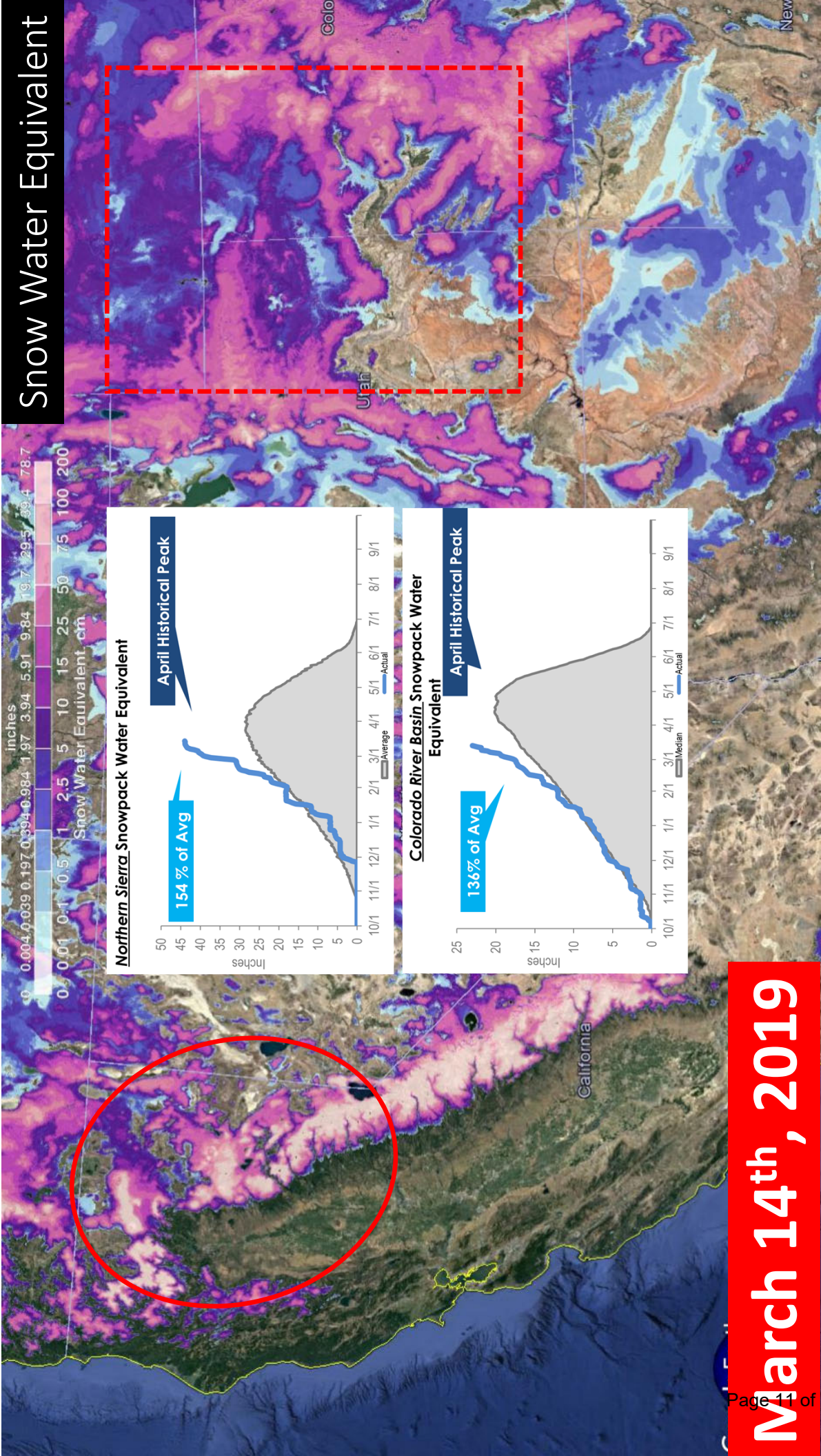
Monthly Precipitation (8 Station Precip Index)



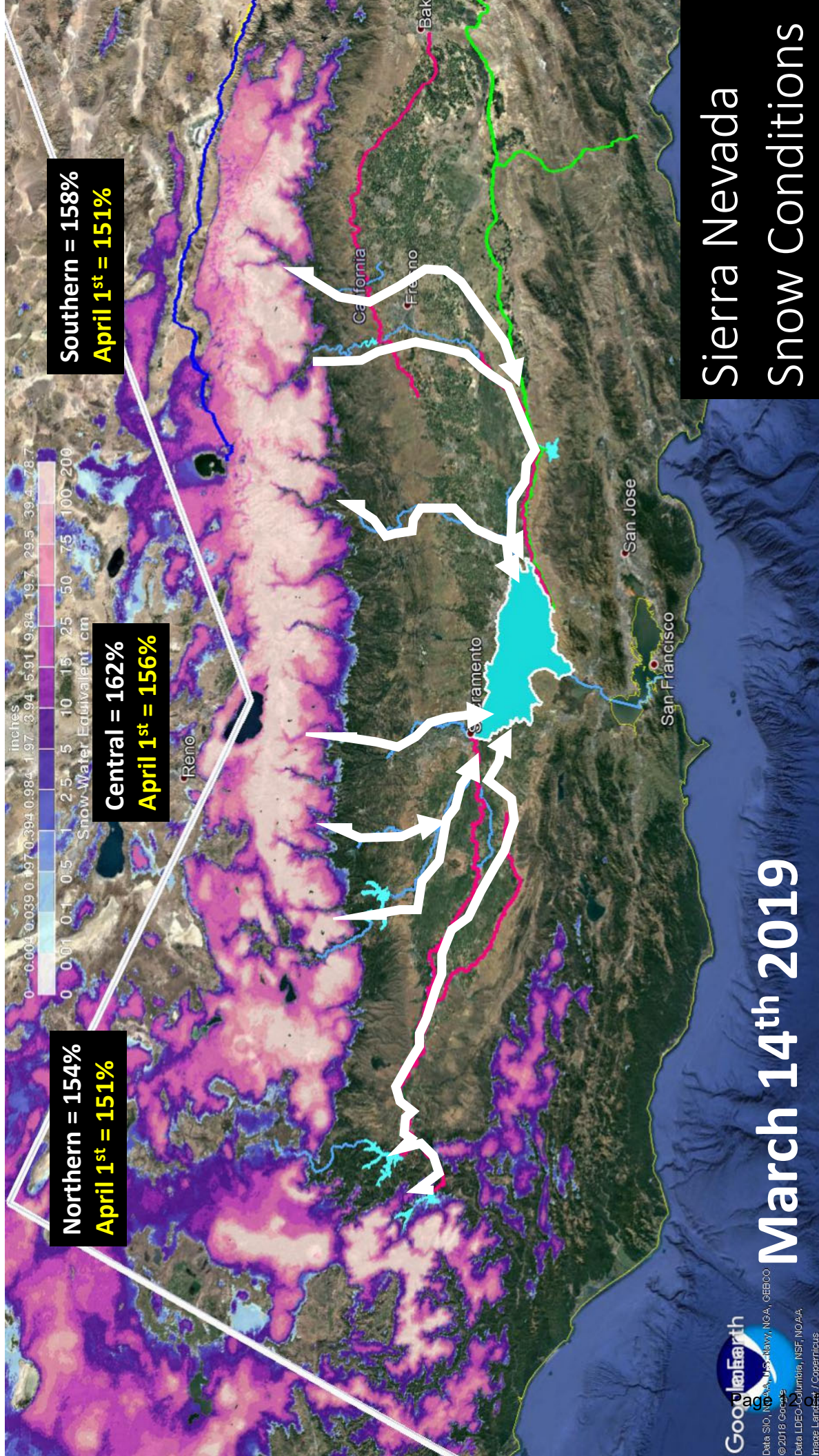
Accumulated Precipitation (8-Station Precip Index)



Snow Water Equivalent



March 14th, 2019





DISCUSSION ITEM

April 3, 2019

TO: Board of Directors

FROM: Robert Hunter,
General Manager

Staff Contact: Harvey De La Torre
Melissa Baum-Haley

**SUBJECT: PRESENTATION REGARDING THE 2018 EVALUATION OF REGIONAL
STORAGE PORTFOLIO OF METROPOLITAN'S EMERGENCY STORAGE
OBJECTIVE**

STAFF RECOMMENDATION

Staff recommends the Board of Directors review and discuss the information presented.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

REPORT

In February 2018, Metropolitan and its member agencies began a process of Evaluation of Metropolitan's Regional Storage Portfolio (ERSP) to maximize the potential for performance and operations of Metropolitan's water storage programs. As part of the Regional Storage Portfolio evaluation process, a Workgroup comprised of Metropolitan staff along with representatives from Metropolitan member agencies evaluated Metropolitan's Emergency Storage Objective (Emergency Storage).

Emergency Storage allows Metropolitan to deliver reserve supplies to its member agencies to supplement local production and help avoid severe water shortages during periods when the imported water aqueducts may be out of service. The evaluation considered potential major earthquake damage to the aqueducts that transport imported water supplies to

Budgeted (Y/N): N/A	Budgeted amount: None	Core <input checked="" type="checkbox"/>	Choice <input type="checkbox"/>
Action item amount: N/A	Line item:		
Fiscal Impact (explain if unbudgeted):			

Southern California; specifically a San Andreas M7.8 “Great ShakeOut” scenario magnitude event developed by the US Geological Survey that could sever both the State Water Project and the Colorado River Aqueduct simultaneously.

The Member Agency Workgroup recommended changes to Metropolitan’s emergency storage objective that consider various combinations of criteria to determine an “envelope” of acceptable scenarios for Emergency Storage. This envelope concept underscores member agencies’ unique situations while taking into account practicable ranges of decreases in retail water demands and local production. Included in the recommendations is a periodic review of the Emergency Storage Objective, likely following the completion of any new Integrated Water Resources Plan update.

The attached White Paper provides a summary of the ERSP Workgroup process in its review of the policy, history, and criteria for evaluating a regional planning estimate for the Emergency Storage.

MWDOC has invited Brad Coffey, who leads Metropolitan’s leads the Water Resource Management Group, to provide an overview of the 2018 Evaluation of Regional Storage Portfolio of Metropolitan’s Emergency Storage Objective and next steps.

Attachments: White Paper on 2018 Evaluation of Regional Storage Portfolio of Metropolitan’s Emergency Storage Objective

2018 Evaluation of Regional Storage Portfolio Evaluation of Metropolitan’s Emergency Storage Objective

SUMMARY

In February 2018, the Metropolitan Water District of Southern California (Metropolitan) and its member agencies embarked on a process for the Evaluation of Regional Storage Portfolio (ERSP) to maximize potential for performance and operations of Metropolitan’s storage programs. As part of the ERSP process, a Workgroup comprised of Metropolitan staff and representatives from member agencies evaluated Metropolitan’s Emergency Storage Objective (Emergency Storage).

This White Paper provides a summary of the ERSP Workgroup process in its review of the policy, history, and criteria for evaluating a regional planning estimate for the Emergency Storage. This evaluation plans for potential major earthquake damage to the aqueducts that transport imported water supplies to Southern California. The Emergency Storage allows Metropolitan to deliver reserve supplies to the member agencies to supplement local production. This helps avoid severe water shortages during periods when the imported water aqueducts may be out of service.

This White Paper describes the Workgroup’s considerations and conclusions to: 1) update the emergency criteria, and 2) revise the methodology for calculating the Emergency Storage.

In the review and update of emergency criteria, the Workgroup centered on the following:

- A retail water demand cutback of 25 to 35 percent appears reasonable, based on the level of conservation that the region achieved during the recent drought; and
- A six-and 12-month aggregated loss of 10 to 20 percent of local production seems reasonable, based on member agencies’ reported production in the 2015 Integrated Water Resources Plan (IRP). This allows a contingency for some level of damage to or outage of local facilities and accommodates variable durations of local repairs.

The Workgroup discussion also led to a new concept of an “envelope of solutions” to estimate an appropriate Emergency Storage for the region. The envelop concept shifts from a single equation and volume for determining emergency storage. Instead, it considers various combinations of criteria to determine an envelope of acceptable scenarios for Emergency Storage. The prior methodology assumes a single region-wide scenario of conservation and local production loss, while the new concept forwards the development of a range of emergency storage values that could provide reliability during the outage period. This envelope concept underscores member agencies’ unique situations while taking into account their inputs in identifying practicable ranges of decreases in retail water demands and local production. The Workgroup focused on an acceptable range of Emergency Storage values from 500,000 to 700,000 acre-feet.

The Workgroup generally accept the following:

- Metropolitan should set its Emergency Storage Objective at 700,000 acre-feet. This level of storage would prevent severe water shortages to the region.
- Metropolitan should revisit the Emergency Storage Objective periodically, possibly following the completion of any new IRP.

DETAILED REPORT

Background

Metropolitan's need for Emergency Storage is based on the potential for major earthquake damage to the Colorado River Aqueduct, California Aqueduct, and Los Angeles Aqueduct. Metropolitan coordinates with the member agencies in setting the emergency criteria, which forms the basis for establishing the Emergency Storage. These criteria assume that damage from such a catastrophic event could render the aqueducts that transport imported water supplies to Southern California out of service, isolating the region from its imported water supplies. Metropolitan's objective is to provide regional emergency storage that could allow Metropolitan to deliver supplies to all its member agencies during this period of outage. The Emergency Storage allows Metropolitan to continue deliveries to its member agencies to supplement local water production and release from local storage. This helps avoid severe water shortages during periods when aqueducts are out of service. In addition to Emergency Storage, Metropolitan may draw from dry-year storage during an emergency, if necessary and available.

Metropolitan's emergency planning criteria were previously established and reported in the following documents:

1. Final Environmental Impact Report for the Eastside Reservoir (now named the Diamond Valley Lake) dated October 1991, which was adopted by the Board on September 24, 1991;
2. Southern California's 1996 Integrated Water Resources Plan, which was adopted by the Board on January 9, 1996;
3. Reports on Metropolitan Water Supplies dated February 2002 and March 2003;
4. 2006 IRP Implementation Report, which was presented to the Board on September 11, 2006 and transmitted on October 9, 2006;
5. Metropolitan's Emergency Storage Requirement, report presented to the Board on May 11, 2010; and
6. The 2015 Urban Water Management Plan dated June 2016, which was adopted by the Board on May 2016.

Metropolitan's Current Emergency Criteria

Metropolitan's current emergency criteria provide for a six-month water supply at 75 percent of member agencies' retail demand under normal hydrologic conditions. Metropolitan's emergency plan outlines that under catastrophic loss of water supply the following actions will be implemented, which serve as the criteria for determining Metropolitan's Emergency Storage:

1. any existing interruptible water deliveries would be suspended;
2. firm supplies to member agencies would be restricted by a mandatory cutback of 25 percent from normal year retail demand levels;
3. water stored in the surface reservoirs and groundwater basins under Metropolitan's interruptible program would be made available;
4. full local groundwater production, recycled water, and local surface emergency storage reserve production would be sustained; and
5. Metropolitan would draw on its emergency storage as well as other available storage.

Review and Update of Metropolitan's Emergency Criteria

The following sections detail the updated assumptions and changed conditions since the last evaluation of Emergency Storage in 2010. These include updated demand and supply forecasts developed for the 2015

IRP, updated studies on the potential for seismic damage and outage periods for the imported supply aqueducts, and flexibility improvements within Metropolitan’s distribution system implemented as a result of recent drought and supply challenges. This new information is critical to the review and update of the emergency criteria, which forms the basis for revising the Emergency Storage.

Outage Period Criteria

The outage period pertains to the amount of time the regional aqueducts that deliver imported water to Southern California may be out of service. This outage period is derived from the estimated restoration timelines based on the nature of potential damage to the aqueduct coupled with the operational ability to deliver supplies to the area served by that specific aqueduct. During an emergency outage period, Metropolitan’s member agencies will depend on previously stored imported and local supplies to supplement continued local production in meeting reduced levels of retail demands. It is acknowledged that some areas could be more impacted because they are primarily or exclusively fed by an imported aqueduct which is assumed to sustain damage. However, Metropolitan’s objective is to continue building and operating its system with flexibility to respond to various potential damage scenarios.

Recent Seismic Studies

In August 2015, Metropolitan, Los Angeles Department of Water and Power (LADWP), and California Department of Water Resources (DWR) formed the Seismic Resilience Water Supply Task Force (Task Force) for the purpose of collaborating on studies and mitigation measures to improve the reliability of imported water supplies to Southern California. The specific goals of the Task Force included:

- Revisiting historical assumptions regarding potential aqueduct outages;
- Establishing a common understanding about individual agency aqueduct vulnerability assessments, projected damage scenarios, and planning assumptions; and
- Discussing ideas for improving the resilience of Southern California’s imported water supplies through multi-agency cooperation.

Through exchange of information and ideas between the three agencies and experts from the industry and academia, the Task Force assessed potential aqueduct damage and restoration timeline for a M 7.8 earthquake on the San Andreas Fault. This scenario assumes severe damage to the Colorado River Aqueduct (CRA), the California Aqueduct, and the Los Angeles Aqueduct (LAA). A complete description of probable seismic damages and repair durations is presented in Metropolitan’s *“Seismic Resilience Water Supply Task Force Report No. 1536”* dated June 2017 ([http://www.mwdh2o.com/PDF/About Your Water/Report1536 Final.pdf](http://www.mwdh2o.com/PDF/About%20Your%20Water/Report1536_Final.pdf)).

Table 1 presents a summary of the estimated outage duration under the earthquake scenario based on the nature of damage for each of the aqueducts.

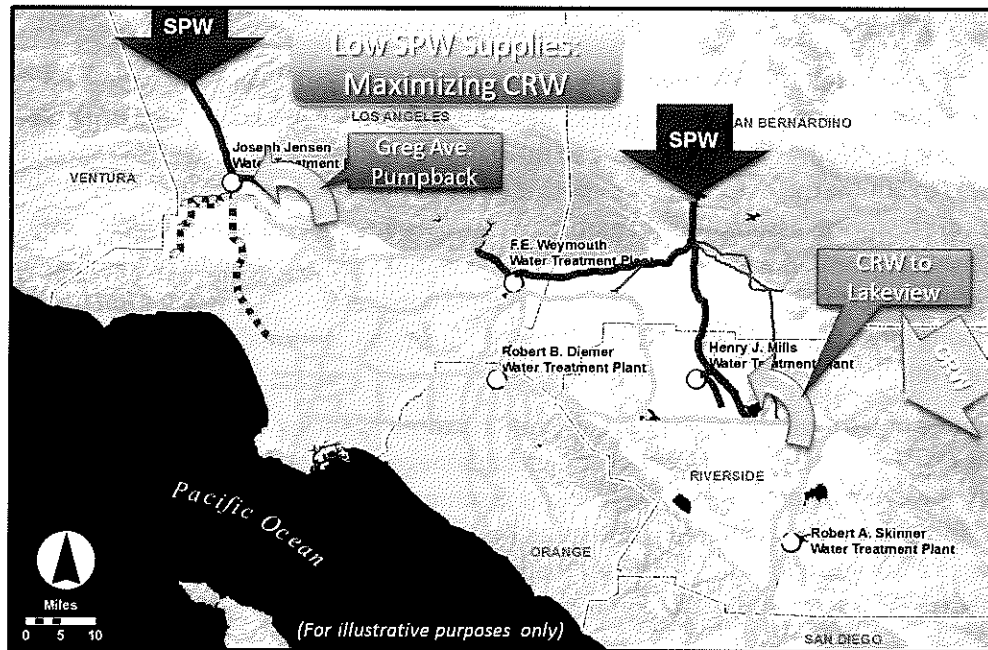
Table 1
Estimated Outage Duration for Imported Supply Aqueducts (M 7.8 earthquake)

Aqueduct	Estimated Outage Duration
Colorado River Aqueduct	2 to 6 months (recovery of 80% CRA capacity) 3 to 5 years (recovery of 100% CRA capacity)
California Aqueduct: East Branch	12 to 24 months
California Aqueduct: West Branch	6 to 12 months
Los Angeles Aqueduct	18 months

Operational Flexibility

Metropolitan's integrated system provides operational flexibility. The flexibility in Metropolitan's distribution system was demonstrated during the unprecedented drought of 2014-2016. Facing consecutive years of low SWP supplies, Metropolitan pushed CRA and Diamond Valley Lake (DVL) supplies to areas that Metropolitan normally serves only with SWP supplies or at higher blend of SWP. Figure 1 illustrates Metropolitan's operations during that period of extraordinary drought when SWP supplies were at a historic low. Metropolitan can utilize much of the same operational flexibility in its distribution system to facilitate movement of stored supplies during a prolonged outage. This flexibility combined with retail demand reduction through additional conservation and local production at appropriate levels will allow the region to meet its demands in most areas during emergency outages. Although it is not possible for Metropolitan to predict the specific damage to the system in an event of a catastrophic emergency, it seeks to ensure the most flexibility possible throughout the system to respond to different damage scenarios.

Figure 1
Metropolitan Operations during Extraordinary Drought Actions (2014-16)

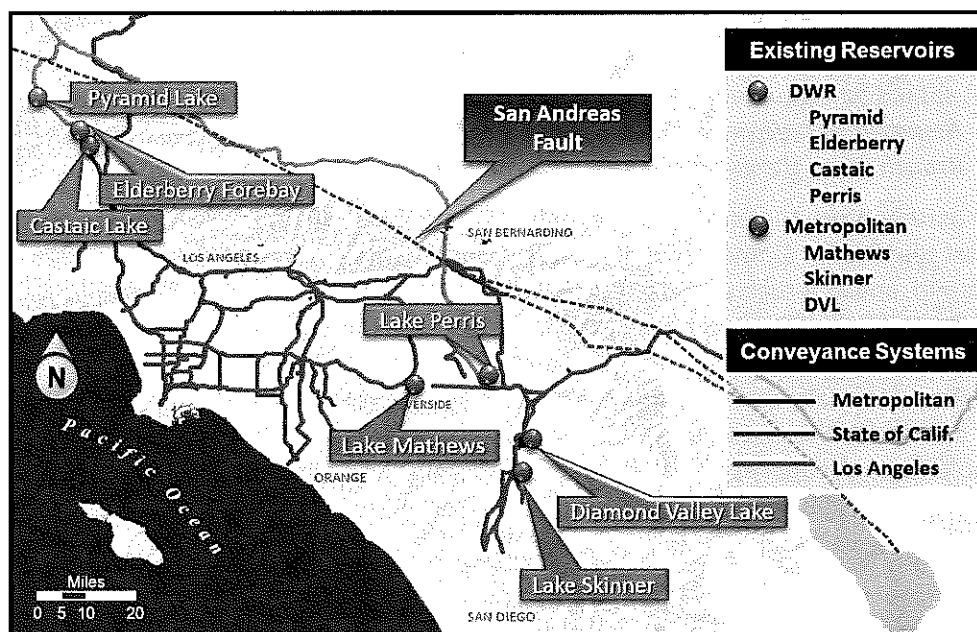


During an emergency outage, previously stored imported supplies will be withdrawn to meet the region's supplemental water needs. Emergency Storage is used first and dry-year storage is then used, if necessary and available. Figure 2 shows the locations of existing DWR and Metropolitan surface reservoirs in various parts of the region.

Metropolitan can draw from emergency supplies stored in Castaic Lake, Elderberry Forebay, and Pyramid Lake during an outage to serve the western areas that previously received SWP water. A limited quantity of CRA supplies could also be available to these areas when 80 percent of the CRA capacity is restored within six months to supplement emergency water needs in this area. Metropolitan can also supply up to 50 cfs of water from Greg Avenue Pump Station to the far western portion of its service area while repairs to the three aqueducts are being completed. This operational flexibility is also useful in the event that stored water was not adequate within the Castaic/Pyramid system.

Metropolitan can draw from emergency supplies stored DVL, Lake Skinner, Lake Mathews, and Perris Lake during an outage to serve the eastern areas that previously received CRA and SWP water. When the CRA is restored at 80 percent of capacity within six months, it could provide up to 960,000 acre-feet per year of imported water to the region. This volume is more than the 15-year historic average (2003 to 2017) CRA delivery of approximately 885,000 acre-feet per year and more than the 2015 IRP CRA delivery target of 900,000 acre-feet per year for a normal year. During outages, portions of the eastern area are expected to continue to receive treated CRA and/or stored emergency supplies through Weymouth. Some areas that normally receive SWP water from the East Branch may be served by delivering DVL water to Mills through the Inland Feeder/Lakeview Pipeline intertie. Metropolitan recognizes that there are currently no options to supply the Rialto Pipeline from emergency storage reservoirs during an outage of the East Branch of the California Aqueduct. However, water stored in Silverwood Lake (which is not included in Metropolitan's Emergency Storage portfolio) could be available to supply the Rialto Area as soon as repairs to damaged penstocks and pipelines downstream of Silverwood Lake are completed. This could likely require less time than repairs to the East Branch north of Silverwood Lake. In addition, other potential options to supply the Rialto region include several conceptual pump back operations and increased groundwater storage and extraction capacity for emergencies.

Figure 2
Existing DWR and Metropolitan Surface Reservoirs
South of the San Andreas Fault



Metropolitan will continue to deliver treated water, from stored emergency supplies during an outage and from imported supplies upon service restoration, through Metropolitan's existing water treatment plants located throughout the service area. Four of Metropolitan's five water treatment plants have redundant power feeds from the power provider. A project is currently underway to also equip the fifth plant with a redundant power feed. All five water treatment plants have backup emergency generators that support all treatment processes with the exception of ozone. Disinfection using chlorine would occur when the plants

are reliant on generator power for treatment operations during a loss of utility power. Metropolitan maintains a minimum 30 day supply of chlorine in the region.

Updated Outage Criteria

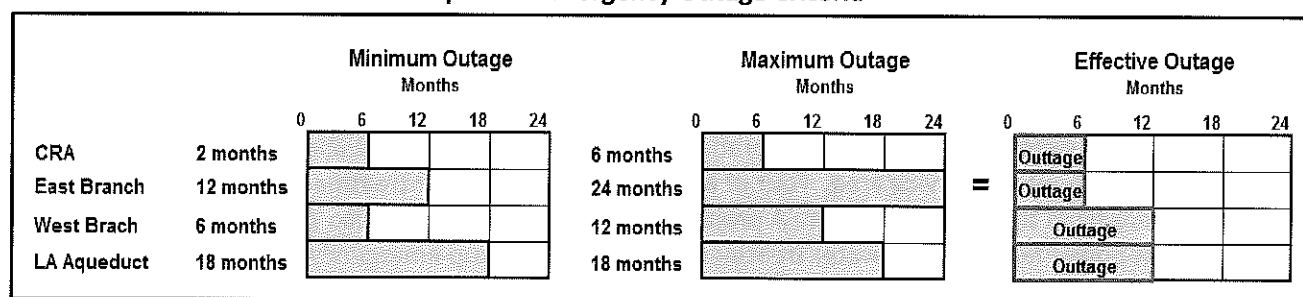
In updating the emergency outage criteria, the Workgroup considered both the duration of aqueduct repair based on the nature of potential seismic damage and recently demonstrated operational flexibilities of Metropolitan's distribution system.

Figure 3 shows the range of outage durations for the CRA, California Aqueduct East and West Branches, and the LAA. The effective outage period is then derived by accounting for the estimated durations of repair for each regional aqueduct coupled with the operational ability to deliver supplies to the area served by that specific aqueduct. In updating the outage period, the Workgroup considered the following operational assumptions:

- The estimated outage duration and repair of LAA under the earthquake scenario is 18 months. However, when the West Branch comes back in service within 12 months, it can supply water to LADWP through LA-35 while the LAA repairs continue.
 - **Assumed outage period: 12 months for member agencies receiving supplies from West Branch and LAA.**
- The estimated outage duration and repair time of East Branch is 12 to 24 months. However, when 80 percent of the CRA capacity comes back in service within 6 months, CRA supplies would be available to many Metropolitan member agencies that normally receive SWP supplies. Thus, some areas that are normally served with water imported through the East Branch may be served with water imported through the CRA, using delivery of DVL water to Mills and several other options that should be evaluated in the Rialto area discussed above.
 - **Assumed outage period: 6 months for member agencies receiving supplies from CRA and East Branch (with the exception of Rialto agencies).**

Using these assumptions, the effective new outage criteria presented in Figure 3 below call for storing supplemental supplies for 12 months in the West Branch and LAA areas (supplied by emergency storage in Castaic, Pyramid, and Elderberry) and 6 months in the CRA and East Branch areas (supplied by emergency storage in Perris, Skinner, Mathews, and DVL). In addition to the 12-month stored emergency supplies, West Branch areas could also be served with limited amounts of CRA supplies within 6 months to help meet demands in areas normally served with SWP supplies and higher blend areas. It is not possible to predict the specific damage to the system as a result of a catastrophic event. Therefore, system flexibility is important to ensure all supplies may be moved, if necessary and possible.

Figure 3
Updated Emergency Outage Criteria



Retail Demand Cut Back Criteria

Demand Projection

The first step in calculating the Emergency Storage is to determine the total amount of emergency retail water demand at the member agency level. The Emergency Storage is intended to reflect estimated supplemental water demands on Metropolitan during an emergency outage now updated to a period of 6 and 12 months. Thus, the aggregate of emergency retail demand is used to determine the aggregate supplemental demands on Metropolitan during such emergency, which excludes non-firm deliveries. Those deliveries are assumed to be suspended during an outage, as shown in Table 2.

Calculations of the emergency retail demand are provided for the year 2018 based on forecasts reported in the 2015 IRP. The numbers from the last emergency storage evaluation, reported to the Board in May 2010, are also presented for comparison. The retail demands in Table 2 were calculated at the member agency level. The numbers shown in this table represent the aggregate total retail demand (M&I and agricultural), replenishment, and seawater barrier demands over the emergency outage period considered. The total retail demands are based on forecasts from the Southern California Association of Government's (SCAG) 2012 Regional Transportation Plan/Sustainable Community Strategy and from the San Diego County Association of Government's (SANDAG) Series 13: 2050 Regional Growth Forecast (October 2013) forecast. The SCAG and SANDAG regional growth forecasts are the core assumptions in the econometric demand modeling for Metropolitan's 2015 IRP.

Table 2
Firm Retail Demands (Average Year)
(Acre-Feet)

	2010	2018
	Demands for 6 months	Demands for 6- and 12-months⁽¹⁾
Total Retail Demand	2,284,744	2,735,617
Replenishment	(95,651)	(197,103)
Seawater Barrier	(31,127)	(52,000)
Firm Retail Demand	2,157,966	2,486,514

Note: (1) Retail demands are assessed for the 6-month outage period for member agencies receiving supplies from CRA and East Branch, and 12-months for member agencies receiving supplies from West Branch and LAA (see Attachment A).

Reduced Retail Demands during Emergency Outage

The next step in calculating the emergency storage demand on Metropolitan is to subtract a percentage reduction, or cut back, in water use from the retail demands. For illustrative purposes, Table 3 below shows the resulting reduction in retail demands during emergency outage after a cutback of 25 percent is imposed for both 2010 and 2018 average condition retail demands. The 2010 calculation assumes a 100 percent reduction in deliveries to Interim Agricultural Water Program (IAWP) demands, which is not applicable in 2018 since the IAWP was discontinued in 2012. The retail demands in Table 3 are calculated at the member agency level. The numbers represent the aggregated total over the emergency outage period considered.

The assumption of a 25 percent retail demand cutback is a planning criterion that is consistent with previous Metropolitan studies that showed overall outdoor water use at approximately 30 percent. That cut back criterion is also consistent with the Public Policy Institute of California (PPIC) report (*Building*

Drought Resilience in California's Cities and Suburbs, June 2017) based on lessons learned during drought. A higher austerity, public awareness, and a likely emergency declaration during an outage may support a higher cut back through additional conservation actions.

Table 3
Retail Level Emergency Demands (Average Year)
(Acre-Feet)

	2010 Demands for 6 months	2018 Demands for 6- and 12-months⁽¹⁾
Firm Retail Demand	2,157,966	2,486,514
25% Reduction (Cutback)	(539,492)	(621,629)
100% IAWP Reduction	(37,046)	N/A
Retail Demand during Emergency	1,581,429	1,864,885

Note: (1) Retail demands are assessed for the 6-month outage period for member agencies receiving supplies from CRA and East Branch, and 12-months for member agencies receiving supplies from West Branch and LAA (see Attachment A).

Local Production Level Criteria

The next step in calculating the Emergency Storage calculation is to determine the amount of local supplies (local production of in-region supplies and release from local storage) available to meet retail demands at the member agency level. The member agency local production data is included as Attachment A. The local production represents the member agencies' highest potential production from the various types of supplies available within their service areas. For this evaluation, the year 2018 forecast from the 2015 IRP is used to estimate the local production for the 6-month and 12-month emergency outage periods. The total of these numbers allow Metropolitan to calculate the Emergency Storage Objective for the region.

For the 2010 evaluation, the calculation assumed full local production of all supplies within the service area. For illustrative purposes for 2018, Table 4 below presents the local production at 100 percent, 90 percent, and 80 percent of the production level developed with the member agencies for the 2015 IRP. The LAA production is excluded from this calculation because the Emergency Storage assumes the loss of all imported water supplies. Table 4 shows the aggregate total for each type of locally available supplies over the emergency outage period considered.

The Unused Local Production represents the aggregated production of individual member agencies above what is needed to meet their demands. In contrast, the Effective Local Production is the aggregated amount of locally available supplies that are produced to meet the reduced retail demands during an emergency outage. The Effective Local Production is derived by subtracting Unused Local Production from the aggregate total local production. For planning purposes in determining the Emergency Storage for the region, the Effective Local Production is calculated with the assumption that locally available supplies will be used only within the producing member agency's service areas and not be used or exported to meet the demands of other agencies. However, in real emergency outages, it is likely that member agencies would implement region wide and inter-agency coordination for the most efficient operation and use of available supplies.

Table 4
Effective Local Production
(Acre-Feet)

	2010 Local Production for 6 months	2018 Local Production for 6- and 12-months ⁽²⁾		
		Local Production		
		100%	90%	80%
Groundwater	730,720	832,000	748,800	665,600
Surface Water	44,061	54,935	49,442	43,948
Recycling and GW Recovery	196,979	353,797	318,417	283,038
Seawater Desalination	981	25,319	22,787	20,255
Los Angeles Aqueduct	0	0	0	0
Other	3,363	13,100	11,790	10,480
Local Emergency Storage	18,000	90,000	81,000	72,000
IRP Targets ⁽¹⁾		18,087	18,087	18,087
Subtotal Local Production	994,103	1,387,238	1,250,323	1,113,408
Unused Local Production	(39,074)	(152,021)	(86,449)	(31,056)
Effective Local Production	955,029	1,235,216	1,163,874	1,082,351

Note: (1) Conservation and locally available supply targets from the 2015 IRP for Year 2018.

(2) Local production are assessed for the 6-month outage period for member agencies receiving supplies from CRA and East Branch, and 12-months for member agencies receiving supplies from West Branch and LAA 9 (see Attachment A).

Emergency Demands on Metropolitan

The final step in calculating the Emergency Storage is to subtract the Effective Local Production from the retail demands during an emergency outage for each member agency. The results after all the steps represent the total supplemental water demands on Metropolitan, which in essence is the Emergency Storage during an outage period. Table 5 shows the aggregated totals for 2010, and the aggregated totals at varying local production levels for 2018. This table illustrates a coincidental similarity in emergency demand in 2010 and 2018 (for the 100% local production case), at 626,400 acre-feet and 629,700 acre-feet respectively. Even though a longer period of outage is considered for the 2018 evaluation, the higher retail demands are counterbalanced by the higher aggregated total Effective Local Production within the same emergency period. The table below also illustrates that the emergency demand on Metropolitan, and in effect the Emergency Storage, increases as Effective Local Production decreases under the 90 percent and 80 percent scenarios.

Table 5
Emergency Demands on Metropolitan
(Acre-Feet)

	2010 Emergency Storage Evaluation	2018 Emergency Storage Evaluation		
		Local Production		
		100%	90%	80%
Retail Demand during Emergency	1,581,429	1,864,885	1,864,885	1,864,885
Effective Local Production	(955,029)	(1,235,216)	(1,163,874)	(1,082,351)
Metropolitan Emergency Demand	626,400	629,669	701,012	782,534

Sensitivity Analysis

The Workgroup discussions for the review and update of Metropolitan’s emergency criteria, the two basic questions needing consideration are: 1) the appropriate level of retail demand cutback based on additional conservation that may be achieved during an emergency outage, and 2) the level of sustainable local production considering the potential damage that could beset local facilities during the design earthquake scenario.

To explore the sensitivities of the Emergency Storage from these two criteria, Metropolitan performed additional evaluation at various percentages of demand cut backs and levels of local production. Table 6 shows the resulting Emergency Storage at various combinations of retail demand cutback and local production levels. This matrix of emergency storage values presents retail demand cut backs of 0 percent, 25 percent, 35 percent, and 50 percent and local production levels of 100 percent, 90 percent, and 80 percent.

Table 6
Range of Potential Emergency Storage Objectives for Year 2018
(Acre-Feet)

Local Production Level	Retail Demand Cutback			
	0%	25%	35%	50%
100%	1,120,600	629,700	457,300	254,500
90%	1,236,200	701,000	520,300	281,900
80%	1,373,100	782,500	591,500	332,500

Envelope Concept for Metropolitan’s Emergency Storage Objective

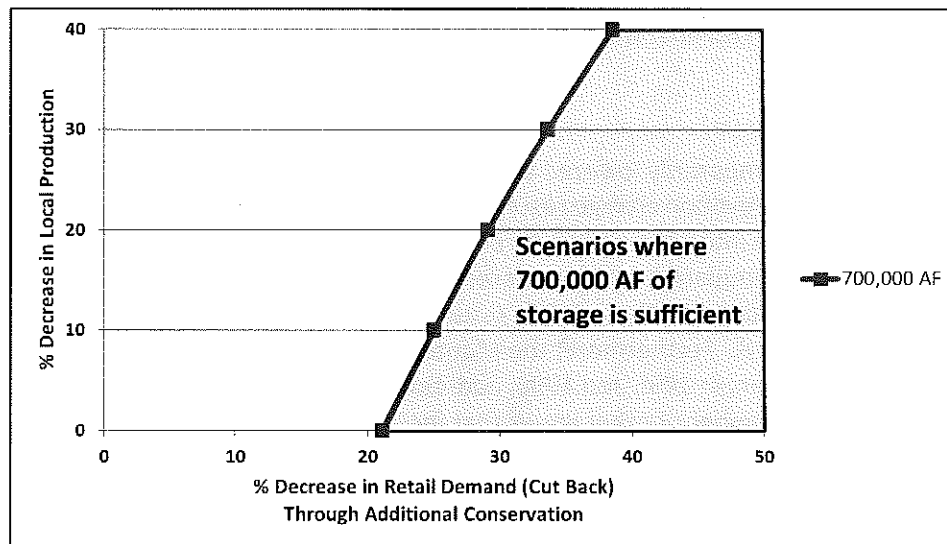
Rather than considering a specific region wide scenario of conservation (for retail demand cutback) and local production loss, the Workgroup discussion led to the development of a range of emergency storage values that could provide reliability during the outage period. The concept of an envelope of solutions emerged, with the idea that an envelope of solutions will yield an appropriate Emergency Storage for the region. The Emergency Storage, in turn, could be achieved through various combinations of (1) retail demand cutback from achievable conservation and (2) local production level taking into account potential damages to local facilities. This envelope concept underscores member agencies’ individual and unique situations while taking into account their inputs in identifying practicable ranges of decreases in retail demand and local production.

For the retail demand cut back, most member agencies considered the 25 to 35 percent range to be reasonable. This range is based on the level of conservation that the region was able to achieve during the recent drought. For the local production, several member agencies expressed expectations of some level of damage to local facilities during the design earthquake scenario. In addition, Metropolitan acknowledges that retail demand cutback may also lead to reduction of non-potable recycled water use. Thus, for local production, the Workgroup focused on a range from 80 percent to 100 percent of the member agencies’ reported local production in the 2015 IRP. This would allow contingency planning for uncertainties in damage to local facilities and accommodate different durations of local repairs. This is a modification from the previous assumption of full local production at the IRP level during an outage period.

As indicated in Table 6, the current criteria of 25 percent retail demand cut back and 100 percent local production level yield an estimated Emergency Storage of 630,000 acre-feet for year 2018. However, the

Workgroup focused on an envelop of alternatives for Emergency Storage that could provide reliability during the outage period. The same table matrix of values above highlights the range from 500,000 to 700,000 acre-feet. Within this range, the Workgroup recommends an Emergency Storage of 700,000 acre-feet. The Workgroup determines that this level of storage would prevent severe water shortages in the region with practicable ranges of reduced demands through conservation and plausible levels of local production during an emergency outage. Figure 4 shows that the Emergency Storage would be sufficient to cover various combinations of practicable ranges of decreases in retail demand and local production.

Figure 4
Emergency Storage Objective derived from the Envelope Concept



Allocation of Emergency Storage in Regional Reservoirs

Once the Emergency Storage is determined, it can then be allocated to the various surface reservoirs within the region, previously illustrated in Figure 2 above, south of the San Andreas Fault system. The total storage capacity of existing DWR and Metropolitan surface reservoirs and the allocation to emergency storage, seasonal, regulatory, and drought carryover needs are shown in Table 7 through 11. For the DWR reservoirs, the values in the tables reflect the normal maximum operating and dead pool storages indicated in the DWR report “*California State Water Project, Volume III, Storage Facilities, Bulletin 200*” dated November 1974. For this evaluation, recreational waters in DWR reservoirs are assumed to be available for emergency use during outage periods. On a short-term basis for operational purposes, storage at any specific reservoir may be below these planning levels. When this happens, the emergency storage is shifted temporarily to any of the other existing reservoirs.

Department of Water Resources Surface Reservoirs

Table 7 below shows the five major reservoirs owned and operated by DWR in or near Metropolitan’s service area. Castaic Lake, Elderberry Forebay, and Pyramid Lake are located on the West Branch of the California Aqueduct. Silverwood Lake and Lake Perris are on the East Branch of the California Aqueduct. The total storage capacity of these five reservoirs is approximately 721,600 acre-feet. When cost allocation factors from DWR Bulletin 132 Appendix B, Table B-2 are applied to the operational storage capacities, Metropolitan’s share of storage in the reservoirs is equivalent to 644,400 acre-feet.

Table 7
Allocation of Storage Capacities in DWR Reservoirs
 (Acre-Feet)

Reservoir	Total Storage Capacity	Dead Storage	Storage Paid by Others	Storage Paid by Metropolitan
Pyramid Lake	169,900	4,800	7,000	158,100
Castaic Lake	323,700	18,600	12,500	292,600
Elderberry Forebay	28,200	800	1,100	26,300
Silverwood Lake	73,000	4,000	24,300	44,700
Lake Perris	126,800	4,100	0	122,700
Total	721,600	32,300	44,900	644,400

Source: California Department of Water Resources (1974). California State Water Project, Volume III, Storage Facilities, Bulletin 200, pages 294, 340, 367, 407, and 408.

From 2005 to 2017, DWR temporarily lowered the maximum storage elevation in Lake Perris because of seismic safety issues. This elevation change resulted in reduction of storage available to Metropolitan in Lake Perris, which was taken into account in past emergency storage evaluations. In 2018, the seismic retrofit of Lake Perris was completed, which restored storage to its full capacity. For purposes of the emergency storage analysis provided herein, it is assumed that 122,700 acre-feet could be available to Metropolitan from Lake Perris. Furthermore, the Monterey Amendment, executed by the DWR and most of the State Water Contractors in 1995 and 1996, addresses the allocation of SWP water in times of shortage and deals with a number of other issues that facilitate more water management flexibility for Contractors.

Table 8 shows the distribution of Metropolitan's emergency storage in DWR reservoirs. Of the total 644,400 acre-feet of storage in DWR Reservoirs that is for Metropolitan use, almost 381,000 acre-feet of this amount is allocated to emergency storage and the remaining 263,600 acre-feet is for seasonal, regulatory, and dry-year storage.

Silverwood Lake capacity does not add to the total Emergency Storage Capacity because of its location outside of major earthquake faults assumed for the emergency storage calculation methodology. However, Silverwood Lake could be available after a seismic event upon restoration of any damaged distribution system components downstream of the lake. It is expected that the portion of the distribution system downstream of the lake could be restored more expeditiously after an event due to its relatively short length, accessibility of the pipelines, and redundancies in the system.

Table 8
Allocation of Emergency Storage in DWR Reservoirs
 (Acre-Feet)

Reservoir	Metropolitan Storage Capacity	Seasonal, Regulatory and Dry-Year Storage	Emergency Storage Capacity
Pyramid Lake	158,100	0	158,100
Castaic Lake	292,600	153,900	138,700
Elderberry Forebay	26,300	0	26,300
Silverwood Lake	44,700	44,700	0
Lake Perris	122,700	65,000	57,700
Total	644,400	263,600	380,800

Metropolitan Surface Reservoirs

Table 9 shows the allocation of storage resources in Metropolitan’s three major surface reservoirs, Lake Mathews, Lake Skinner, and DVL. These three reservoirs provide approximately 1,036,000 acre-feet of total storage capacity to Metropolitan’s service area.

Lake Mathews has available storage of approximately 178,500 acre-feet and distributes CRA water to Riverside, Orange, Los Angeles, and San Bernardino counties. Lake Skinner has approximately 43,800 acre-feet of available storage and receives CRA and SWP water for distribution to Riverside and San Diego counties. DVL is Southern California’s largest reservoir with approximately 810,000 acre-feet of total capacity, with 798,500 acre-feet of available capacity to meet demands and provide emergency water supplies.

Table 9
Allocation of Storage Capacities in Metropolitan Reservoirs
(Acre-Feet)

Reservoir	Total Storage Capacity	Dead Storage	Available Capacity
Lake Mathews	182,000	3,500	178,500
Lake Skinner	44,000	200	43,800
Diamond Valley Lake	810,000	11,500	798,500
Total	1,036,000	15,200	1,020,800

Table 10 shows the components of storage, including emergency, seasonal, regulatory, and dry-year storages, for all of Metropolitan’s reservoirs. For comparison purposes, the table also illustrates the distribution of emergency storage under the current criteria with 630,000 acre-feet and under the envelope concept with 700,000 acre-feet of recommended Emergency Storage. Under the 630,000 acre-feet scenario, out of the roughly 1,021,000 acre-feet of available Metropolitan storage capacity, approximately 248,900 acre-feet are reserved for emergency storage, with the remaining 771,900 acre-feet available for seasonal, regulatory, and dry-year storage. Under the envelope concept of 700,000 acre-feet, out of the roughly 1,021,000 acre-feet of available Metropolitan storage capacity, approximately 319,200 acre-feet are reserved for emergency storage, with the remaining storage capacity available for seasonal, regulatory, and dry-year storage.

Table 10
Allocation of Emergency Storage in Metropolitan Reservoirs
(Acre-Feet)

Reservoir	Available Capacity	Emergency Storage Objective Current Criteria at 630 TAF		Emergency Storage Objective Envelope Concept at 700 TAF	
		Seasonal, Regulatory and Drought Storage	Emergency Storage	Seasonal, Regulatory and Drought Storage	Emergency Storage
Lake Mathews	178,500	100,000	78,500	100,000	78,500
Lake Skinner	43,800	10,000	33,800	10,000	33,800
Diamond Valley Lake	798,500	661,900	136,600	591,600	206,900
Total	1,020,800	771,900	248,900	701,600	319,200

Emergency Storage Capacities in DWR and Metropolitan Reservoirs

The Emergency Storage presented in this white paper is evaluated based on regional aggregation of retail demands and locally available supplies within the service area. The resulting Emergency Storage is assumed to be distributed amongst the available capacities within the existing DWR and Metropolitan surface reservoirs. During an outage, Metropolitan delivers supplement water to member agencies from previously stored emergency supplies, and dry-year supplies if necessary and available, based on the most effective operation of the distribution system under emergency conditions.

Table 11 presents a summary comparison of Metropolitan’s emergency storage from 2010 and the current 2018 calculations using the recommended Emergency Storage of 700,000 acre-feet under the envelope concept. The table below also shows the storage of emergency supplies in DWR Reservoirs, Lake Mathews, and Lake Skinner to be fixed quantities, with any remaining need reflected as changes in DVL’s emergency storage allocation.

Table 11
Allocation of Emergency Storage in Existing Reservoirs
(Acre-Feet)

Reservoir	2010 Emergency Storage Evaluation	2018 Emergency Storage Evaluation	
		Current Criteria at 630 TAF	Envelope Concept at 700 TAF
Pyramid Lake	158,300	158,100	158,100
Castaic Lake	139,500	138,700	138,700
Elderberry Forebay	31,100	26,300	26,300
Lake Perris	5,400	57,700	57,700
Lake Mathews	78,500	78,500	78,500
Lake Skinner	33,800	33,800	33,800
Diamond Valley Lake	179,800	136,600	206,900
Total	626,400	629,700	700,000

Conclusion

This white paper summarizes the progress to date of the Workgroup coordination process to estimate a planning objective for the region’s emergency storage, as part of Metropolitan’s ERSP. Evaluating the Emergency Storage involves the regional aggregation of retail water demands and locally available supplies within the service area. It also accounts for the member agencies’ unique situations in identifying practicable ranges of additional conservation actions that could yield decreases in retail demand and levels of local production that could be accomplished during emergency outage.

Under the new envelope concept, the Workgroup focused on an acceptable range of regional emergency storage values from 500,000 to 700,000 acre-feet. **The Workgroup recommends an Emergency Storage of 700,000 acre-feet.** The Workgroup determines that this level of storage would prevent severe water shortages for the region with practicable ranges of water demand reduction achievable conservation actions and plausible levels of local production. This recommended regional emergency storage is assumed to be distributed amongst the available capacities within the existing DWR and Metropolitan surface reservoirs.

The Emergency Storage presented in this white paper is a regional planning objective. It is an estimate for the amount of Metropolitan water that the region targets to store in preparation for a catastrophic

earthquake event. This evaluation of Emergency Storage is not intended to set a basis or a policy for allocating or apportioning storage for each individual member agency.

The Workgroup proposes that this storage objective be revisited periodically, possibly following the completion of a new IRP. Metropolitan also considers spatial distribution for the purpose of determining generally where to store its emergency water. However, specific operations during an emergency will depend on the actual conditions at that time. Since member agency demands for supplemental water will be met through deliveries of supplies from storage, evaluation of spatial distribution of storage and most effective operation of the distribution system will be accomplished as part of Metropolitan's continued efforts and coordination within the ERSP's storage portfolio evaluation or other regional planning processes.

Attachment A
2018 Member Agency Total Retail Demand and Local Production
(Source data for Tables 2, 3, and 4)

	Total Retail Demand	Groundwater	Surface Production	Recycling + GW Recovery Reclamation	Other Imports	Seawater Desal	Local Storage	IRP Target
Agencies at 6 month Outage								
Footfall MWD	9,204	3,970	200	120	0	0	0	67
Pasadena	16,217	6,000	0	0	0	0	0	118
San Marino	2,700	2,250	0	0	0	0	0	20
Three Valleys MWD	63,226	21,650	3,100	4,384	0	0	0	447
Upper San Gabriel MWD	106,945	74,163	4,500	4,354	0	0	0	625
Anaheim	34,253	23,932	0	39	0	0	0	243
Fullerton	14,315	10,376	0	0	0	0	0	104
MWD OC	310,510	107,945	2,000	93,163	0	0	0	1,651
Santa Ana	19,074	13,478	0	160	0	0	0	139
Eastern MWD	126,051	40,400	1,550	25,112	0	0	0	890
Western MWD	147,318	73,700	2,750	21,295	0	0	0	1,064
IEUA	143,302	74,800	16,240	28,573	0	0	0	969
San Diego County Water Authority	315,373	5,900	24,595	19,956	0	25,319	90,000	2,204
Agencies at 12 month Outage								
Central Basin MWD	296,066	182,300	0	55,972	0	0	0	1,590
Compton	7,766	6,400	0	0	0	0	0	56
Long Beach	68,633	28,700	0	10,118	0	0	0	452
Torrance	28,420	2,700	0	9,150	0	0	0	207
West Basin MWD	179,750	34,600	0	33,621	0	0	0	1,173
Santa Monica	13,732	8,200	0	145	0	0	0	100
Burbank	27,619	300	0	13,985	0	0	0	159
Glendale	30,319	1,500	0	8,984	0	0	0	221
Los Angeles	566,486	77,794	0	11,681	0	0	0	4,070
San Fernando	3,150	3,143	0	0	0	0	0	23
Calleguas MWD	164,638	27,700	0	7,483	13,100	0	0	1,198
Beverly Hills	11,938	0	0	700	0	0	0	87
Las Virgenes MWD	28,413	100	0	4,804	0	0	0	207
MWD TOTAL	2,735,617	832,000	54,935	353,797	13,100	25,319	90,000	18,087
								1,387,238

Note: Member agency local production are approximation for year 2018 based on 2015 IRP and are estimated for the outage periods indicated.
This table shows individual member agency estimates used to develop Metropolitan's Emergency Storage Objective for the region.
For agencies along the Rialto Pipeline, see discussion on page 5 related to system limitations for receiving CRA supplies.



DISCUSSION ITEM

April 3, 2019

TO: Board of Directors

**FROM: Robert Hunter,
General Manager**

Staff Contact: Harvey De La Torre
Melissa Baum-Haley

SUBJECT: CALIFORNIA WATERFIX ACTIVITIES UPDATE

STAFF RECOMMENDATION

Staff recommends the Board of Directors review and discuss the information presented.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

REPORT

On Tuesday, February 12, 2019, Governor Gavin Newsom announced in his State of the State Address a policy shift in the State's support for the current configuration of California WaterFix from a twin-tunnel project to a single tunnel conveyance facility. Governor Newsom recognized the challenges facing California to secure safe, reliable water—climate change, population growth, earthquakes, and sea level rise—for agricultural, municipal, and environmental benefits, and expressed his commitment to foster solutions to these challenges.

The timing and cost implications on this new direction has yet to be determined. Metropolitan staff will be working with the State and other State Water Project contractors to evaluate the ramifications of this shift to a single tunnel project.

On March 26, Metropolitan will host a Board Workshop to summarize the alternative capacities analyzed to date (9,000 cfs, 6,000 cfs, and 3,000 cfs) and provide the projected costs and benefits associated with these three alternative capacities.

Budgeted (Y/N): N/A	Budgeted amount: None	Core <input checked="" type="checkbox"/> _X_	Choice <input type="checkbox"/>
Action item amount: N/A	Line item:		
Fiscal Impact (explain if unbudgeted):			

Joint Powers Authority

The Delta Conveyance Design and Construction Authority (DCA) held a special meeting on January 31, 2019, and approved executing a contract for the services of Kathryn Mallon as Executive Director. The DCA did not meet in February. The Delta Conveyance Finance Authority (Finance Authority) held a meeting on February 21, 2019, and at the meeting the Finance Authority approved extending the contract for the Interim Executive Director. It also approved contracts for Bond Counsel and Disclosure Counsel.

State Water Resources Control Board

As reported previously, the State Water Resources Control Board (SWRCB) is in the process of developing and implementing updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). On December 12, 2018, the SWRCB adopted Bay-Delta Plan updates addressing San Joaquin River flows and south Delta salinity. Phase 2 of the Bay-Delta Plan update is focused on Sacramento River and its tributaries, Delta eastside tributaries, Delta outflows and interior Delta flows. Voluntary Settlement Agreement discussions continue, and the SWRCB has indicated a willingness to consider the Voluntary Settlement Agreement proposal in the future.

The proposed updates to the Bay-Delta Plan include new and modified narrative and numeric objectives for achieving reasonable protection of fish and wildlife by establishing flow conditions to support and maintain populations of native anadromous fish, estuarine fish, and other aquatic species. The SWRCB has indicated that implementation of the proposed updates will require quantitative assessment (“biological goals”) of progress toward meeting the narrative objectives. SWRCB staff has requested recommendations from the Independent Scientific Advisory Panel (Panel) on developing scientifically defensible methods for formulating biological goals that can be used to assess progress toward achieving the Bay-Delta Plan’s narrative objectives. The request for recommendations includes how to formulate quantifiable biological goals to assess the status and trends of representative salmonids, other native fishes, and ecosystem processes in the Bay-Delta and its watershed. The draft Panel report was released February 4, 2019. Metropolitan staff is reviewing the report and coordinating with other State Water Contractors to prepare comments to submit by the February 25 deadline. Staff is also preparing to participate in the Bay-Delta Biological Goals Scientific Advisory Panel meeting on March 4, 2019.

Additional Information

Additional information on the Bay-Delta Issues can be found in *Issue Brief D - Bay Delta/State Water Project Issues* of the Discussion Item regarding Metropolitan Water District items critical to Orange County.



DISCUSSION ITEM

April 3, 2019

TO: Board of Directors

**FROM: Robert Hunter,
General Manager**

Staff Contact: Karl Seckel
Harvey De La Torre
Melissa Baum-Haley

**SUBJECT: METROPOLITAN WATER DISTRICT (MET) ITEMS CRITICAL TO
ORANGE COUNTY**

STAFF RECOMMENDATION

Staff recommends the Board of Directors to review and discuss this information.

DETAILED REPORT

This report provides a brief update on the current status of the following key MET issues that may affect Orange County:

- a) MET's Water Supply Conditions
- b) MET's Finance and Rate Issues
- c) Colorado River Issues
- d) Bay Delta/State Water Project Issues
- e) MET's Ocean Desalination Policy and Potential Participation in the Doheny and Huntington Beach Ocean (Poseidon) Desalination Projects
- f) South Orange County Projects

Budgeted (Y/N): NA	Budgeted amount: None	Core <input checked="" type="checkbox"/>	Choice <input type="checkbox"/>
Action item amount: N/A		Line item:	
Fiscal Impact (explain if unbudgeted):			

ISSUE BRIEF # A

SUBJECT: MET's Water Supply Conditions

RECENT ACTIVITY

The 2018-19 Water Year officially began October 1, 2018. Thus far, the Northern California accumulated precipitation (8-Station Index) is reporting **55.3 inches or 136% of normal** as of March 26th. In the month of March 2019, accumulated precipitation reached 7.7 inches, which is **0.8 inches above normal** compared to the historical average (As of March 26th). The Northern Sierra Snow Water Equivalent was at **43.8 inches on March 21st**, which was **155% of normal** for that day.

As of March 25th Lake Oroville storage is at **77% of total capacity and 103% of normal**. As of March 25th San Luis Reservoir has a current volume **of 99% of the reservoirs total capacity and is 111% of normal**. Due to the high levels in San Luis Reservoir, California Department of Water Resources (DWR) has made Article 21 water available (Deliveries are ongoing and started February 20, 2019).

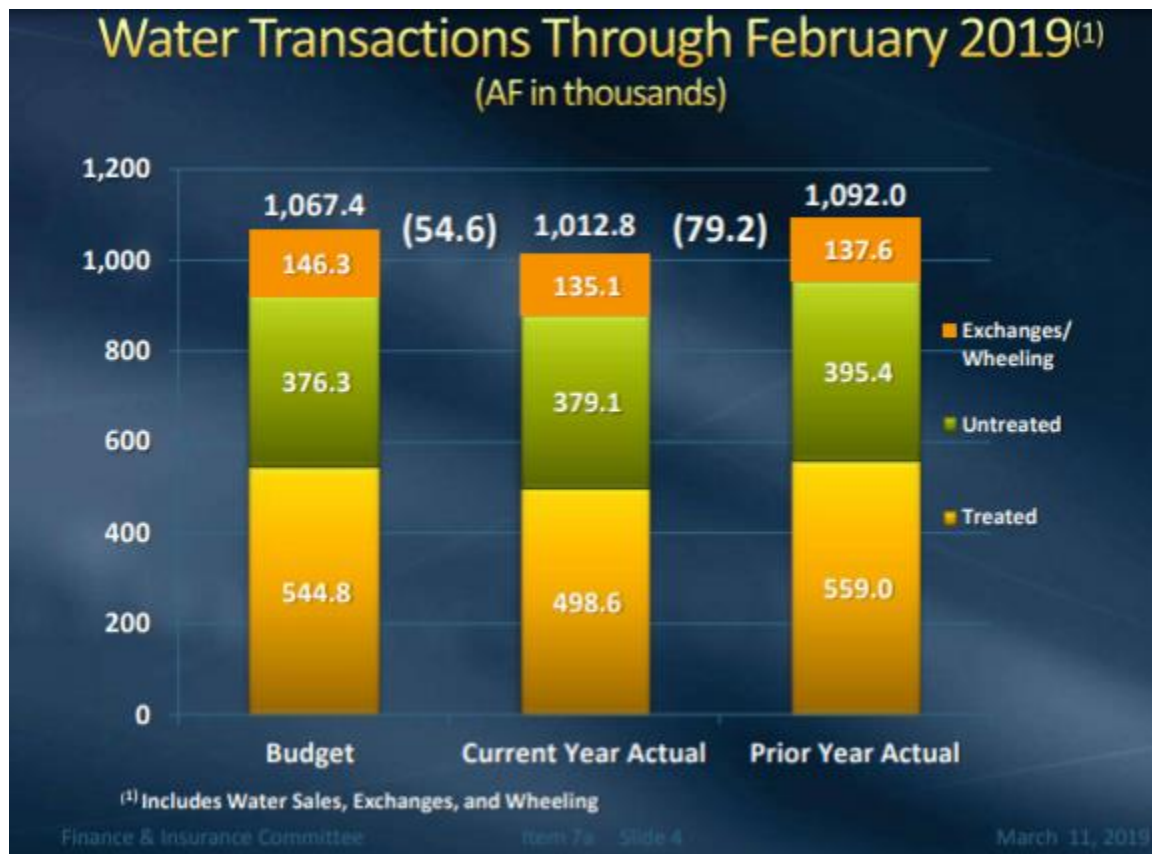
The Department of Water Resources (DWR) in February increased the State Water Project (SWP) **"Table A" allocation to 70%**. This allocation provides Metropolitan with approximately **1,338,050 AF in SWP deliveries this water year**. DWR's approval considered several factors including existing storage in SWP conservation reservoirs, SWP operational regulatory constraints, and the 2019 contractor demands.

On the Colorado River system, snowpack is measured across four states in the Upper Colorado River Basin. As of **March 25, 2019, snowpack measured at 135% of normal** for that date. The ongoing decline in the Colorado River watershed has impacted storage levels in Lake Powell and Lake Mead, which in turn affects the likelihood of surplus or shortage conditions in the future. The Bureau of Reclamation is projecting that there is a 69% chance of a shortage on the Colorado River in 2020, increasing to 82% in 2021 (Lake Mead outlook will be updated in April 2019 when the Bureau of Reclamation publishes the next 24-month study).

With estimated total demands and losses of 1.68 million acre-feet (MAF) and with a 70% SWP Table A Allocation plus an additional 100 thousand acre-feet (TAF), Metropolitan is projecting that demands will exceed supply levels in CY 2019. Based on this, estimated total dry-year storage for Metropolitan at the end of **CY 2019 will go down to 3.3 MAF**.

ISSUE BRIEF # B**SUBJECT: MET's Finance and Rate Issues****RECENT ACTIVITY**

Water transactions through February were 54.6TAF lower than budget and 35.6 TAF higher than the 5-year average. February water transactions were the lowest in over 40 years, with a single lowest daily delivery of 1,500 cfs.



ISSUE BRIEF # C

SUBJECT: Colorado River Issues

RECENT ACTIVITY

Drought Contingency Plan Development

February 25th the Commissioner of Reclamation, Brenda Burman, her staff and the Lower Basin principals and agency staff met in Las Vegas to discuss the status of the efforts to complete the Lower Basin Drought Contingency Plan (DCP) and associated proposed new extraordinary conservation Intentionally Created Surplus (EC ICS) exhibits. Each of the Lower Basin states reported on its DCP completion efforts and status.

While the majority of the interstate agreements had been finalized and approved by most of the participating entities, it was reported that some work remains to be completed regarding the ICS exhibits before they can be distributed to the Upper Basin states for review and comment. At that juncture, work still remained to resolve an outstanding issue that Coachella Valley Water District (CVWD) had with the proposed EC ICS exhibit put forward by the Colorado River Indian Tribes (CRIT) in Arizona; and there are still lingering issues between the Metropolitan and the Imperial Irrigation District (IID) with respect to one or more of IID's proposed EC ICS exhibits. Therefore, Metropolitan proposed that until such time as IID was able to resolve its remaining issues related to its conditional approval of the DCP, Metropolitan could assume any obligation for an IID DCP contribution during the interim period or until such time as IID has fully approved and executed the relevant DCP agreements. Metropolitan's Board approved that proposal at its March 12th Board meeting.

Additionally, there was a significant amount of work to develop a proposed set of minor modifications to the proposed legislation, an intra-California agreement and the Lower Basin Operations document that can provide a solution to the issue raised by CVWD regarding its objection to the proposed CRIT EC ICS exhibit. The small drafting group spent much of the day on March 11th vetting these proposed modifications and then appropriately updating all of the DCP documents. Those modifications allowed the CVWD Board approve its participation in the DCP at its March 12th Board meeting.

The Colorado River Board (CRB) meet on March 18th for the sole purpose to provide Imperial Irrigation District (IID) additional time to participate. The IID maintained their opposition to the DCP; and while the action to provide authorization for California to sign the proposed Seven Colorado River Basin States letter, which includes proposed federal legislation, regarding the Colorado River Basin Drought Contingency Plans (DCP) and interstate agreements to be forwarded to the U.S. Congress passed, the representative from IID did not vote in favor. As a result, the DCP will move forward with

Metropolitan assuming any obligation for IID's DCP contributions or until such time as IID has fully approved and executed the relevant DCP agreements.

ISSUE BRIEF # D**SUBJECT: Bay Delta/State Water Project Issues****RECENT ACTIVITY**

Science Activities

Metropolitan staff continued participating in the Collaborative Science and Adaptive Management Program (CSAMP), including participation on the Collaborative Adaptive Management Team (CAMT). In February, CAMT focused on defining next steps for the Delta smelt structured decision-making process, Delta smelt science plan, and on development of a coordinated salmon science plan. CAMT is working with consulting experts to advance each of these processes forward this year. The California Department of Water Resources staff reported on the status of the Salmon Resiliency Strategy actions in the Yolo Bypass and Delta, and provided preliminary results for the Delta Smelt Resiliency Strategy actions implemented in 2018. Staff also reviewed the CAMT Delta salmon rearing habitat draft report. The objective of this project is to summarize what is currently known or hypothesized about Chinook rearing habitat in the Delta from local research as well as from studies in other regions. Based on this understanding, the project will develop recommendations for what should be considered suitable rearing habitat in the Delta along with maps of rearing habitat based on available data.

Metropolitan staff is working with UC Santa Cruz and National Oceanic and Atmospheric Administration Fisheries to develop the scientific methods that will be used to study predator hot spots in the Bouldin Island area in March 2019, as part of a study addressing salmon predation.

ISSUE BRIEF # E

SUBJECT: MET's Ocean Desalination Policy and Potential Participation in the Doheny and Huntington Beach Ocean (Poseidon) Desalination Projects

RECENT ACTIVITY

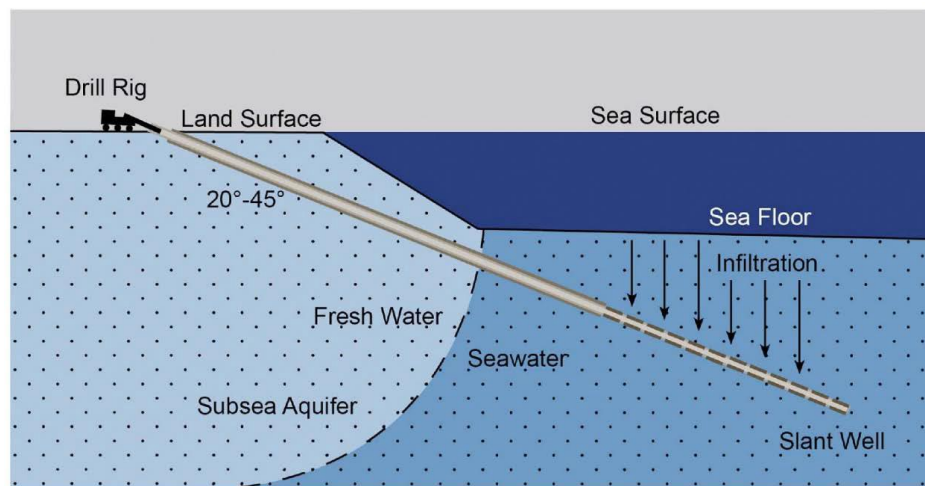
Doheny Desal

The details of this have been moved to briefing Issue F as it pertains only to South Orange County.

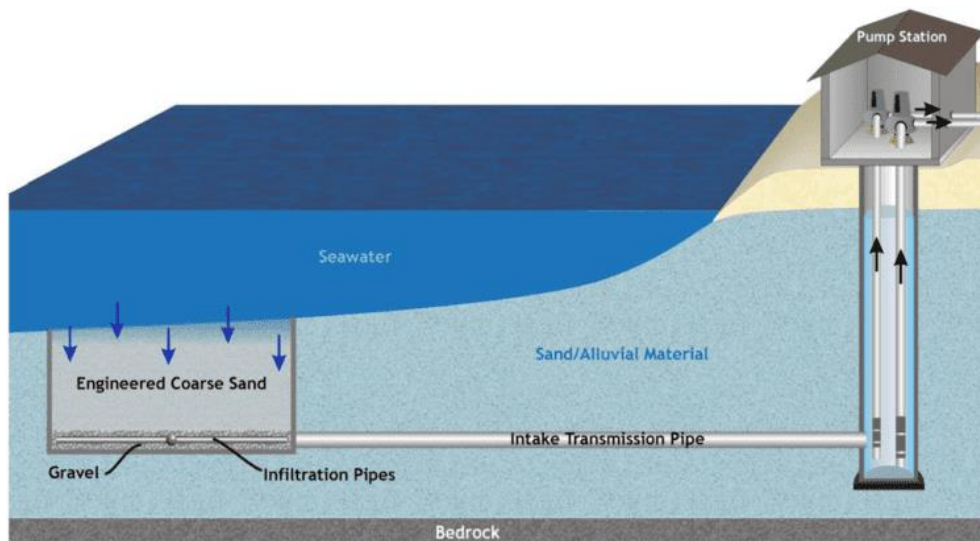
Poseidon Huntington Beach

Poseidon continues working with the Santa Ana Regional Water Quality Control Board (SARWQCB) to renew and update its existing National Pollution Discharge Elimination System permit and to comply with an amendment to the Water Quality Control Plan for the Ocean Waters of California (Ocean Plan) to address effects associated with the construction and operation of seawater desalination facilities (Desalination Amendment). The Desalination Amendment was adopted by the State Water Resources Control Board on May 6, 2015.

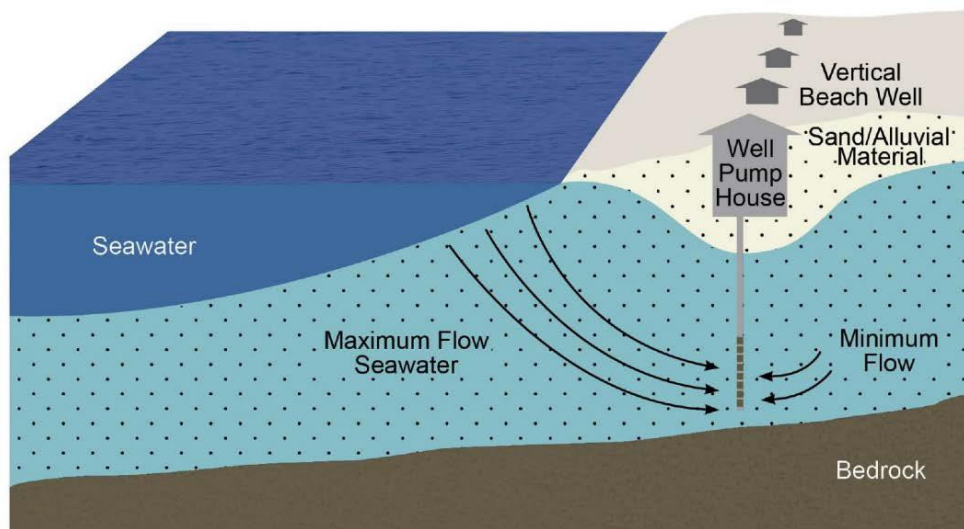
The Desalination Amendment requires new or expanded seawater desalination plants to use the best available, site, design, technology, and mitigation measures feasible to minimize intake and mortality of all forms of marine life. The best available technology is interpreted as the use of sub-surface ocean intakes (Slant Wells, Infiltration Galleries, Vertical Beach Wells,) unless the Regional Board finds sub-surface intakes to be infeasible.



Slant Well Technology



Infiltration Galleries



Vertical Beach Wells

As the OC groundwater basin is protected by a seawater infiltration barrier comprised of injected recycled water, only a limited amount of sub-surface pumping can occur in proximity to the barrier before pumping negatively impacts the seawater barrier. Regional Board staff are currently determining the limits of 'feasible' pumping that would not impact the barrier.

At the SARWQCB meeting on March 22, 2019, Regional Board staff presented a schedule for the permit renewal:

Draft Permit	July 2019, followed by a 30-day comment period.
Public Workshop	August 2, 2019
Board Hearing	October 25, 2019

Assuming approval, Poseidon would then seek a permit from the California Coastal Commission in 2019.

ISSUE BRIEF # F

SUBJECT: South Orange County Projects

RECENT ACTIVITY

Doheny Desal Project

South Coast WD released the Doheny Ocean Desalination Project Draft Environmental Impact Report (EIR) on May 17, 2018 and the EIR public comment period closed on August 6, 2018. Consultant GHD has finished the additional technical studies needed to address the comments received. South Coast WD anticipates bringing the Final EIR to their Board for certification in late April/early May 2019.

South Coast WD staff submitted a grant application for up to \$20 million for project construction through Bureau of Reclamation 'Water SMART: Desalination Construction Projects under the WIIN Act'. Funding for the grants are still with Congress and will be part of a Federal Budget approval.

SMWD Trampas Canyon Recycled Water Reservoir

Trampas Canyon Reservoir and Dam (Trampas Reservoir) is a seasonal recycled water storage reservoir, with a total capacity of 5,000 AF, of which 2,500 AF is available to meet Santa Margarita Water District's projected base recycled water demands, and 2,500 AF to meet future water supply needs. When completed, the Trampas Reservoir will allow SMWD to store recycled water in the winter and draw on that water during the peak summer months.

The construction of the Trampas Canyon Recycled Water Seasonal Storage Reservoir consists of three main components:

- 1) Trampas Canyon Dam (Dam)
- 2) Conveyance facilities to transport recycled water into and out of the Reservoir (Pipelines)
- 3) Trampas Canyon Pump Station (Pump Station)

The construction of the facilities is being completed in three phases:

- 1) Preconstruction/Site Preparation for the Dam and Pump Station Construction
- 2) Dam and Pipelines
- 3) Pump Station

PROJECT STATUS

Preconstruction/Site Preparation

Complete

Dam and Pipelines

The \$81M Construction Contract was awarded in December 2017 and is approximately 38% complete.

Pump Station

The 60% design of this facility was submitted by AECOM on March 8th for District review and approval. The will likely be available to start the construction bidding process in June 2019. Completion of the construction is expected to be in June 2020, about 2 months ahead of the Reservoir and Dam completion.

San Juan Watershed Project

The Draft Environmental Impact Report (DEIR) public review period was closed for comments on February 23, 2018. Ultimately twenty-one comment letters were received with the major topics of concern being characterized as relating to:

- Steelhead trout migration including the provisions of fish passages
- Impacts on San Juan Creek Lagoon
- Aesthetics and impacts of the various structures that may be required as part of the project on the surrounding neighborhoods
- Sediment transport

SMWD has completed the necessary technical studies to address public comments and will be issuing the response to comments on the Draft Environmental Impact Report (DEIR) soon. SMWD anticipates presenting the EIR to their Board for consideration of adoption in May 2019.

Other Information on South County Projects:

If any agencies would like to have updates included herein on any projects within your service area, please email the updates to Karl Seckel at kseckel@mwdoc.com.

**Summary Report for
The Metropolitan Water District of Southern California
Board Meeting
March 12, 2019**

COMMITTEE ASSIGNMENTS

None. (Agenda Item 5I)

WATER PLANNING AND STEWARDSHIP COMMITTEE

Authorized participation in the Lower Basin Drought Contingency Plan, as set forth in Board Letter 8-1, and support the State of California seeking Congressional approval of the DCP. (Agenda Item 8-1)

COMMUNICATIONS AND LEGISLATION COMMITTEE

Deferred action on SB 1 (Senate President Pro Tem Atkins D-San Diego and Senators Portantino D-La Canada Flintridge and Stern, D-Agoura Hills): California Environmental, Public Health and Workers Defense Act of 2019. (Agenda Item 8-2)

Expressed support, if amended, to AB 1220 (C. Garcia, D-Bell Gardens): Metropolitan Water Districts. (Agenda Item 8-5)

Expressed support, if amended, to SB 62, Endangered Species: accidental take associated with routine and ongoing agricultural activities. (Agenda Item 8-6)

Authorized the General Manager to express support to SB 669 (Caballero). (Agenda Item 8-7)

LEGAL AND CLAIMS COMMITTEE

Authorized an increase in the maximum amount payable under contract with Seyfarth Shaw LLP for legal services by \$150,000 to an amount not to exceed \$250,000. (Agenda Item 8-3) (no closed session).

Authorized settlement of *The Metropolitan Water District of Southern California v. Desert Milling, Inc., John Frederick Benson, et al.* (Agenda Item 8-4) (no closed session).

OTHER MATTERS

Formal introduction at the Board meeting deferred for new Director Robert Apodaca representing Central Basin Municipal Water District. (Agenda Item 5B)

Inducted new Director Gail Goldberg representing the San Diego County Water Authority. (Agenda Item 5C)

Inducted new Director Frank Heldman representing Central Basin Municipal Water District. **(Agenda Item 5D)**

Approved Commendatory Resolutions for Phillip D. Hawkins and Leticia Vazquez Wilson representing Central Basin Municipal Water District; and Fern Steiner representing the San Diego County Water Authority. **(Agenda Item 5E)**

Deferred presenting Commendatory Resolution honoring Michele representing the City of Santa Ana. **(Agenda Item 5F) (Deferred)**

Presentation of 5-year Service Pin to Director Steve Blois. **(Agenda Item 5G)**

THIS INFORMATION SHOULD NOT BE CONSIDERED THE OFFICIAL MINUTES OF THE MEETING.

Board letters related to the items in this summary are generally posted in the Board Letter Archive approximately one week after the board meeting. In order to view them and their attachments, please copy and paste the following into your browser
<http://edmsidm.mwdh2o.com/idmweb/home.asp>

All current month materials, before they are moved to the Board Letter Archive, are available on the public website here: <http://mwdh2o.com/WhoWeAre/archived-board-meetings>



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

MWD MEETING AGENDA

Regular Board Meeting

April 9, 2019

12:00 p.m. – Boardroom

Tuesday, April 09, 2019		
Meeting Schedule		
9:00 AM	L&C	Rm. 2-145
10:00 AM	C&LR	Rm. 2-456
11:00 AM	OP&T	Rm. 2-145
12:00 AM	Board Mtg	Boardroom

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

1. Call to Order

- (a) Invocation: Mitch Lahouti, General Design Team Manager,
Engineering Services Group
- (b) Pledge of Allegiance: Director Barbre, Municipal Water District
of Orange County

2. Roll Call

3. Determination of a Quorum

- 4. Opportunity for members of the public to address the Board on matters within the Board's jurisdiction. (As required by Gov. Code § 54954.3(a))

5. OTHER MATTERS

- A. Approval of the Minutes of the Meeting for March 12, 2019; and Board Workshop on Delta Water Conveyance of March 26, 2019 (Copies have been mailed to each Director)
Any additions, corrections, or omissions
- B. Report from Executive Committee on Nominations for Board Secretary
- C. Nomination and Election for Board Secretary for remaining two-year term effective April 9, 2019 through December 31, 2020
- D. Presentation of Commendatory Resolution for Director Peter Beard representing the City of Fullerton

- E. Presentation of Commendatory Resolution for Director Michael Camacho representing Inland Empire Utilities Agency
- F. Presentation of Commendatory Resolution for Director Phillip D. Hawkins representing Central Basin Municipal Water District
- G. Presentation of Commendatory Resolution for Director Leticia Vasquez Wilson representing Central Basin Municipal Water District
- H. Presentation of Commendatory Resolution for Director Fern Steiner representing San Diego County Water Authority
- I. Presentation of 5-year Service Pin to Director Richard W. Atwater
- J. Presentation of 10-year Service Pin to Chairwoman Gloria D. Gray
- K. Report on Directors' events attended at Metropolitan expense for month of March 2019
- L. Approve committee assignments
- M. Chairwoman's Monthly Activity Report

6. DEPARTMENT HEADS' REPORTS

- A. General Manager's summary of activities for the month of March 2019
- B. General Counsel's summary of activities for the month of March 2019
- C. General Auditor's summary of activities for the month of March 2019
- D. Interim Ethics Officer's summary of activities for the month of March 2019

7. CONSENT CALENDAR ITEMS — ACTION

- 7-1** Authorize replacement of filter valve gearboxes 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 (Appropriation No. 15509). (E&O)

- 7-2** Authorize a professional services agreement with Sensis, Inc. not to exceed \$1,500,000 to design, develop and deploy the new mwdh2o.com website; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA. (C&L)

- 7-3** Adopt a resolution to support Metropolitan's application for United States Bureau of Reclamation grant funding of \$1.5 million for Disadvantaged Communities Direct Install Program; authorize the General Manager to accept grant funds, if awarded; and authorize the General Manager to enter into a contract with United States Bureau of Reclamation for the grant funds, if awarded; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA. (WP&S)

END OF CONSENT CALENDAR

8. OTHER BOARD ITEMS — ACTION

- 8-1** Approve resolutions fixing and adopting a Readiness-to-Serve Charge and a Capacity Charge for calendar year 2020; the General Manager has determined the proposed action is exempt or otherwise not subject to CEQA. (F&I)

- 8-2** Award a contract to Elite Earthworks & Engineering in an amount not to exceed \$3.7 million for repair of erosion control features along the Colorado River Aqueduct; authorize design activities to rehabilitate the Whitewater erosion protection structure; and amend an existing agreement with HELIX Environmental Planning, Inc.; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA. (E&O)
- 8-3** Authorize: (1) renewal of the Municipal Water Quality Investigations Agreement between the Department of Water Resources, the State Water Contractors and participating urban State Water Project Contractors, and (2) renewal of the Municipal Water Quality Investigations Program Specific Project Agreement between the State Water Contractors and participating urban State Water Project Contractors; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA. (WP&S)
- 8-4** Authorize the General Manager to provide a credit to offset increased costs associated with surplus deliveries to cyclic accounts; the General Manager has determined that this action is exempt or otherwise not subject to CEQA. (WP&S)
- 8-5** Review and consider the Antelope Valley-East Kern Water Agency's approved Mitigated Negative Declaration and authorize the General Manager to enter into the High Desert Water Bank Program agreement with the Antelope Valley-East Kern Water Agency. (WP&S)
- 8-6** Authorize the General Manager: (1) to include in all future demand management agreements the provision regarding legality already used in Future Supply Actions/Foundational Actions Funding agreements; and (2) to no longer include or enforce in Local Resources Program, Seawater Desalination Program, and similar agreements the termination provision directed by the Board in 2009; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA. (WP&S)

- 8-7** Express opposition, unless amended, to SB 1 (Atkins, D-San Diego; Portantino, D-La Canada Flintridge; and Stern, D-Agoura Hills): California Environmental, Public Health, and Workers Defense Act of 2019; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA. (C&L) **[Posting Separately]**
- 8-8** Express Support, if amended, for AB 658 (Eduardo Garcia, D-Coachella): Water Rights: Water Management; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA. (C&L) **[Posting Separately]**
- 8-9** Affirm the General Manager's determination that 20 acres of vacant land in the City of Oxnard, in the County of Ventura, California, identified as Metropolitan Water District of Southern California's parcel number ORMOND 1-01-100c and ORMOND 1-01-100PEA1 and ORMOND 1-101-100PEA2 are surplus to Metropolitan's needs and authorize staff to dispose of the property and to quitclaim any associated interests; the General Manager has determined this action is exempt or otherwise not subject to CEQA. (RP&AM)
- 8-10** Appropriate funds for and authorize acquisition of real property located at 4725 Via Corona, Yorba Linda, California, APN 350-071-19 in settlement of anticipated litigation; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA. (RP&AM) **[Posting Separately]**
[Conference with real property agency negotiators: Stephen Vollucci, Heriberto Diaz, and Mark Easter; negotiating party: Dominick Vitelli and Brenda Vitelli; under negotiation: price and/or terms of payment; conference with legal counsel—anticipated litigation; to be heard in closed session pursuant to Gov. Code Sections 54956.8 and 54956.9(d)(2)]

9. BOARD INFORMATION ITEMS

- 9-1** Update on Conservation Program

10. FOLLOW-UP ITEMS

11. FUTURE AGENDA ITEMS

12. ADJOURNMENT

NOTE: Each agenda item with a committee designation will be considered and a recommendation may be made by one or more committees prior to consideration and final action by the full Board of Directors. The committee designation appears in parentheses at the end of the description of the agenda item e.g., (E&O, F&I). Committee agendas may be obtained from the Board Executive Secretary.

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.