

April 20, 2022

Attention: Imported Water Committee

Metropolitan Water District's State Water Project Exclusive Areas. (Presentation)

Purpose

This memo summarizes the challenges associated with the agencies within the Metropolitan Water District of Southern California (MWD) service area that do not have access to MWD's Colorado River supplies and rely exclusively on State Water Project (SWP) supplies to meet their MWD demands (SWP exclusive areas).

Executive Summary

- MWD's SWP exclusive areas are facing significant supply reliability challenges under the current drought conditions.
- On the heels of a 5% SWP allocation in 2021, worsening hydrologic conditions caused the Department of Water Resources (DWR) to reduce the 2022 allocation from 15% to 5% in March 2022.
- At a 5% allocation, MWD will not be able to meet the 2022 imported water demands of the SWP exclusive areas; MWD intends to seek health and safety supplies from the state to meet exclusive areas' needs and is considering an Emergency Water Conservation Program for the exclusive areas.
- As the current drought worsened, MWD staff brought forward several projects, agreements, and planning efforts to help reduce SWP demands in the exclusive areas and at the same time expand their access to transfers and other sources of supply in the short and long term.
- MWD's recently approved 2020 Integrated Water Resources Plan (IRP) Needs Assessment also identified SWP exclusive area reliability, including access to Colorado River supplies, as one of the key findings it must address as it enters the IRP One Water Implementation phase.
- MWD must keep affordability in mind when it searches for needed solutions to ensure agencies have equitable access to MWD investments while recognizing differences among member agency reliability goals and strategies.

Background

There are certain agencies within the northern and eastern portion of MWD's service area that, due to MWD distribution system constraints, are typically unable to receive supplies and storage from the Colorado River system and thus rely exclusively on supplies and storage from the SWP system to meet their MWD demands. Because the SWP system does not have as much storage capacity as the Colorado River system, it is more susceptible to annual hydrologic variations. MWD's SWP exclusive areas in turn are more vulnerable to potential shortages when SWP supplies are limited, such as during the 2012-2016 and current droughts, and must instead rely on storage, transfers, and exchange deliveries. Agencies in the exclusive areas that have local supplies are less impacted by dry SWP conditions.

MWD’s 2020 IRP Needs Assessment report states about one-third of MWD’s 19-million-person service area lives within SWP exclusive areas (see map in Attachment 1). These areas include agencies in San Bernardino and Riverside counties, served by the SWP’s East Branch Aqueduct, and Los Angeles and Ventura counties, served by the West Branch Aqueduct. Table 1 outlines the agencies served by each branch, which have varying degrees of local supply available to meet their needs.

Table 1. MWD SWP Exclusive Areas Served by SWP Branch

East Branch	West Branch
1. Eastern Municipal Water District	1. City of Burbank
2. Inland Empire Utilities Agency (IEUA)	2. Calleguas Municipal Water District
3. Three Valleys Municipal Water District	3. Las Virgenes Municipal Water District
4. Upper San Gabriel Valley Municipal Water District	4. Los Angeles Department of Water and Power (LADWP)
5. Western Municipal Water District	5. City of San Fernando

During the 2012-2016 drought, DWR reduced the allocation of SWP supplies to 35% of contracted amounts in 2013, 5% in 2014, and 20% in 2015. That put a strain on MWD’s available storage supplies, with levels dropping to 1.2 million acre-feet (AF) at the end of 2014. Out of this 1.2 million AF of storage, MWD estimated only 130,000 AF was available for SWP exclusive area use in 2015, including stored groundwater in the Central Valley that could be extracted and carryover supplies stored in San Luis Reservoir.¹ At the time, MWD raised concerns to the State Water Resources Control Board (State Board) that severe rationing would be needed even though the exclusive areas had already reduced demands in response to the dry conditions. Ultimately, in April 2015, MWD enacted its Water Supply Allocation Plan (WSAP) for July 2015 through June 2016 to support then-Governor Brown’s call for mandatory conservation and to preserve dry-year storage, which was approaching 1.0 million AF. Despite these known limitations to supplies the SWP exclusive areas can access, MWD did not report on these issues to the board or make significant improvements to prevent the same reliability challenges within the SWP exclusive areas following the end of that drought.

Discussion

During the current drought, as California experienced the driest two-year period on record, DWR announced a 20% allocation in 2020 and, for the second time in history, a 5% allocation in 2021. On December 1, 2021, DWR announced a historic 0% initial allocation and informed the SWP contractors it would prioritize delivery of only supplies needed for health and safety. At a 0% allocation, MWD estimated its SWP exclusive area health and safety needs were about 270,000 AF based on 55 gallons per person per day and excluding demands for critical commercial, industrial, and institutional (CII) functions.

In January, DWR increased the allocation to 15%, at which time MWD stated it would have adequate supplies to meet demands. However, due to worsening hydrologic conditions, on March

¹ In a February 2015 letter to the State Water Resources Control Board, MWD raised concerns about water availability for its SWP exclusive areas: <https://bit.ly/3LxuV23>

18, DWR reduced the allocation back down to 5% and, along with the Bureau of Reclamation, submitted a Temporary Urgency Change Petition to the State Board requesting temporary relaxed Delta outflow and salinity requirements to preserve upstream storage for temperature control and health and safety supplies. MWD reported that with the 5% allocation, there are insufficient supplies to meet normal SWP exclusive area demands, and thus these areas will require health and safety deliveries. Staff expects about 133,000 AF of health and safety supplies to partially meet its 217,000 AF supply gap in the SWP exclusive areas as of April 2022.

On March 22, 2022, MWD Executive Officer Upadhyay reported that DWR did not respond favorably to including CII demands in its health and safety deliveries. However, DWR will permit MWD to use its SWP storage, such as water stored in the Semitropic Water Storage District (including the 4,200 AF it recently purchased from the Water Authority, plus 5,000 AF of take capacity MWD is leasing from the Water Authority in 2022), and transfers to augment its health and safety supplies.

SWP Exclusive Area Supply Allocation

DWR requires that any area receiving health and safety deliveries must implement mandatory conservation measures.² MWD will also need to reimburse the SWP in future years when the allocation is higher and make investments to reduce reliance on the SWP to meet health and safety needs, including developing additional supplies and improving system connectivity. On March 22, Upadhyay reported MWD is working with SWP exclusive area agencies to develop an approach to allocate water for only the affected agencies to help achieve necessary demand reductions (although Director Blois (Calleguas) asked that the same restrictions be applied to all member agencies so all can “be on the same team”).

On March 28, Governor Newsom signed an Executive Order³ calling for the State Board to adopt emergency regulations that include a requirement for urban water suppliers to implement at a minimum the Level 2 shortage response actions in their Water Shortage Contingency Plans and asking the State Board to consider banning irrigation of some non-functional turf in the CII sectors. Calling for implementation of Water Shortage Contingency Plans provides flexibility for member agencies to establish appropriate reduction levels based on available local supply and other factors.

This month, to preserve SWP supplies through the fall, the MWD board discussed a potential Emergency Water Conservation Program⁴ in which MWD will require SWP exclusive area agencies to immediately limit outdoor irrigation to one day per week and set up mechanisms for enforcement by May 31. If drought conditions persist, the general manager could move to mandating a ban on outdoor irrigation. If agencies do not implement these restrictions, they would face a penalty of up to \$2,000/AF for SWP water delivered by MWD to SWP exclusive area connections beginning June 1. If member agencies eliminate their SWP demands, they would not

² DWR Director Nemeth’s March 23, 2022, letter to the SWP Contractors outlines requirements for agencies receiving health and safety supplies: <https://bit.ly/3LLPJD4>

³ Governor Newsom’s March 28, 2022, Executive Order contains additional directives aimed at reducing water use, improving groundwater recharge, and investing in drought response: <https://bit.ly/36WtMly>

⁴ The details of the proposed Emergency Water Conservation Program are in MWD’s April 12, 2022, board letter: <https://bit.ly/3uoibVw>

receive a penalty or have to implement outdoor watering restrictions. The proposed action, which the board will consider on April 26, would also express support for Governor Newsom's Executive Order. During MWD's April meetings, IEUA's General Manager expressed support for an allocation of MWD's SWP supplies rather than across-the-board limits on irrigation to better consider "each local agency's unique supply situation with measurable results."⁵

In addition to mandating conservation, MWD is attempting to acquire additional water to augment its limited SWP supplies and make improvements to its distribution system to improve both short- and long-term reliability in its exclusive areas (also in line with the requirements for receiving health and safety supplies). Attachment 2 includes a summary of actions MWD authorized in 2021 and 2022.

Acquiring Additional Supplies

In December, the MWD board authorized purchasing 4,200 AF of the Water Authority's stored supplies in Semitropic Water Storage District's Original Banking Program. As of March 28, 2022, MWD has taken 707 AF of the water. MWD also leased 5,000 AF of annual return capacity in the Semitropic Groundwater Storage Bank's Stored Water Recovery Unit from the Water Authority for 2022, providing MWD with additional access to its stored water.

In 2021, MWD approved seeking up to 65,000 AF of transfers from north-of-Delta agencies at up to \$675/AF before conveyance losses of between 20% and 30% that occur as water travels across the Delta. MWD reported it was only able to secure 5,586 AF, or 8.6% of these supplies in 2021. This month, MWD again authorized staff to seek up to 75,000 AF of north-of-Delta transfers for up to \$800/AF on average before losses, or \$60 million. Staff reported it anticipates securing up to 50,000 AF for around \$30 million.

In November 2021, MWD declared specified emergency conditions in its service area, calling on agencies to reduce their use of SWP supplies and granting the general manager authority to take additional drought-related actions that individually are less than \$5 million and collectively are less than \$25 million. Under this authority, in 2022, MWD will pay up to \$2 million to exchange up to 20,000 AF of Friant Water Authority surface supplies with MWD's stored supplies in Arvin-Edison Water Storage District to manage water quality issues. MWD is also using a 2011 coordinated operating agreement with the Municipal Water District of Orange County and Irvine Ranch Water District (IRWD) to borrow about 4,000 AF of IRWD's SWP water that is stored in the Central Valley to meet demands this year, and MWD will provide a credit to IRWD for an equal amount of in-region storage.

MWD System Improvements

As in the 2012-2016 drought, MWD also took steps to reoperate its system and maximize the use of Colorado River supplies to reduce the use of SWP supplies. For example, MWD rehabilitated the Greg Avenue Pump Station, allowing 20,000 AF of Colorado River water to be sent further into the western portion of its service area in 2021. Under a program the MWD board authorized in May

⁵ IEUA's Board President and General Manager sent a letter to MWD expressing support for an alternative to across-the-board limits on outdoor irrigation on April 11, 2022: <https://bit.ly/3Mb34oq>

2021, MWD entered into agreements with agencies like LADWP and Three Valleys to take deliveries of treated Colorado River supplies rather than the untreated SWP water they would typically receive. To keep these agencies financially whole, they receive a credit to offset any additional costs incurred from shifting their operations. These operational changes in addition to calling for withdrawals from cyclic deliveries and shutdowns conserved 202,000 AF of SWP supplies in 2021.

In February 2022, MWD established a reverse-cyclic program to allow SWP exclusive area agencies to pre-purchase water at the current full-service rate for deferred delivery within five years. This program intends to preserve MWD's limited SWP supplies and storage for SWP exclusive agencies during the current drought. In response to questions about what would occur if water was not available within the five-year window or if the participating agency is unable to accept delivery due to lack of available capacity or other limitations, MWD staff said it was confident such a situation would not occur and it would prioritize returning the water to member agencies.

MWD is also taking longer-term actions to improve reliability in its SWP exclusive areas. MWD's fiscal years 2023 and 2024 Capital Investment Plan (CIP) contains \$46 million for drought-response projects, including for several projects to expand SWP exclusive area access to other sources of supply. Over the next ten years (through 2032), staff forecasted a total of about \$280 million in CIP spending for these types of projects.

East Branch Improvements

In December 2021, the MWD board amended the fiscal years 2021 and 2022 CIP to add infrastructure improvements that would allow delivery of Diamond Valley Lake (DVL) and potentially Colorado River water to the parts of MWD's service area served by the Rialto pipeline, which delivers SWP water from the East Branch to agencies including IEUA, Three Valleys, and Upper San Gabriel Valley. The first stage of these improvements, which will cost \$22.5 to \$24.5 million, is expected to be complete in early 2023 and would provide around 40,000 AF of DVL supplies to the eastern SWP exclusive areas. When fully complete in 2025, these actions are expected have a total cost of about \$52 million and provide access to around 115,000 AF of DVL supplies per year.

In December, MWD also approved several agreements with the San Bernardino Valley Municipal Water District (SBVMWD) and DWR to improve reliability in the East Branch service area (including IEUA, Three Valleys, and Upper San Gabriel Valley), including to exchange supplies. MWD staff estimated up to 8,000 AF of SBVMWD's SWP carryover supplies will be available for exchange in 2022. Additionally, MWD will pay SBVMWD up to \$300/AF for its retail agencies to shift demands off the SWP and onto local groundwater, which could then be sent to MWD's Rialto Pipeline or used in the SBVMWD service area and exchanged for MWD to receive SWP supplies. Staff estimates up to 1,000 AF of local supplies per month could be available. Lastly, MWD will pay the costs for SBVMWD to convey DVL supplies via SBVMWD and DWR's pump station to MWD's Rialto Pipeline or use the supplies within SBVMWD's service area in exchange for MWD receiving a like amount of SWP supplies.

West Branch Improvements

While MWD implemented and approved several CIP projects in 2021 to directly benefit the SWP exclusive areas served by the East Branch, some member agencies including LADWP, Calleguas, and Las Virgenes expressed concern about equity in providing long-term solutions for agencies served by the West Branch. The western SWP exclusive areas currently depend on West Branch deliveries and up to 43,000 AF per year of Colorado River supplies from the Greg Avenue Pump Station, which MWD upgraded after the last drought.

In February, the MWD board amended the fiscal years 2021 and 2022 CIP to include \$700,000 for planning of infrastructure projects to improve supply reliability for the western SWP exclusive areas by providing access to about 100,000 AF per year of non-SWP supplies. MWD plans to complete an assessment of options to improve reliability, like local supply development, storage, and interconnecting infrastructure. The assessment will also consider two staff-identified potential projects, including potentially increasing the capacity of the Greg Avenue Pump Station.

Agreement with Rubidoux Community Services District

Staff proposed an agreement with Western and others to deliver up to 2,000 AF of treated SWP water annually to Rubidoux Community Services District to reduce total dissolved solids in its wastewater discharge to meet the City of Riverside's discharge permit requirements. Given directors' concerns over increased use of limited SWP supplies—especially given state policy to reduce reliance on the Bay-Delta—to address an issue that could be solved with existing technology, the board approved the agreement for one year, subject to possible extension by the board and a review of alternative means of addressing Rubidoux's needs in the long-term.

Long-Term Planning

A key finding from MWD's 2020 IRP Regional Needs Assessment is that SWP exclusive areas are particularly prone to continued reliability challenges. MWD's IRP analysis showed supply gaps ranging from 0 AF (with a 1.9 million AF surplus) to 1.22 million AF in the four scenarios analyzed, depending on assumed stability of imported supplies and level of demand on MWD. However, two of the three scenarios with supply gaps project that those gaps are only in the SWP exclusive areas. The IRP Regional Needs Assessment thus suggests that any new supply and storage investments should first focus on the exclusive areas. Moving into the IRP One Water Implementation phase, MWD staff plans to provide additional analysis on how improving accessibility of existing supplies and storage will alleviate the supply gaps.

While the IRP Regional Needs Assessment does not incorporate expected reliability improvements from the projects already approved but yet to be implemented to address SWP exclusive area needs, MWD staff reported it will complete a "extreme drought assessment" this summer that will incorporate these improvements to MWD's distribution system and their effect on reliability in the service area. The extreme drought assessment will be based on a more extreme scenario—a 5% SWP allocation for three consecutive years—than the IRP's worst-case scenario, or almost 500,000 AF fewer SWP supplies.⁶ The extreme drought assessment and assessment of potential West

⁶ As estimated based on slide 12 of MWD's IRP Special Committee presentation from November 23, 2021: <https://bit.ly/3roveEL>

Branch improvements approved in February could contribute to the IRP One Water Implementation phase to help the board identify needed programs and projects to improve reliability for the SWP exclusive areas.

SWP Forecasting

While MWD is taking steps to incorporate the possibility of reduced SWP supplies into its long-term planning processes, staff has also expressed frustration with DWR's SWP forecast methodology, which was based on a 50-year historic record and thus did not anticipate the severely reduced runoff due to unprecedented hot and dry conditions experienced in 2021. For example, DWR's April 1, 2021, forecasts overestimated runoff by as much as 68%.⁷

Following DWR and the Bureau of Reclamation's request for a Temporary Urgency Change Petition to relax Delta water quality requirements in 2021 to preserve upstream storage, the State Board ordered both agencies to update their forecasting methods.⁸ On March 25, Assemblymember Adam Gray sent a letter to the Joint Legislative Audit Committee Chair to request an audit of DWR and the State Board over their data collection, models, and procedures for water management in 2021.⁹

In February 2022,¹⁰ DWR reported that for its 2022 modeling, it is using a 30-year historic record to measure hydrologic averages to better reflect more recent trends and the changing relationship between temperature, precipitation, and runoff. DWR also used a more conservative forecast (99% exceedance probability as compared to the typical 90%) to declare the SWP allocation in early 2022, though it still had to lower the allocation from 15% to 5% in March. DWR is working on improving its data collection, calculation, and forecasting processes. Over the next year, DWR plans to develop and implement machine learning models with new forecast variables. Over the next two-to-three years, DWR plans to integrate airborne data collection and weather and climate forecast information into its modeling process to provide more accurate results. These changes may help agencies better anticipate available supplies to adjust their resource management accordingly.

Next Steps

Since adopting its WSAP in February 2008, MWD has implemented the WSAP four times. When the WSAP was implemented for the first time in April 2009, MWD's dry-year storage was estimated at 1.09 million AF; MWD implemented the plan again in April 2010 when dry-year storage was less than 1.0 million AF. In April 2015, MWD implemented the WSAP when dry-year storage was at about 1.2 million AF. Since the WSAP was intended for use during region-wide

⁷ DWR's Water Year 2021 brochure discusses the fact that it is becoming "increasingly difficult to rely on historical observations to predict water supply conditions" in the face of climate change: <https://bit.ly/35hsAbN>

⁸ The State Board's February 14, 2022, order regarding the 2021 Temporary Urgency Change Petition includes additional requirements to improve drought planning and response in the event of dry conditions in 2022: <https://bit.ly/3JPVX41>

⁹ Assemblymember Gray's March 25, 2022, letter to Joint Legislative Audit Committee Chair Rudy Salas is found here: <https://bit.ly/3uwY0DP>

¹⁰ On February 16, 2022, DWR's state climatologist presented on improvements to forecasting at the California Water Commission meeting: <https://bit.ly/3Dg5WgE>

water shortages, this month, the board will consider mandating conservation in the SWP exclusive areas despite having nearly 2.6 million AF of dry-year storage.

The Water Authority Delegates will continue to engage in MWD's ongoing supply reliability and financial analyses—including the IRP One Water Implementation phase, extreme drought assessment, and Long Range Finance Plan—over the next few years with a focus on ensuring water affordability and equity at MWD. It is critical that MWD improve system connectivity so SWP exclusive areas have access to the supplies and storage they have already invested in while also protecting affordability by focusing new investments on demonstrated needs. Member agencies' willingness to pay for varying degrees of reliability and MWD services, as well as existing and planned local investments to secure this reliability, should also be recognized. MWD must ensure that the benefits member agencies receive from its investments proportionately match their contributions towards those investments. Water Authority staff will support the Delegates' efforts in these processes.

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Attachments:

Attachment 1 – Metropolitan Water District State Water Project Exclusive Area Map

Attachment 2 – Metropolitan Water District 2021 and 2022 Drought Actions to Assist State Water Project Exclusive Areas

**Metropolitan Water District 2021 and 2022 Drought Actions to Assist State Water Project
(SWP) Exclusive Areas**

Action	Agencies Served	Estimated Yield	Expected Cost
Secure up to 65,000 acre-feet (AF) of North-of-Delta transfer supplies	East and West Branch	5,586 AF	Up to \$44,000,000
Offset member agency cost of shifting deliveries to Colorado River service connections	East and West Branch	37,000 AF	Up to \$332/AF in 2021 and \$349/AF in 2022
Borrow water from Irvine Ranch Water District's Central Valley Water Bank	East and West Branch	3,927 AF	
Exchange Friant Water Authority surface supplies with stored water in Arvin-Edison Water Storage District	East and West Branch	20,000 AF	\$2,000,000
Reliability improvements for Rialto Pipeline service area on the East Branch	Inland Empire Utilities Agency (IEUA), Three Valleys, Upper San Gabriel Valley	40,000 AF (2023)	\$52,000,000
Exchange agreement with Sn Bernardino Valley Municipal Water District (SBVMWD)	IEUA, Three Valleys, Upper San Gabriel Valley	Up to 8,000 AF of SWP carryover supplies	
Agreement to reimburse SBVMWD for the costs of producing local water	IEUA, Three Valleys, Upper San Gabriel Valley	Up to 1,000 AF/month of local supplies	Up to \$300/AF for shifting SBVMWD demands off SWP and actual conveyance
Purchase the Water Authority's stored supplies in Semitropic Water Storage District	East and West Branch	4,200 AF	\$3,750,600
Lease the Water Authority's 2022 return capacity in the Semitropic Groundwater Storage Bank	East and West Branch	5,000 AF	\$500,000
Planning and implementation of future projects to improve reliability of the western service area	Burbank, Calleguas, Las Virgenes, Los Angeles, San Fernando	100,000 AF	\$700,000 for preliminary investigations
Enter into reverse-cyclic agreements with participating agencies	East and West Branch		
Secure up to 75,000 AF of North-of-Delta transfer supplies	East and West Branch	50,000 AF	Up to \$60 million