



• **Water Surplus and Drought Management Plan**

Summary

This report provides a detailed accounting of water supply, demand, and storage conditions for calendar year (CY) 2016. This report considers conditions as of March 1, 2016. To reduce the dry-year storage reserves needed to balance supplies and demands in CY 2015, Metropolitan implemented the Water Supply Allocation Plan (WSAP) consistent with the Water Surplus Drought Management (WSDM) Plan. This action helped to reduce withdrawals from Metropolitan's depleted dry-year storage reserves and help stretch-out those supplies for use in CY 2016.

Hydrologic conditions thus far in CY 2016 have considerably improved in California compared to the last four years. These improved conditions may lead to higher State Water Project (SWP) allocations, however there still remains uncertainty with respect to both the State Water Project and Colorado River Aqueduct (CRA) supplies. This report will explore those uncertainties and will outline other factors that will be considered in the development of a recommendation to either extend, adjust or allow the WSAP to expire on June 30, 2016.

Purpose

Informational

Detailed Report

This WSDM report updates the developing water supply and demand conditions for CY 2016. This report provides the Board with a detailed accounting of WSDM conditions that may impact water supply reliability for CY 2016.

Estimated Colorado River Aqueduct Supplies

As of March 1, 2016, snowpack in the Upper Colorado River Basin measured 95 percent of normal, with snow-water content of 12.4 inches. The current forecast projects slightly below normal runoff for the water year suggesting that the Colorado River watershed could be in its 16th year of drought. This ongoing drought has impacted storage levels in Lake Powell and Lake Mead, which in turn affect the likelihood of surplus or shortage conditions in the future. Water supplies may be impacted this year, given the forecasted record low water levels resulting from the persistent below normal runoff years to date.

Staff's estimate of Colorado River supplies for CY 2016 is approximately 960 TAF with potential variability based on higher priority agricultural use. The agricultural use will be better known as the year progresses at which time the appropriate adjustments will be made to the Colorado River supply projection. Therefore, the estimated water supply includes Metropolitan's contracted amount of 550 TAF without an agricultural use adjustment and the established Colorado River long-term supply programs developed to date of approximately 410 TAF. A detailed listing of the Colorado Supplies is included below.

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2015 Colorado River Aqueduct Supply Estimate (Acre-Feet)	
<u>Contract</u>	
Basic Apportionment	550,000
<u>Long-Term Programs</u>	
IID/MWD Conservation Program	90,000
PVID Land Following	118,000
Transfer to SDCWA (IID Transfer and Canal Lining)	180,000
Canal Lining Water to MWD	16,000
Lower Colorado Water Supply Project	6,000
Total CRA Supply	960,000

Estimated State Water Project Supplies

On December 1, 2015, Department of Water Resources (DWR) announced an initial SWP allocation of 10 percent for CY 2016. Weather conditions in the northern Sierra region have since shifted to a wetter pattern. On February 24, 2016 DWR increased the SWP allocation to 30 percent. As of March 1, 2016, northern Sierra precipitation measured at eight weather stations, known as the 8-Station Index, was 35.5 inches or 102 percent of normal for that date. Runoff from storm events have already increased Lake Oroville storage levels by 950 TAF since the initial SWP allocation was announced and further increases are expected as the water year progresses and the snowpack begins to melt in the Spring. Despite the improved hydrologic conditions, Delta export pumping has been limited. Concerns over the declining Delta smelt populations and conditions in the Delta have prompted more restrictive fishery requirements prescribed under the Biologic Opinions during wet periods. As a result, both the SWP and Central Valley Project (CVP) have had to forego opportunities to capture high delta flows that accompanied precipitation events in the month of January. Future increases to the SWP allocation will depend on hydrologic conditions for the remainder of the year and the serverity of fishery restrictions.

In their recently released allocation analysis, DWR provided a range of SWP allocations for various fishery and hydrologic conditions. Should conditions turn dry for the remainder of the water year, DWR indicates that it can support a 30 percent allocation. Should normal conditions continue through the end of the water year, as has been observed to date, DWR indicates that it can support a 50 percent SWP allocation. As such, Metropolitan staff recommends a SWP allocation range of 30 to 50 percent to be used for planning scenarios and discussions related to the Water Supply Allocation Plan. The table below shows the associated SWP Table A supplies for this range of SWP allocations.

2016 State Water Project Supply Estimate (Acre-Feet)	
	Potential Range
SWP Allocation	30% - 50%
Table A Supply	573,000 – 956,000

2016 Demands and Losses Estimate

Member agency demands on Metropolitan include water deliveries to the member agencies, as well as water exchanged with the San Diego County Water Authority. Member agency demands on Metropolitan have shown a downward trend since the Water Supply Allocation Plan (WSAP) Level 3 was implemented in July 2015. Further influencing the reduced demand is the Governor’s emergency water conservation regulations calling for a 25 percent statewide reduction in consumptive use implemented in May 2015. The WSAP level 3 is set to expire on June 30, 2016, unless extended by Metropolitan’s Board. The State Water Resources Control Board (SWRCB) recently approved extending the Governors emergency water conservation regulations through October 2016 with additional flexibility allowing water agencies to request adjustments to their individual conservation goals. Consequently, the SWRCB estimates California’s overall water conservation savings to not quite achieve the prior call for 25 percent but would be greater than 20 percent.

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Currently, the twelve month rolling demand on Metropolitan is roughly 1.7 MAF including losses. Losses for 2016 are an estimate of Metropolitan distribution system losses, and evaporative and contractual losses from storage. For the purposes of this analysis, the current twelve month rolling demand level will be assumed for CY 2016 acknowledging that both the statewide emergency water conservation regulations and Metropolitan's WSAP Level 3 are due to expire before years end. The table below summarizes the estimated demands and losses for CY 2016.

2016 Demands and Losses Estimate (Acre-Feet)	
Member Agency Demands	1,640,000
System and Storage Losses	60,000
Total Demands, Obligations, and Losses	1,700,000

WSDM Supplies and Management Actions

WSDM Dry Year Storage

In addition to base CRA and SWP supplies shown, Metropolitan had a total of approximately 900 TAF of storage in its WSDM dry-year storage portfolio as of the beginning of CY 2016 (this figure excludes water stored for emergency purposes). Accounting for conveyance constraints, between 480 to 590 TAF is available in CY 2016, depending upon whether the SWP allocation is 30 or 50 percent, respectively. Some of Metropolitan's storage programs have contract provisions that allow for a supply increase in relation to an increase in SWP allocation. This estimate reflects the contractual minimum amounts of the programs and/or any agreed upon increase in minimum contractual amounts with banking partners. Metropolitan staff will continue to work cooperatively with its member agencies and other partners to ensure coordination and effective program management.

Transfer/Exchanges

In accordance to the WSDM plan guidelines, Metropolitan is pursuing transfer and exchanges to supplement 2016 supplies. These supplies will help offset potential draws from storage reserves and under higher allocations could replenish dry-year storage. Staff is pursuing supplies that would augment both SWP and CRA deliveries.

As part of this strategy, Metropolitan is pursuing transfer agreements with willing sellers in the Feather River basin of Northern California. The Feather River basin water districts will likely not be curtailed this year due to the improved hydrologic conditions. As a result, availability of transfer supplies should not be affected as they were last year. Staff is pursuing transfer supplies on both the SWP and Colorado River to achieve approximately 100 TAF in total supplies across both systems.

Water Supply Allocation Plan

Metropolitan's Board approved the WSAP Level 3 in April 2015. This water management action commenced on July 1, 2015 and is in effect through June 30, 2016. Implementation of the WSAP has helped balance supplies and demands and reduce withdrawals from Metropolitan's dry-year storage. The decision to allow the current WSAP to terminate in June 2016 or extend for a second year will be based on many factors. The following objectives considered by the Board in 2015 will again be considered in staff's recommendation:

- a. Supporting the Governor's emergency water conservation regulations
- b. Avoiding use of Emergency storage
- c. Managing storage for the following years
- d. Allowing for uncertainties
- e. Avoiding steep increases in WSAP levels in future years, if dry conditions persist

2016 Water Supply Balance

The following table shows the estimated net balance between demands and water supplies at a SWP Table A allocation of 30 and 50 percent for CY 2016 and represents staff's most likely range of outcomes at this time.

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2016 Water Supply and Demand Balance Estimate (Acre-Feet)		
	30% SWP Allocation	50% SWP Allocation
CRA Supplies	960,000	960,000
SWP Supplies	573,000	956,000
WSDM Transfers/Exchanges	100,000	100,000
Total Supplies	1,633,000	2,016,000
Total Demands and Losses	1,700,000	1,700,000
Net Water Supply and Demand Balance	-67,000	316,000

As shown, there is an estimated supply gap of 67 TAF under a 30 percent SWP allocation and an estimated surplus of 316 TAF under a 50 percent SWP allocation. There would be ample dry-year storage to balance supplies with demands under a 30 percent SWP allocation. Under a 50 percent SWP allocation there may be opportunities to store supplies in dry-years storage. Dry-year storage balances at the end of CY 2016 could range from 0.8 MAF to 1.2 MAF under a 30 and 50 percent SWP allocation respectively.

Uncertainties

This WSDM report makes assumptions about the supplies that will be available to Metropolitan in CY 2016 and about deliveries to member agencies. Depending on the hydrologic conditions and other factors, these assumptions could prove incorrect, resulting in decreases or increases in supplies and demands. Following are the uncertainties identified to date:

Agricultural Adjustment

Base supplies available to Metropolitan on the CRA could be reduced if higher priority users have high Colorado River water use this year. On the other hand, lower water use by the higher priority users could increase supplies available on the CRA. Staff is estimating a potential supply swing of +/- 100 TAF is possible.

Access to ICS storage

The fact that Lake Mead is at record low levels and within feet of the shortage trigger could limit Metropolitan’s ability to access its Intentionally Created Surplus (ICS) reserves currently stored in Lake Mead. Under certain hydrologic conditions, Metropolitan’s ICS storage balance currently estimated at 57 TAF may not be available. Final accounting of the ICS storage balance is completed in May 2016. If the Bureau of Reclamation decides to limit access to ICS supplies, staff anticipates that decision to be made in August 2016.

Transfer and Exchanges

Low Lake Mead levels could also limit transfer and exchange programs developed in 2016 for Colorado River Aqueduct supplies. These transfers and exchanges may draw down Lake Mead more quickly and trigger shortage conditions earlier thereby precluding partners from participating in those programs. On the other hand, if hydrologic conditions improve in the Upper and Lower Colorado River Basins, Metropolitan could develop the maximum supplies up to 200 TAF allowed under the Storage and Interstate Release Agreement. In California, the ability to move north of delta transfers across the delta will be limited as the SWP allocation increases. DWR’s current allocation analysis suggests there would be no capacity to export transfer supplies from the Delta at a 50 percent SWP allocation. It is estimated that these uncertainties could result in a swing of +/- 100 TAF for both the SWP and CRA.

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Member Agency Demands

Deliveries to member agencies are influenced by many variables, many unforeseen and outside of our control such as dependency on hydrologic conditions. This report assumes the last 12-month rolling demand as the most likely demand level. However, improved hydrologic conditions in the southern Sierra this year may result in higher Los Angeles Aqueduct flows that would reduce demands on Metropolitan. On the other hand, should the WSAP not be extended, additional deliveries to member agencies could result. Staff is estimating a potential demand swing of approximately +/- 100 TAF is possible.

Staff will continue to evaluate and provide further analysis of how these uncertainties will affect the need for a WSAP adjustment next month.

Future Payback Obligations

Metropolitan has two types of payback agreements; Dry-year Exchanges and Operational Exchanges. The following table shows a list of the future dry-year exchange payback amounts from programs in which Metropolitan participates. Dry-year exchanges are those with payback provisions that are beyond one year from the exchange date.

The exchange agreement executed in 2004 with the Southern Nevada Water Authority (SNWA) allows Metropolitan to store unused Nevada apportionment of Colorado River water in California. This agreement amended in 2015 to expand the volume of water Metropolitan can store. SNWA may request recovery of this stored water in the future. Return may commence as early as 2022, however, SNWA has other supplies available that would likely delay the need for returns until after this date.

In 2014, Metropolitan used 219 TAF of Article 54 – Flexible Storage Account water from the SWP system, and will need to repay that account in 5 years from the withdrawal period.

The California ICS agreement executed in 2007 with the California agencies allows Metropolitan to store Imperial Irrigation District's (IID) ICS supplies. Under the agreement, Metropolitan will return the stored water in a future year at IID's request provided Metropolitan is not implementing a WSAP in the requested year.

Dry-year Exchange/Program	Payback Obligation (Acre-Feet)	Payback Term
Storage and Interstate Release Agreement with Southern Nevada Water Authority	287,000	Up to 30,000 AFY (no earlier than 2022)
SWP Flex Storage	190,000	2020
California ICS Agreement - IID	16,955	Any year Metropolitan is not implementing a WSAP
Total	493,955	

The following table shows the future Operational Exchange payback amounts from the programs in which Metropolitan participates. Operational exchanges are those with payback provisions that may be within one year of the exchange date and provide Metropolitan increased flexibility in the timing and conveyance of deliveries.

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In 2014, Metropolitan took possession of 5 TAF of water from Irvine Ranch. One TAF was returned in 2015 and the remaining 4 TAF is to be returned within the next 10 years at Irvine Ranch’s request.

Operational Exchange/Program	Payback Amount (Acre-Feet)	Payback Term
Strand Ranch – Irvine Ranch	4,000	by 2024