



### • Report on IRP Implementation

#### Summary

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This report provides a progress update on achieving the resource development goals established in the 2015 Integrated Water Resources Plan (IRP) Update for the Colorado River, the State Water Project (SWP), local resources, and conservation. Despite long-term challenges, including regulatory and institutional constraints, climate change uncertainty, growth in population and economy, groundwater contamination and overdraft, water quality constraints, and infrastructure needs, the Metropolitan Water District of Southern California (Metropolitan) and its member agencies are making progress towards meeting the 2040 resource targets.

The following short-term and long-term actions demonstrate the progress made in calendar year 2019 toward meeting the 2015 IRP Update's future targets:

- Metropolitan has worked closely with other agencies to improve reliability of its imported water supplies. Metropolitan led efforts in crafting the Lower Colorado River Basin Drought Contingency Plan and supported efforts to make the Delta more resilient and support Governor Newsom's new direction to advance a single tunnel solution in the Delta.
- Metropolitan continues to support and encourage local supply development through the Local Resources Program. Metropolitan's board approved three projects with a total contract yield of 3,660 acre-feet per year from January 2019 to date. Seven additional applications for a total of 116,580 acre-feet per year are under consideration. Metropolitan is also assessing the water supply benefits from stormwater through pilot programs.
- Metropolitan continues to inform residents of water use efficiency through its ongoing advertising campaigns and education. In addition to rebates for water efficient fixtures, Metropolitan also implements programs targeting outdoor conservation with its landscape education and turf replacement programs. In 2019, Metropolitan's board approved a conservation initiative that focuses on reaching disadvantaged communities.

In addition, regional water demand remained low due to conservation efforts and the lasting effects of consumer awareness following the recent drought. Regional total potable per capita water use continues to remain low, estimated at 131 gallons per capita per day for 2018.

#### Purpose

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Informational

#### INTRODUCTION

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This report provides information on programs and activities by the Metropolitan Water District of Southern California (Metropolitan) and member agencies in calendar year 2019 to meet the 2015 Integrated Water Resources Plan (IRP) Update's targets for 2040. This report provides a status including activities, opportunities, and challenges, along with the outlook for various components of the IRP strategy.

#### BACKGROUND

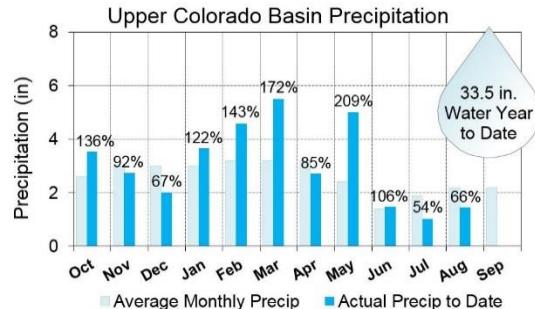
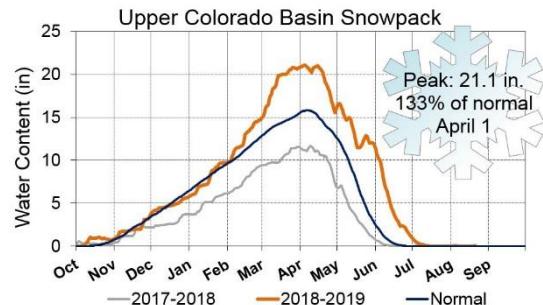
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In January 2016, Metropolitan's board adopted the 2015 IRP Update as the latest in an ongoing series of updates to its long-term adaptive management strategy. As with its predecessors, this update serves as a framework for future activity by Metropolitan and its member agencies. Specifically, the 2015 IRP Update identifies regional targets for water resource development to ensure water supply reliability for its service area through the year 2040. To that end, the 2015 IRP Update continues with a diversified portfolio approach for water management. This approach includes a balanced mix of imported supplies from the Colorado River and the SWP, as well as maintenance and further development of the region's base of local supplies and conservation. If fully implemented, the 2015 IRP Update should lead to a low probability of water shortages or mandatory restrictions under planned conditions.

## 2019 HYDROLOGIC CONDITIONS

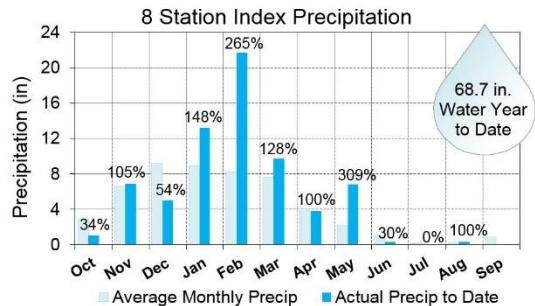
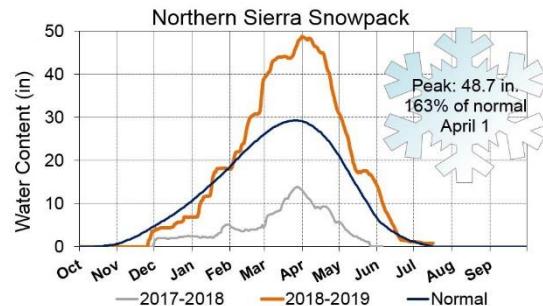
This section describes indicators of the hydrologic conditions that impact imported supplies from the Colorado River, State Water Project from Northern Sierra, and the Los Angeles Aqueduct from the Southern Sierra. The information shown is water year data as of August 20, 2019 unless otherwise stated. All indicators show above average snowfall and rain in each of the imported supply watersheds. In Southern California, temperature was normal with average precipitation.<sup>1</sup>

### Colorado River Resources



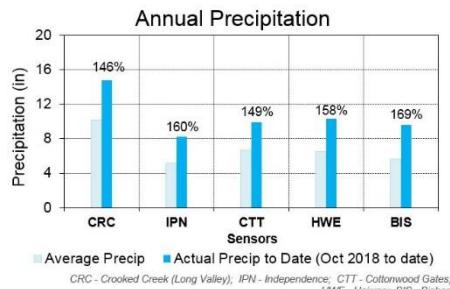
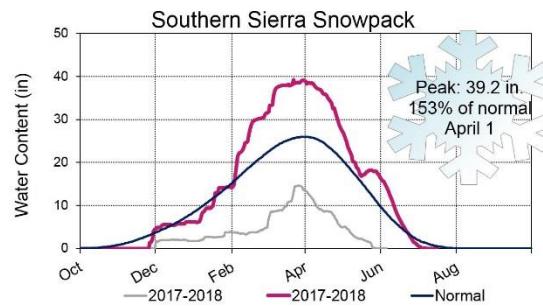
- Snowpack peaked at 133% of the April 1 average
- Above normal precipitation at 118%
- Above normal WY 2019/20<sup>2</sup> runoff projected at 125%

### State Water Project Resources



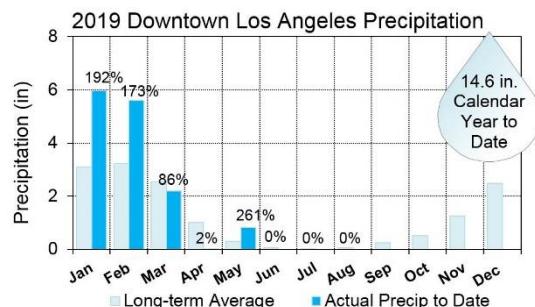
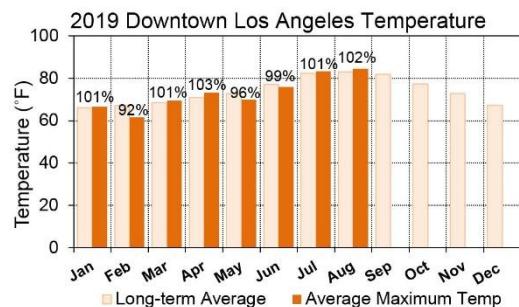
- Snowpack peaked at 163% of the April 1 average
- Above normal precipitation at 135%
- Above normal WY 2019/20 runoff projected at 137%

### Los Angeles Aqueduct Resources



- Snowpack peaked at 153% of the April 1 average
- Above normal precipitation
- Runoff projected at 144%<sup>3</sup>

### Local Resources – Southern California<sup>4</sup>



- The first eight months of 2019 had normal temperature but were much wetter than normal
- January and February rainfall made up nearly 80% of total rainfall

<sup>1</sup> Monthly average maximum temperature and total precipitation in Downtown Los Angeles as of August 2019.

<sup>2</sup> Water year (WY) 2019/20 starts in October 2019 and ends in September 2020.

<sup>3</sup> For Los Angeles Aqueduct, runoff is calculated for the period of April through March.

<sup>4</sup> Weather conditions vary throughout the region. For the purpose of this report, we chose Downtown Los Angeles to provide context of the weather that impacts water demand and supply.

## STATE WATER PROJECT

### IRP Goal: *Stabilize SWP Supplies*



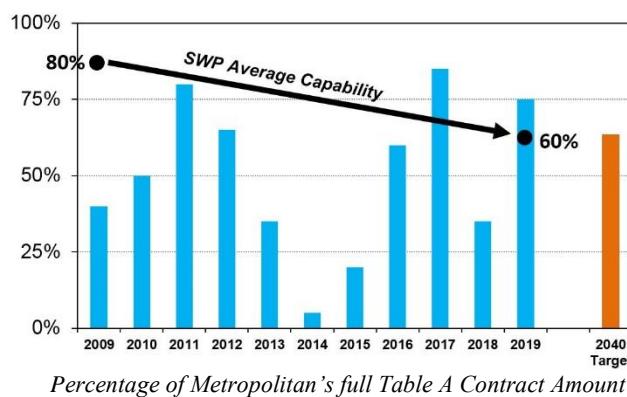
The 2015 IRP Update calls for managing State Water Project (SWP) supplies in compliance with regulatory restrictions in the near term for an average of 984,000 acre-feet per year. In 2040, the target is 1.2 million acre-feet per year on average (or about a 63 percent Table A allocation) when a long-term Delta solution was estimated to be in place.<sup>5</sup> The IRP's framework for a reliable water supply depends on the continued capability to move water into storage in wet periods and flexibility to address fishery needs.

### SWP Supplies

#### 2019 Total SWP Supplies: 1.5 million acre-feet

- Metropolitan's annual SWP supply can vary greatly based on hydrologic conditions in the Northern Sierra, environmental constraints in the Delta, and SWP Contractor demands.
- Above normal hydrologic conditions supported a 75 percent SWP Table A allocation and allowed for delivery of Article 21 supplies in 2019. However, increasing regulatory constraints over time have decreased the SWP average capability from 80 to 60 percent.<sup>6</sup>

#### SWP Long-Term Delivery Capability<sup>7</sup> and IRP Target



### SWP Activities

The following section describes recent activities to stabilize SWP supplies in the near and long term.

- Delta Conveyance Planning** – In response to Governor Newsom's Executive Order N-10-19 signed in April 2019, state agencies are developing a comprehensive statewide strategy to build a climate-resilient water system including a single tunnel conveyance project, which replaces the California WaterFix. The Executive Order requires state agencies to develop recommendations for the water resilience portfolio for the governor to consider in late 2019. Metropolitan and other SWP contractors are working with the California Department of Water Resources to define a Delta Conveyance project, allocate costs and benefits, and complete preparatory work related to environmental review and engineering design to ensure the project can advance in a timely manner.
- Voluntary Agreements for the Water Quality Control Plan for the Bay Delta** – Metropolitan supported and participated in the development of a Voluntary Agreement approach to update the State Water Resources Control Board's (SWRCB) Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. The Voluntary Agreements are proposed as an alternative to the approach recommended by SWRCB staff that focused primarily on Delta flow requirements that could have significant negative water supply impacts. The proposed Voluntary Agreements would provide for a comprehensive set of actions in the Sacramento and San Joaquin Rivers, their tributaries, and Delta including flow, habitat, funding, and a robust science program to adaptively manage the flow and monetary contributions provided by the Voluntary Agreements.
- EcoRestore Implementation** – EcoRestore is a California Natural Resources Agency initiative implemented in coordination with state and federal agencies to advance the restoration of at least 30,000 acres of Sacramento-San Joaquin Delta habitat by 2020. Metropolitan support of this initiative demonstrates a commitment

<sup>5</sup> The 2015 IRP assumed completion of California WaterFix in 2030. As of 2019, the Delta Conveyance replaces WaterFix and is being evaluated. Online date unknown.

<sup>6</sup> Estimated long-term average deliveries of SWP Table A per the California Department of Water Resources' State Water Project Delivery Capability Reports.

<sup>7</sup> Ibid.

to habitat restoration projects. Metropolitan has been involved in developing the Tule Red tidal restoration project and completion is expected in 2020.

- **ESA Permits to Operate the SWP in the Delta** – The SWP is currently operated in accordance with the 2008 United States Fish and Wildlife Service (USFWS) Biological Opinion and 2009 National Marine Fisheries Service (NMFS) Biological Opinion (BiOps) issued pursuant to Section 7 of the federal Endangered Species Act (ESA). Both BiOps provide coverage associated with the coordinated operations of the SWP and Central Valley Project (CVP) and has constrained Delta exports. On August 2, 2016, the DWR and United States Bureau of Reclamation (USBR) jointly requested reconsultation on both BiOps. The reconsultation process is currently underway and is anticipated to be completed by the end of 2019.

The SWP is also operated in compliance with the California ESA. DWR has obtained Consistency Determinations from USFWS and NMFS, pursuant to Section 2080.1 of California ESA indicating that the federal BiOps are sufficient to meet the requirements for State-listed species that are covered in the BiOps: Delta smelt, winter-run Chinook salmon, and spring-run Chinook salmon. To cover take of Longfin smelt, which is not listed under the federal ESA, DWR obtained a California ESA Section 2081 Incidental Take Permit (ITP). The Longfin smelt ITP expires on December 31, 2019. DWR is currently in the process of obtaining a new ITP for all four State-listed species.

- **Coordinated Operations Agreement Amendment Completed** – The Coordinated Operations Agreement (COA) defines CVP and SWP facilities and their water supplies, sets forth procedures for coordinating operations, and identifies formulas for sharing joint responsibilities for meeting Delta standards and other legal uses of water. The COA further identifies how unstored flow is shared and sets up a framework for the exchange of water and services between the projects. On December 15, 2018, USBR and DWR amended four key elements of the COA to address changes since the COA was signed in 1986: (1) sharing percentages for meeting Sacramento Valley in-basin uses; (2) the sharing of export capacity under constrained conditions; (3) CVP use of Banks Pumping Plant; and (4) procedures for periodic review of the COA. Metropolitan participated in the negotiation process and provided technical, legal, and policy support to DWR.

### SWP Outlook

Metropolitan continues to work closely with other agencies to improve reliability of its State Water Project imported water supply. Metropolitan has supported the use of best available science and efforts to make the Delta more resilient, including committing funds for the California WaterFix Project. On February 19, 2019, Governor Newsom in his State of the State address laid out a new direction for Delta resiliency. Governor Newsom is advancing a single tunnel solution in the Delta. Metropolitan will support this revised approach providing the resulting SWP water supply reliability helps achieve the IRP target.

## COLORADO RIVER SUPPLIES

### IRP Goal: *Protect and Maintain Colorado River Aqueduct Supplies*



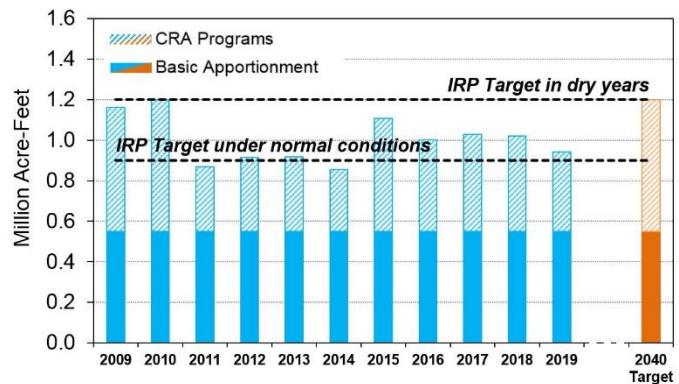
The goal for managing Colorado River supplies is to protect and maintain base water supplies while also being able to fill the Colorado River Aqueduct (CRA) when needed through the development of dry-year programs and management of storage. This involves protecting existing supply and storage programs in the face of risks that could impact program yields and the ability to access storage in the future. The 2015 IRP Update calls for ensuring that a minimum supply availability of 900,000 acre-feet is available in all years and to be able to ramp up diversions to 1.2 million acre-feet in dry years.

### CRA Supplies

#### 2019 CRA Supplies: 0.942 million acre-feet

- During 2019, Metropolitan was capable of exceeding the IRP target for normal conditions. Metropolitan also had sufficient supplies stored in Lake Mead to fill the Colorado River Aqueduct, if needed. Water supply conditions in 2019 did not warrant delivery of all the water supply developed.
- Metropolitan is expecting to store approximately 400,000 acre-feet of developed supply in Lake Mead. This will benefit the Colorado River system and demonstrates the synergistic value of diversification in Metropolitan's supply portfolio.

### CRA Supplies and IRP Target



### CRA Activities

The following section describes recent notable activities by Metropolitan with respect to the Colorado River system to maintain and augment supplies.

- Colorado River Drought Contingency Plan** – On May 20, 2019, representatives from seven Colorado River Basin states and the federal government signed the Colorado River Drought Contingency Plan and related agreements. This action increases the opportunity to maximize California's 400,000 acre-feet put capacity into the Intentionally Created Surplus (ICS) program.
- State of the Science Report** – Metropolitan and over a dozen other Colorado River stakeholders, including utilities and state and federal agencies, provided funding for a State of the Science Report that will focus on variables that drive streamflow outcomes in the Colorado River Basin. This report will provide needed information to improve and guide short-term forecasting, as well as longer-term planning and water management. The report is expected to be completed by the end of 2019.
- Bard Seasonal Fallowing Program** – Metropolitan is currently in negotiations with Bard Water District to develop a long-term seasonal fallowing program building on the success of the 2016-2017 Metropolitan/Bard Seasonal Fallowing Pilot Program. The two-year pilot program yielded 3,261 acre-feet of conserved water.
- Minute No. 323 Implementation** – Minute No. 323 continues the cooperative efforts of Minute No. 319, which ended in 2017. Under Minute No. 323, Metropolitan will again provide funding for conservation projects in Mexico, with the conserved water benefitting both countries. The water Metropolitan receives will be stored as Binational ICS in Lake Mead.
- Palo Verde Land Management Program** – Metropolitan owns and manages 21,000 acres of farmland in the Palo Verde Valley. In 2017, Metropolitan entered into new leases designed to continue agricultural use of the land while incentivizing water-efficient crops and irrigation practices. In 2019, additional leases were executed with four new tenants.

### CRA Outlook

Metropolitan has worked closely with other agencies to improve reliability of its Colorado River supplies. Metropolitan led efforts that resulted in the successful adoption of the Lower Basin Drought Contingency Plan (LBDGP) in 2019. The LBDGP increased the total amount of water Metropolitan may store in Lake Mead by 200,000 acre-feet. The LBDGP also enhanced Metropolitan's ability to access its water supply stored in Lake Mead during a shortage declaration. This is crucial to achieving the IRP target of being able to fill the Colorado River Aqueduct during dry years. Metropolitan is projecting a record storage balance of nearly 1 million acre-feet in Lake Mead ICS by the end of calendar year 2019. The improved hydrologic conditions and demand management efforts made by the Lower Basin States has resulted in higher storage levels in Lake Mead. As a result, the short-term outlook has improved. The United States Bureau of Reclamation's August 2019 study results show no shortage for 2020 and a 4 percent chance in 2021.

## LOCAL SUPPLIES

### IRP Goal: *Maintain and Develop New Local Supplies*



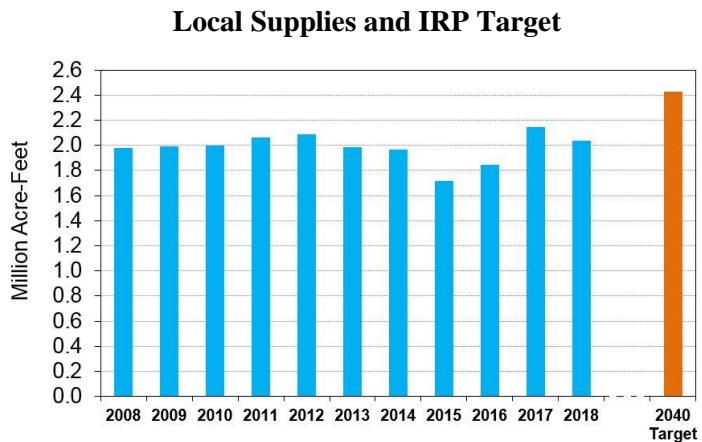
The IRP strategy calls for current local supply production to be maintained into the future and for additional local supplies to be developed for future demands and protecting against losses. Mitigation against any yield reduction is a primary area of concern for the IRP. By 2040, the IRP calls for a total local supply target of 2.43 million acre-feet per year that will come from a combination of existing and new local supplies. Local resources include supplies from groundwater, recycled water, seawater desalination, the Los Angeles Aqueduct, local surface water, and other identified resources.

### Local Supplies

#### 2018 Local Supplies: 2.03 million acre-feet\*

- The region continues to make progress toward the 2040 IRP target by adding 3,660 acre-feet per year of projected yield from new recycled and groundwater recovery projects under the Local Resources Program (LRP) so far in 2019.
- An additional 116,580 acre-feet per year of local projects are currently under review for LRP funding.
- Below average precipitation and lower demands in the region resulted in 2.03 million acre-feet of local supply production in 2018.

\* Local supply production data are compiled from member agencies and are reported for the previous year.



### Local Supplies Activities

The following section describes activities by Metropolitan and local water agencies to maintain and improve local supply production.

- **Approved additional projects for Local Resources Program Funding** – Metropolitan approved three projects for Local Resources Program funding as of September 2019 for a total of 3,660 acre-feet per year which helps increase regional water supply reliability and offset demand on Metropolitan's imported supplies.
- **On-Site Retrofit Program** – To date, the On-Site Retrofit Program has provided funding to replace 10,680 acre-feet per year of potable water with recycled water for 360 sites. Including projects that have been identified for future funding, the total estimated production is 11,706 acre-feet per year of potable water with recycled water for 422 sites.
- **Stormwater Pilot Programs** – In September 2019, the Metropolitan's board authorized \$5 million for the Stormwater for Direct Use Pilot Program for developing and monitoring stormwater capture for direct-use projects. The pilot program will provide funding to offset construction and monitoring costs, which will provide information to help evaluate the water supply benefits delivered by these projects. A separate pilot program for stormwater recharge is currently under development and is anticipated for board consideration in late 2019.

### Local Supplies Outlook

Metropolitan continues to support and encourage local supply development through the Local Resources Program. As of September 2019, Metropolitan's board approved three projects for a total of 3,660 acre-feet per year. Metropolitan is also in the process of reviewing six additional applications for a total 54,000 acre-feet per year for board consideration in the coming months.

Recent changes in the State Water Resource Control Board Division of Drinking Water's notification levels and response levels for PFOS and PFOA have resulted in some local groundwater basins exceeding the new thresholds. Metropolitan along with member agencies and groundwater agencies are working to assess the impacts on water supply.

## CONSERVATION

### IRP Goal: Achieve Additional Savings with Emphasis on Outdoor Water Use



The IRP target for conservation is to achieve 1.519 million acre-feet per year of savings by 2040 through an emphasis on outdoor water-use efficiency. Meeting this will require continued efforts by Metropolitan and its member agencies to effectively implement indoor and outdoor water efficiency devices and programs and to develop new outdoor efficiency programs to produce at least 180,000 acre-feet of additional savings per year.

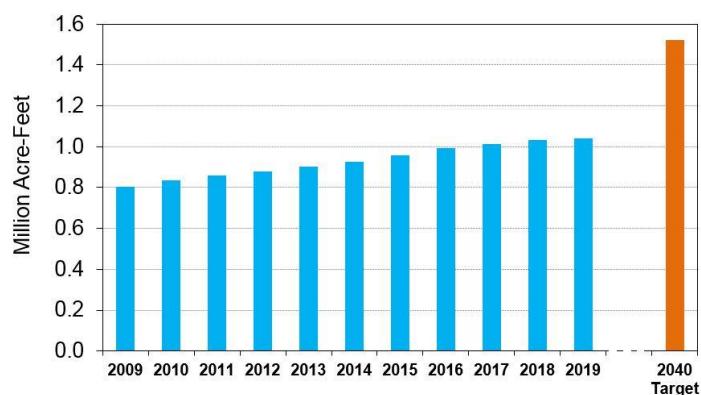
### Conservation Savings

#### Fiscal Year 2018/19 Conservation Savings:

##### 1.04 million acre-feet

- In fiscal year 2018/19, the region saved 1.04 million acre-feet due to active conservation efforts by Metropolitan, member agencies, and retail agencies, and with passive savings through code-based and price-effect conservation.
- As existing households and businesses replace old water fixtures with more efficient ones and as new households and businesses form with efficient fixtures and landscapes in place, along with Metropolitan and member agencies' conservation efforts, conservation savings are expected to reach the 2015 IRP 2040 conservation target.
- Not shown in this chart is the substantial reduction in water use observed since the 2015 IRP Update that is greater than the conservation quantified here on the basis of expected performance of installed devices, plumbing codes and price effects. This additional demand reduction is reflected in the per capita water use chart on the following page.

### Conservation Savings and IRP Target



### Conservation Activities

The following section describes recent activities by Metropolitan to increase conservation and water efficiency in the region.

- Modified the Turf Replacement Program** – In February 2019, Metropolitan modified its Turf Replacement Program rebate from \$1 to \$2 per square foot, increased the eligible area, and eased requirements to make it easier for applicants.
- Disadvantaged Communities Initiative** – In December 2018, Metropolitan approved an initiative to increase water savings in disadvantaged communities (DACs) that includes an 18-month regional pilot program to boost rebates from \$40 to \$250 to replace toilets in older multifamily housing with premium high-efficiency models. Through the Member Agency Administered Program, Metropolitan is also providing support for programs that are designed and administered at the local level that serve DACs, including assistance with applying for grant funding.
- Pilot Study on Residential Household Fixtures** – Metropolitan supports pilot tests of two methodologies to study the concentration of water-efficient fixtures in the city of Fullerton. Better information on the prevalence of water efficient fixtures in southern California will help improve planning and conservation program design.
- Water Efficient Landscape Training Classes** – Metropolitan provides two new landscape classes to residential property owners on water efficient practices in landscape design and construction, proper methods of removing and disposing of turf, and maintenance of new landscape. Classes are conducted in English, Spanish, and Mandarin. Metropolitan is also providing a new landscape class for landscape contractors, landscape designers, and public agency personnel. This class provides information and instruction on the Model Water Efficient Landscape Ordinance.
- In-Store Marketing Effort to Increase Water Efficient Product Awareness** – Metropolitan is working with its regional rebate vendor, EGIA, to increase customer participation in Metropolitan's SoCal Water\$mart Program through direct outreach and placement of marketing materials at big-box retailers, high-volume irrigation equipment suppliers, nurseries and garden centers located throughout the Metropolitan service area. EGIA will provide landscape contractors with marketing and sales tools that will help them to incorporate landscape transformation into their normal business.

### Conservation Outlook

Meeting the IRP target for conservation will depend on continuing the increased outdoor efficiency gains made in recent years. Metropolitan is accelerating this process through targeted incentives and outreach efforts to consumers, property owners, and landscape professionals. At the same time, Metropolitan is investing in research to better understand conservation that is already taking place, to better refine its programs going forward. Coupled with plumbing codes, conservation savings are expected to be on track to meet the IRP target.

## WATER USE

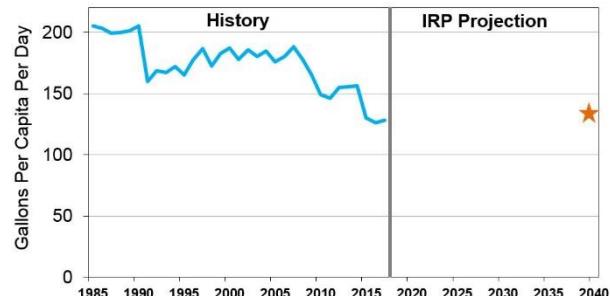
### 2018 Water Use: 131 Gallons Per Capita Per Day

Historical water use can be examined on a per capita basis that also captures consumer behavior. This figure illustrates the impact of conservation savings and recycled water on the potable use within Metropolitan's service area. Recent per capita use remains low as residents continue outdoor conservation practices and in some cities, outdoor water use ordinances have not been lifted since mandatory drought restrictions began in 2015.

The per capita use graphic includes all water use in Metropolitan's service area, including residential, agricultural, commercial, industrial, and institutional use. The graphic shows that continued per capita water use trends as seen in recent years would meet the IRP target for 2040.

### Potable Per Capita Water Use\*

#### Metropolitan's Service Area



\* 2018 GPCD based on best available data as of July 2019 and is subject to reconciliation.

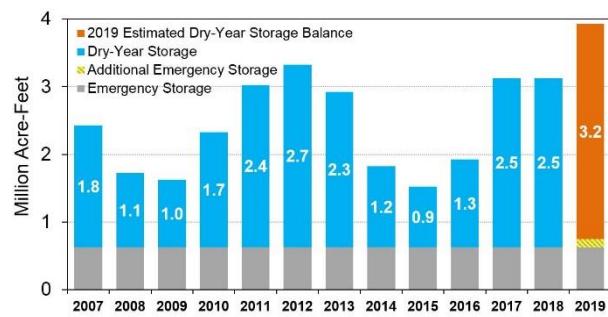
## METROPOLITAN STORAGE BALANCES & WATER MANAGEMENT TOOLS

### Storage Balance

Metropolitan has developed a large storage portfolio that includes both dry-year and emergency storage capacity for the benefit of the region. Status of Metropolitan's storage balances:

- **End of Year Balance** – This figure shows the end of year balances in Metropolitan storage from 2007 through 2018. At the end of 2019, Metropolitan's dry-year storage reserves are estimated to be 3.2 million acre-feet, the highest dry-year storage balance in Metropolitan's history.
- **Emergency Preparedness** - To better prepare for a major earthquake that could damage all aqueducts that import water into Southern California, Metropolitan refined its emergency storage objectives through a collaborative process with member agencies. Metropolitan had maintained 630,000 acre-feet of emergency storage for several years. In 2019, Metropolitan increased its emergency storage objective from 630,000 acre-feet to 750,000 acre-feet. This increase in emergency storage will be reflected in the next Water Surplus and Drought Management reporting cycle.
- **New SWP Storage Program** – In April 2019, Metropolitan approved a new groundwater storage program with Antelope Valley-East Kern Water Agency. The program will provide 280,000 acre-feet of additional storage along the East Branch of the California Aqueduct. The program put and take capacity is sized at 70,000 acre-feet per year.
- **Water Quality Constraints on Groundwater Storage** – Levels of 1,2,3-Trichloropropane (TCP) detected above the maximum contaminant level of five parts per trillion in wells at Metropolitan's groundwater storage program with Arvin-Edison Water Storage District has reduced the full functionality of the storage program. Metropolitan is evaluating all options including adding treatment to restore reliability of the program.

### Storage Balance



## Water Management Tools

The following section describes Metropolitan's tools to manage supplies and advance the development of future supplies with the overarching goal of maximizing supply reliability.

- **Conjunctive Use Programs** – Metropolitan's water management strategy includes conjunctive use of local groundwater resources. Metropolitan has nine storage projects with nearly 212,000 acre-feet of storage capacity and can store up to 53,000 acre-feet per year and withdraw up to 71,000 acre-feet annually during shortage years. Due to improved hydrologic conditions, Metropolitan stored about 5,000 acre-feet in fiscal year 2018/19.
- **Cyclic Cost Offset Program** – The Cyclic Storage Program allows Metropolitan to pre-deliver water to either member agency surface water reservoirs or groundwater storage. The water is purchased on an agreed schedule up to five years. Metropolitan in partnership with the member agencies have developed cyclic program capacity of around 560,000 acre-feet. In April 2019, the Board authorized a new Cyclic Credit-Offset Program that further encourages member agency participation by providing an offset to costs to manage regional supplies of up to \$225 per acre-foot. The program is only activated when there is a risk to regional supplies. The program was activated on August 1, 2019. Metropolitan anticipates having at least fourteen credit-offset agreements in place by the end of 2019. In calendar year 2019, Metropolitan staff estimates that around 200,000 acre-feet will be managed under the modified Cyclic Storage Program with an estimated 60,000 acre-feet eligible for credit offsets.
- **Future Supply Action Funding Program** – The Future Supply Action Funding Program (FSA) provides funding to member agencies for technical studies and pilot tests targeting barriers to future production of recycled water, stormwater, seawater desalination, and groundwater resources. As of August 2019, Metropolitan's Board authorized Metropolitan to enter into 15 agreements totaling up to \$3.5 million.
- **Regional Recycled Water Program** – The Regional Recycled Water Advanced Purification Center will begin operation in Fall 2019. The Advanced Purification Center is a 0.5 million gallon per day demonstration facility that will generate information needed for the potential future construction of a full-scale recycled water plant.

## CONCLUSION

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Four years on, the region's water reliability situation is much changed from the 2015 IRP Update, when the region had been in the grip of an historic statewide drought. Following 2017's largest-ever puts into regional storage, calendar year 2019 was another year that combined relatively high imported supplies with low per capita water demands. Metropolitan's end-of-year storage balance in 2019 is expected to be the highest ever in its history. Even so, the region continues to face near- and long-term challenges, some familiar but others becoming apparent only in the last year. Notable among the new challenges are the reevaluation of the long-term Delta solution and recently-recognized threats posed by emerging contaminants to groundwater basins.

Long-term projections of SWP performance will need to be reassessed in light of the State's redirection away from the previously proposed California WaterFix project towards study of a possible single-tunnel Delta conveyance project. Colorado River supplies continue to be threatened by drought, climate change, and basin-wide supply-demand imbalances, but crucial progress was made with the signing and implementation of the Colorado River Drought Contingency Plan and related agreements that will help ensure continued access to ICS storage. Detections of contaminants in wells (PFOA/PFOS in some local basins, as well as TCP at the Arvin-Edison groundwater storage program) will potentially impair access to certain existing groundwater supplies until they can be remediated. Consistent with the 2015 IRP Update's direction, Metropolitan continues to enhance regional resiliency through investment in local resources and conservation, with targeted financial incentive programs, local assistance, public outreach, and research and development efforts such as the Future Supply Actions Funding Program.

Metropolitan is about to begin its next planning cycle with the 2020 IRP. The upcoming IRP process will provide an opportunity to evaluate current conditions, determine changes in reliability from the 2015 IRP Update, and establish new goals and targets as needed.