

# Achievements in Conservation, Recycling and Groundwater Recharge

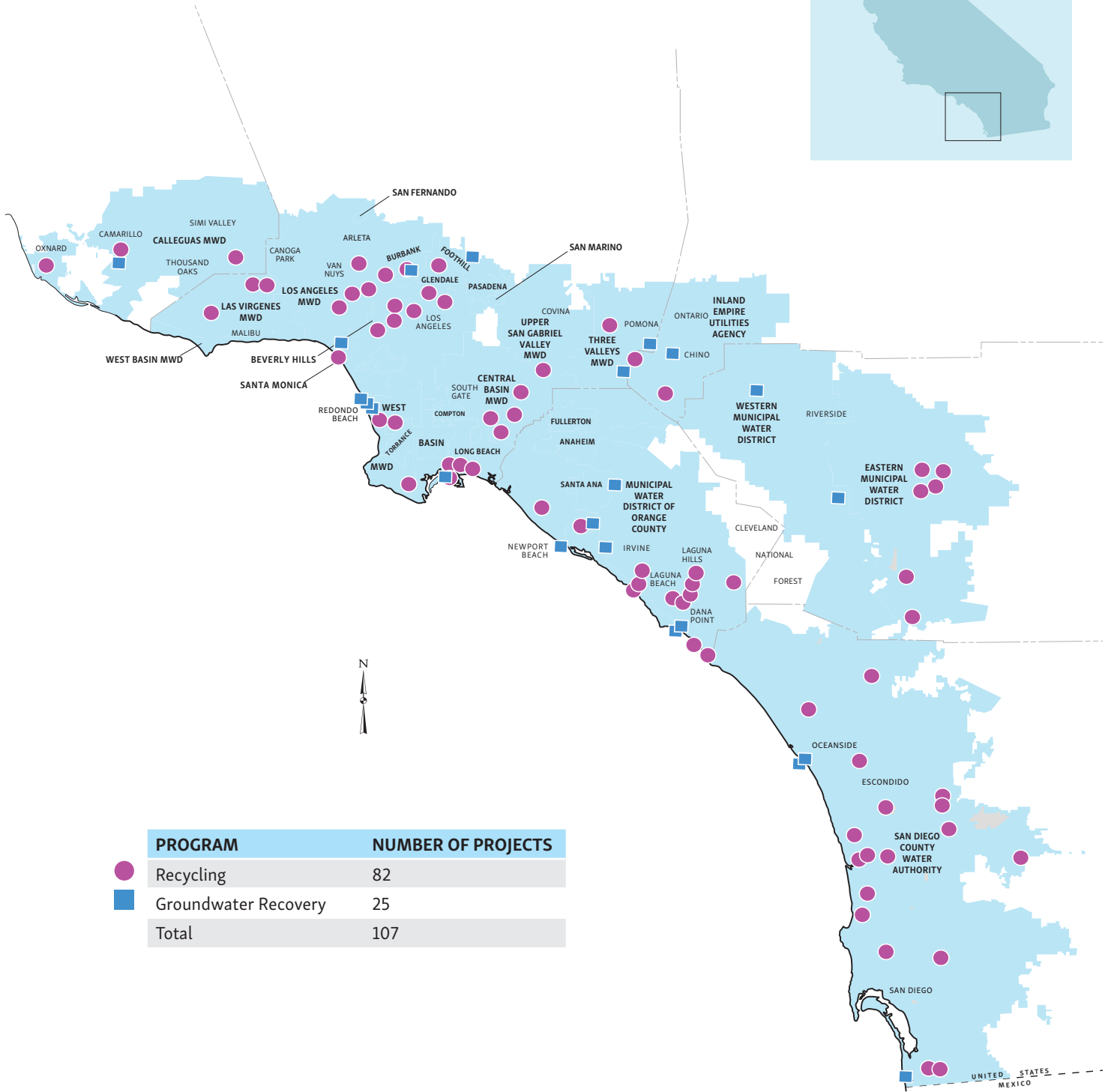


**February 2019**  
Covering fiscal year  
July 2017 – June 2018

**WATER**  **TOMORROW**  
Annual Report to the California State Legislature

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

# METROPOLITAN'S LOCAL RESOURCES PROGRAM

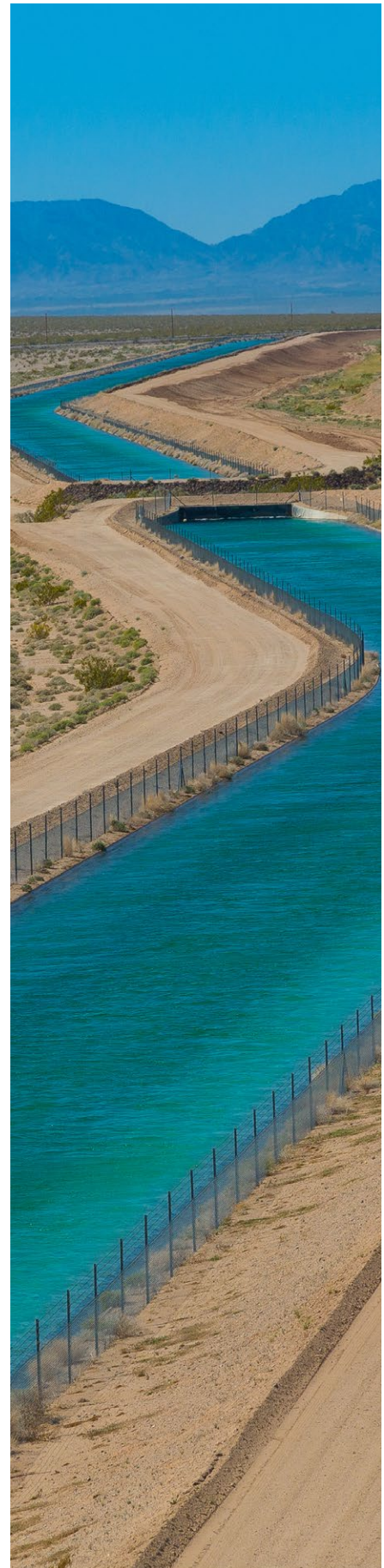


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**The Colorado River Aqueduct delivers one of the Southland's two primary sources of imported water.**

For more information about this report, contact Metropolitan's Legislative Office in Sacramento at (916) 650-2600.



**The Metropolitan Water District of Southern California was established in 1928 under an act of the state Legislature to provide supplemental water supplies to its member agencies in Southern California.**

Metropolitan is a public agency and a regional water wholesaler. It is a voluntary cooperative of 26 member agencies that purchase some or all of their water from Metropolitan. These member agencies and sub agencies provide water for nearly 19 million people across six Southern California counties. Metropolitan is governed by a 38-member Board of Directors made up of representatives from each of Metropolitan's member agencies.

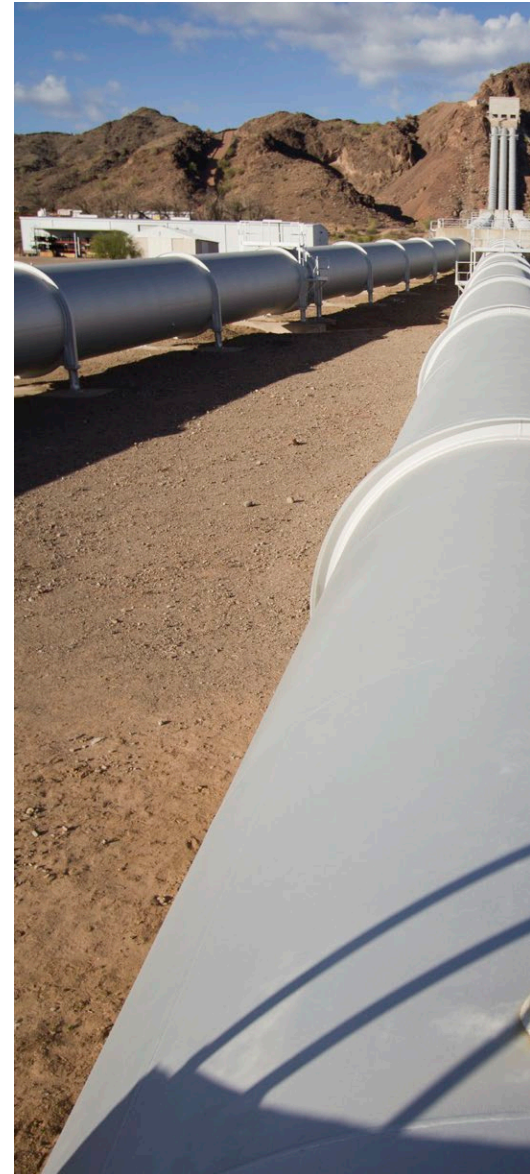
The mission of Metropolitan is to provide its 5,200-square-mile service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.



## About Metropolitan

Metropolitan draws supplies from the Colorado River through the Colorado River Aqueduct, which it owns and operates; from Northern California via its participation in the State Water Project; and from local programs and transfer arrangements. An increasing percentage of Southern California's water supply comes from conservation, water recycling and recovered groundwater.

Conservation and resource development takes place at the local level, and regional approaches have proven to be effective and benefit all Metropolitan member agencies. These programs help to increase water supply reliability and reduce the region's reliance on imported water supplies to meet future demands. They decrease the burden on Metropolitan's infrastructure, reduce system costs, and free up conveyance capacity to the benefit of all system users. The programs advance the legislative intent that Metropolitan increase "sustainable, environmentally sound and cost-effective water conservation, recycling, and groundwater storage and replenishment measures." Metropolitan is also involved in other beneficial programs and initiatives as detailed in this report.



# Introduction

**Despite very hot and dry local conditions and limited State Water Project supplies during fiscal year 2017/18, the Metropolitan Water District of Southern California met water demands while hardly touching its ample storage reserves. This achievement was due in large part to the continuing trend of lower water use throughout the six-county region.**

Lowering demand and maintaining sufficient reserves are essential to long-term water supply reliability for the region. A suite of conservation efforts resulted in a lowering of water use by an estimated 1.034 million acre-feet in fiscal year 2017/18. And Metropolitan is on the pathway to having 2.5 million acre-feet in storage.

Southern California has been experiencing a declining trend in precipitation since 2000, with annual numbers varying dramatically. Climate models are predicting a continued downward trend of runoff in the Colorado River basin (historically a source of 25 percent of Southern California's water) and less snowfall in Northern California (providing on average 30 percent of the Southland's portfolio).

The challenge of climate changes is addressed in Metropolitan's long-term water strategy, embodied in its Integrated Water Resources Plan. The IRP calls for more local conservation and local supplies to meet the needs of population growth as various investments and partnerships seek to stabilize imported supplies at realistic targets. With conservation playing an increasingly important role in Southern California's water future, the incremental progress displayed in fiscal year 2017/18 is an encouraging sign of the region's ability to steadily lower per-person demand.

Metropolitan advanced its traditional portfolio of conservation initiatives throughout the year. Water saved from the district's existing Conservation Credits Program, for example, lowered water use by more than 200,000 acre-feet. Local water agencies recycled more than 450,000 acre-feet of wastewater and stormwater, creating new supplies. Metropolitan funded more than \$12 million in rebates, classes, research and advertising. And a new outreach campaign entitled, 'Save Water 365', sought to reinforce that conservation is a way of life, not just a short-term behavior shift during severe droughts.

The coming year will mark the 20<sup>th</sup> anniversary of the passage of Senate Bill 60, which sought to "place increased emphasis on sustainable, environmentally sound, and cost-effective water conservation, recycling, and groundwater storage and replenishment measures."

Next year is also the scheduled completion of the Advanced Purification Center demonstration plant of the Regional Recycled Water Program, a partnership between Metropolitan and the Sanitation Districts of Los Angeles County. This new demonstration facility could lead to the construction of one of the nation's largest recycling facilities. Metropolitan's commitment to advancing conservation, recycling and groundwater initiatives is based on their invaluable role in a comprehensive approach to the Southland's water future. The continued progress is highlighted in this year's Achievement Report.

A view from the Gene Pumping Plant.

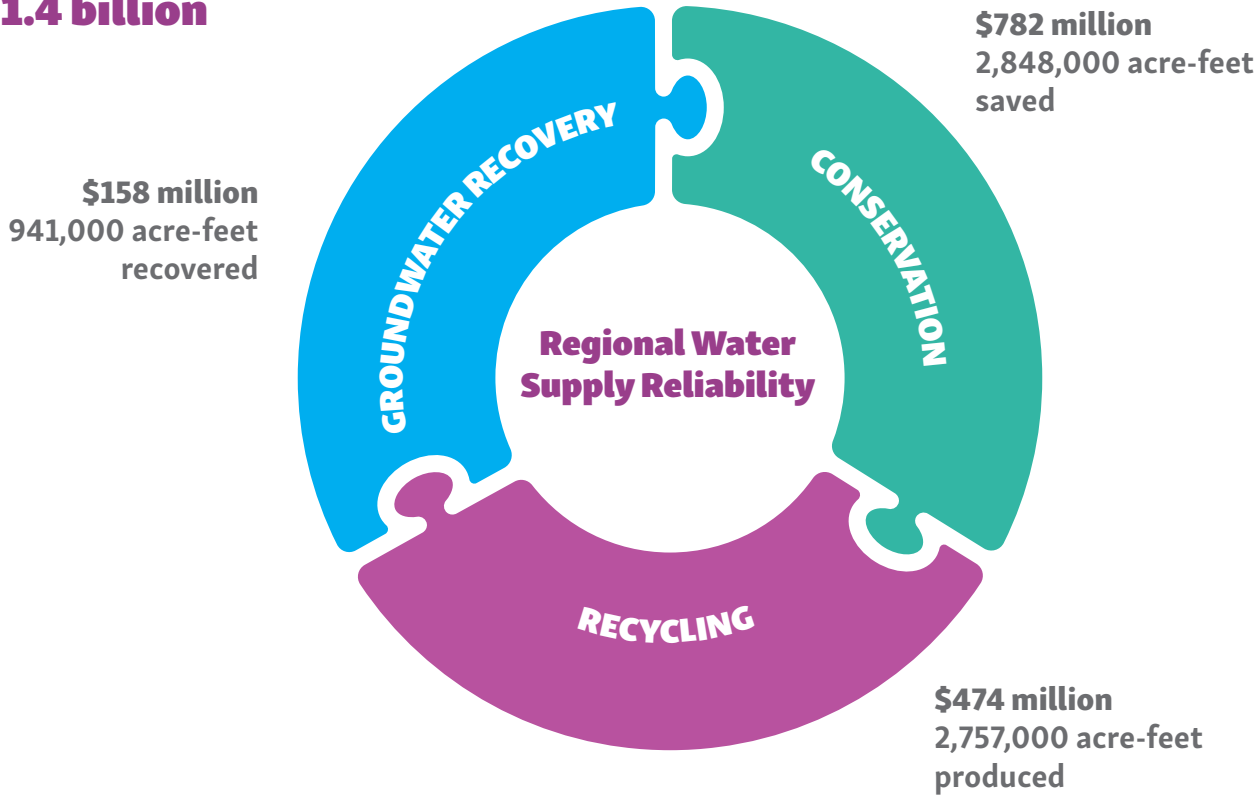


# Achievement Scorecard

Conservation		
<b>FY 2017/18 Total Water Saved<sup>1</sup></b>	1,034,000 acre-feet	
New Water Saved From Metropolitan Conservation Credits Program <sup>2</sup>	11,000 acre-feet	
Water Saved From Existing Metropolitan Conservation Credits Program <sup>3</sup>	213,000 acre-feet	
<b>FY 2017/18 Investment</b>		
Metropolitan Conservation Credits Program Investment <sup>4</sup>	\$13 million	
Member Agency Conservation Investment <sup>5</sup>	\$9 million	
Metropolitan Outreach & Education	\$4 million	
<b>Cumulative Savings Since 1990</b>		
Water Saved From Metropolitan Conservation Credits Program <sup>6</sup>	<b>2,848,000 acre-feet</b>	
Metropolitan Conservation Investment (excluding funding by member agencies) <sup>7</sup>	\$782 million	
Recycled Water		
<b>FY 2017/18 Production<sup>8</sup></b>	451,000 acre-feet	
Water Produced From Projects Receiving Metropolitan Funding	165,000 acre-feet	
Water Produced From Projects Without Metropolitan Funding (incl. Santa Ana River base flow) <sup>9</sup>	287,000 acre-feet	
<b>FY 2017/18 Investment</b>		
Metropolitan Funding	\$26 million	
<b>Cumulative Production &amp; Investment Since Inception<sup>10</sup></b>		
Production With Metropolitan Funding	<b>2,757,000 acre-feet</b>	
Metropolitan Investment	\$474 million	
Groundwater Recovery		
<b>FY 2017/18 Production</b>	98,000 acre-feet	
Water Produced From Projects Receiving Metropolitan Funding	48,000 acre-feet	
Water Produced From Projects Without Metropolitan Funding	50,000 acre-feet	
<b>FY 2017/18 Investment</b>		
Metropolitan Funding	\$7 million	
<b>Cumulative Production &amp; Investment Since Inception<sup>11</sup></b>		
Production With Metropolitan Funding	<b>941,000 acre-feet</b>	
Metropolitan Investment	\$158 million	
Conjunctive Use Program <sup>12</sup>		
Metropolitan Cumulative Capital Investment	\$27 million	
Proposition 13 Grant Funds Administered by Metropolitan	\$45 million	
Water Stored Since Program Inception through August 2018	323,000 acre-feet	
Water Extracted Since Program Inception through August 2018	261,000 acre-feet	
Groundwater Replenishment <sup>13</sup>		
FY 2017/2018 Delivery	204,000 acre-feet	
Cumulative Replenishment Delivery since 1984	<b>3,860,000 acre-feet</b>	
Regional Summary		
	<b>FY 2017/18</b>	<b>Cumulative</b>
Metropolitan's Investment in Water Conservation, Recycled Water and Groundwater Recovery <sup>14</sup>	\$45 million	\$1.4 billion

The numbers above have been rounded to present a topline view of conservative achievement. More precise numbers are included in the report narrative.

# Metropolitan's Cumulative Investment: \$1.4 billion



## Footnotes for the Achievement Scorecard

Numbers in this report are based on the best available information during the production of this report and are subject to revision for accounting reconciliation.

- Annual total savings include Metropolitan's Conservation Credits Program, code-based conservation achieved through legislation, building and plumbing codes and ordinances, reduced consumption resulting from changes in water pricing, and pre-1990 device retrofits.
- New water savings achieved through Metropolitan's Conservation Credits Program and from member agency-funded programs initiated in fiscal year 2017/18.
- Includes water savings initially achieved through Metropolitan's Conservation Credits Program and subsequently maintained through plumbing codes.
- Active conservation investment includes administrative fees for contracted program vendors.
- In addition to Metropolitan's Conservation Credits Program, member agencies and retailers also implemented local water conservation programs within their respective service areas. Member agency investment figures include rebate funding beyond that already provided through Metropolitan's Conservation Credits Program.
- Cumulative water savings since 1990 that include water savings initially achieved through Metropolitan's Conservation Credits Program and subsequently maintained through plumbing codes.
- Metropolitan's cumulative conservation investment for fiscal year 2017/18 reflects a revision in total cumulative expenditures due to a reconciliation audit. This does not include outreach and education expenditures.

- Figures reflect actual and estimated deliveries for all Metropolitan-assisted projects and payments reported for fiscal year 2017/18; cumulative production and investment reflect accounting reconciliation as data become available; annual regional production for recycled water includes an estimated 69,000 acre-feet of treated wastewater discharged to the Santa Ana River base flow that percolates into downstream groundwater basins. The total may not sum due to rounding.
- Projects accounted for here include some that received funding at the outset through Metropolitan's Local Resources Program. Once the term of the funding agreement expires, the projects continue, but further production is not factored into program totals.
- Metropolitan initiated its Local Resources Program in 1982 to encourage production of recycled water for municipal purposes.
- Metropolitan initiated its Groundwater Recovery Program in 1991 to encourage treatment and use of degraded groundwater for municipal purposes.
- Construction of the conjunctive use storage programs was completed in 2008. Proposition 13 refers to Chapter 9 of the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Bond Act of 2000. Water extracted since program inception includes losses.
- Figure is cumulative since 1984. Prior to 2013, Metropolitan provided replenishment water at a discounted rate to encourage long-term recharge and maintenance of groundwater basins and local reservoirs. Although the discounted replenishment rate was discontinued Jan. 1, 2013, Metropolitan continues to provide water for replenishment purposes at full service rates.
- Metropolitan's cumulative conservation investment for fiscal year 2017/18 reflects a revision in total cumulative expenditures due to a reconciliation audit. Cumulative conservation investment does not include outreach and education expenditures.

A color burst  
is on display  
in a California  
Friendly® garden.

# Conservation



**With sound investments in storage, coupled with savings from local resources programs, Metropolitan achieved a sort of water yin and yang – where our demands and supplies were in balance.**

Water conserved is considered a supply source – supplementing imported water supplies and locally developed resources. These savings help to reduce overall regional water demands and ensure greater supply reliability for the region. By 2040, conservation and water recycling are expected to account for one-third of Southern California’s water supply portfolio in Metropolitan’s service area. To support continued conservation, Metropolitan has a number of initiatives that include financial incentives, as well as education and outreach programs. Metropolitan also supports legislation and appliance standards that lead to increased water savings.

During fiscal year 2017/18, water saved from existing active conservation efforts by Metropolitan exceeded 213,000 acre-feet. Rebates funded through Metropolitan’s Conservation Credits Program generated more than 11,000 acre-feet of new water savings and will continue to produce more savings in years to come.

Since 1990, Metropolitan has invested more than \$782 million in conservation rebates, of which approximately \$12.6 million was spent in fiscal year 2017/18. Metropolitan typically calculates rebates based on \$195 per acre-foot of water savings over the life of a device. Exceptions include the landscape transformation program, rain barrels, and cisterns, aimed at market transformation, which are calculated differently. When available, Metropolitan supplements its conservation programs using state and federal grant funds.

## Fiscal Year 2017/18 Conservation Program Highlights

- Metropolitan funded about \$12.6 million in rebates, classes, research and advertising to help consumers reduce water use in their homes and businesses.
- Metropolitan processed more than 37,000 applications for a total of \$8.4 million in regional rebate funding.
- The Innovative Conservation Program – which provides grants for innovation in water-use efficiency – began another program cycle announcing 12 new projects.



Throughout the year, Metropolitan sought and received extensive input on its regional conservation program from member and local agencies, Metropolitan board committees, and the 2017 Peer Review – a study by the Alliance for Water Efficiency. The AWE Peer Review recognized Metropolitan’s program strengths citing the success of the largest turf replacement program in the nation. This led to a call to revive the program which was suspended in late 2015. Feedback and recommendations from the report also informed refinements to some existing programs and brought about a new landscape transformation program to take the place of the turf replacement program. New professional landscape training aimed at city and county landscape staff and individual landscape professionals also was added.

## Metropolitan’s Residential Conservation Programs

### SoCal Water\$mart Residential Program

Metropolitan’s regional rebate program is administered through SoCal Water\$mart for both residential and commercial customers to encourage and support the use of water-efficient products across the Southland. Residential rebates offered in fiscal year 2017/18 included high-efficiency clothes washers, premium high-efficiency toilets, high-efficiency sprinkler nozzles, smart irrigation controllers, and rain barrels. Metropolitan estimates water savings of about 1,290 acre-feet annually from more than 106,700 residential conservation device rebates funded by Metropolitan in fiscal year 2017/18.

## Member Agency Residential Programs

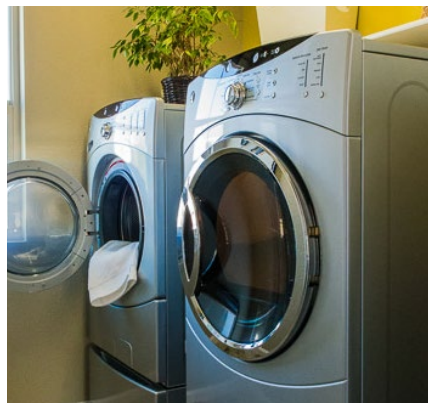
Metropolitan also provides funding to member agencies for locally-administered conservation programs. Qualifying residential projects include rain barrel distributions, turf replacement programs, sustainable landscape irrigation programs, customer water use messaging and residential water surveys. Metropolitan estimates water savings of about 330 acre-feet annually from these programs administered in fiscal year 2017/18.

### Turf Removal

Select member agency-administered programs offered rebates in fiscal year 2017/18 for removal of more than 2.4 million square feet of lawn. This resulted in an estimated annual water savings of about 330 acre-feet.

### Premium High-Efficiency Toilets

Metropolitan offers rebates for premium high-efficiency toilets which use no more than 1.1 gallons per flush. These devices use about 30 percent less water when compared to older ultra-low-flush toilets which use 1.6 gallons per flush. Metropolitan estimates that rebates issued for both residential and commercial customers in fiscal year 2017/18 will save about 470 acre-feet of water per year.



## High-Efficiency Clothes Washers

High-efficiency clothes washers, with an integrated water factor of 3.2 or less, are eligible to receive rebates. The integrated water factor is the measure of the amount of water used to wash a standard load of laundry. An HECW saves more than 10,000 gallons per year compared to a conventional top-loading clothes washer. Metropolitan estimates water savings of about 610 acre-feet annually from HECW rebates in fiscal year 2017/18.

### Smart Irrigation Controllers

Smart irrigation controller incentives have been available since 2006 from Metropolitan. These units are now more technologically advanced, customer-friendly and have a greater ability to determine optimal landscape water needs. Smart irrigation controllers save water by automatically adjusting watering schedules based on weather, soil conditions, plant material, sun exposure and slope. Metropolitan estimates water savings of about 2,060 acre-feet annually from Metropolitan smart controller rebates in fiscal year 2017/18.

### Measured Water Savings

Informing consumers about their water use with a comparison to similar households has become an accepted way to guide and support conservation, leading to behavior changes. Fiscal year 2017/18 saw a significant increase in this type of customer water use messaging by Metropolitan’s member agencies, which resulted in a measured reduction in water use of about 4,310 acre-feet.

**High-efficiency rebate-eligible clothes washers save water and money.**

Sensor monitors  
vine water use,  
photo courtesy  
Fruition Sciences.

## Metropolitan's Commercial Conservation Programs

Larger institutions like businesses, schools and hospitals can lead by example and showcase their conservation efforts and water savings to the communities they serve. Metropolitan's commercial conservation programs provide financial incentives for many water-saving devices and projects including landscape transformation, as well as rebates on certain commercial food devices, cooling towers and medical and dental equipment. Metropolitan estimates savings of about 5,210 acre-feet annually from commercial conservation programs in fiscal year 2017/18.



## SoCal Water\$mart and Member Agency Commercial Programs

The majority of commercial conservation device activity came from Metropolitan's regional SoCal Water\$mart rebate program. In addition, Metropolitan's member agencies and sub-agencies implemented water conservation programs for commercial sectors using Metropolitan incentives. Qualifying commercial projects have included turf removal, along with direct installation of high-efficiency toilets and multi-stream rotating sprinkler nozzles. Metropolitan estimates water savings of about 1,680 acre-feet from more than 4,360 applications to SoCal Water\$mart in fiscal year 2017/18. An additional 1,020 acre-feet of water were saved from member agency incentive programs.



Native and drought  
tolerant plants of the  
Mountaingate Open Space  
Maintenance Association  
line the landscape.



## Research and Development

### Innovative Conservation Program

Metropolitan's Innovative Conservation Program is a competitive grant program that evaluates water savings and reliability of innovative water saving devices, technologies and strategies. Approximately \$570,000 in funding was provided for the 2018 grant cycle by the U.S. Bureau of Reclamation, Southern Nevada Water Authority, the Central Arizona Project, Southern California Gas Company, Western Resource Advocates, and Metropolitan. A total of 55 proposals were submitted by a diverse group of applicants that included universities, entrepreneurs, commercial laboratories, non-profit organizations, and individuals. The proposals were evaluated by a selection committee that chose 12 proposals for funding of up to \$50,000 each. Many of the selected projects focus on improving landscape water efficiency, while others target different areas such as leak detection and graywater systems.

### Metropolitan Research Focus

In addition to the ICP, Metropolitan has been involved in multiple research efforts:

- Studying the water savings and outcomes of Metropolitan's past turf removal program
- Partnering with the Alliance for Water Efficiency for research on:
  - the rationale behind landscape choices
  - water savings potential of commercial cooling towers
- Administering a pilot program with Inland Empire Utilities Agency on household pressure regulation to determine if pressure management can result in water savings
- Initiating a dipper well (perpetual flow-sink used commercially in places like ice cream stores and restaurants) research pilot program with selected member agencies
- Evaluating water savings potential of water system wide processes for leak detection
- Studying market penetration of residential water-efficient fixtures

### Water Savings Incentive Program

The Water Savings Incentive Program is a regional pay-for-performance initiative. It is open to all commercial, industrial, institutional, agricultural and large landscape consumers with qualifying projects within Metropolitan's service area. Financial incentives are available for customized water-efficiency projects, including the installation of commercial or industrial high-efficiency equipment; industrial process improvements; agricultural and landscape water efficiency improvements; and water management services. Incentives are based on the amount of water saved and capped at 50 percent of eligible project costs. In fiscal year 2017/18, Metropolitan estimates savings of about 2,510 acre-feet.

**Improved equipment and technologies can lead to water savings for many water-intensive food service and preparation processes.**



# Communications and Outreach

@mwdh2o  
Followers 4,700+

@bewaterwise2o  
Followers 3,700+

Impressions  
combined:  
1.8 M



@mwdh2o  
Followers 27,000+

Impressions:  
55+ million



@mwdh2o  
Followers 2,600+

Likes received:  
19,800+



@mwdh2o

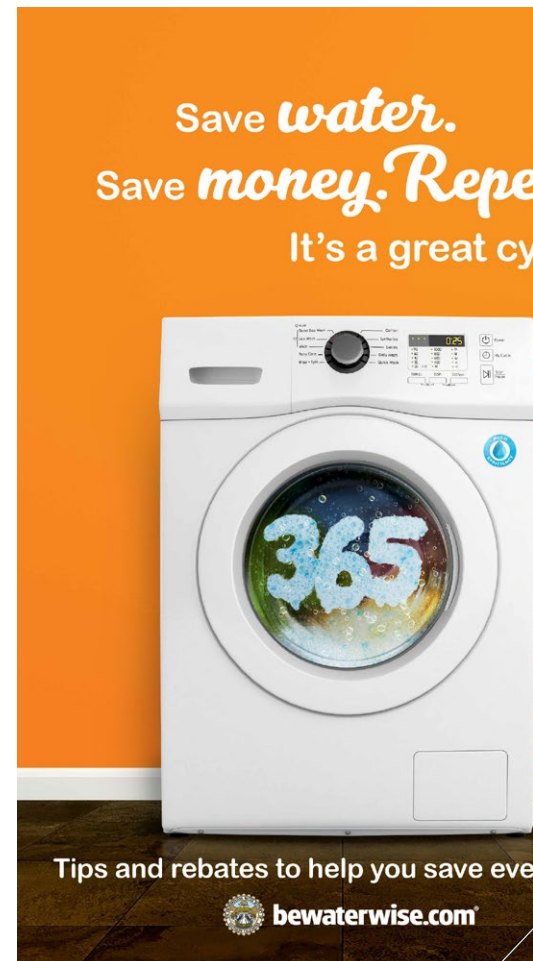
Launch Date: Aug. 8, 2017  
Started with 5,602 followers  
Today 8,300+ followers

Impressions: 452,000+

Since late 2013, the primary focus of Metropolitan's conservation and education outreach programs have been on the drought and the need for additional conservation in order to maintain the region's water supply reserves. That message has shifted to emphasize conservation as a way of life, rather than a response to dry conditions.

## Advertising and Outreach Campaign

Metropolitan's multilingual H2Love campaign concluded in spring 2018 with a successful 12-week media strategy featuring outdoor billboards, radio ads, community newspapers and a sponsorship with Major League Soccer's LA Galaxy. With nearly two billion media impressions delivered and a toolkit of informational resources and files, the campaign successfully reached its target audiences as demonstrated in a post-campaign public survey. Outreach efforts increased traffic to the district's [bewaterwise.com](http://bewaterwise.com)® conservation website by more than 300 percent, and social media growth in views increased more than one-hundred fold.



The 'Save Water 365' campaign reminds Southern Californians that every day is a chance to save water.



Board Chairman Randy Record throws the opening pitch for [bewaterwise.com](http://bewaterwise.com)® night at Dodger Stadium.

H2♥  
eat.  
cle.  
ry day at



While social media and search engine optimization maintained message consistency and visibility, Metropolitan initiated a request for proposal process for a new three-year water conservation outreach media campaign. Metropolitan's Board of Directors awarded a \$14.7 million contract to the Los Angeles-based firm Quigley-Simpson & Heppelwhite, which produced Metropolitan's award-winning Take a Turn and H2Love campaigns. The new 'Save Water 365' campaign launched in July 2018.

The campaign encourages Southern Californians to save water every day. It also reminds residents to take advantage of rebate programs – including incentives for indoor and outdoor water-saving devices, as well as rebates for landscape transformation that requires more efficient irrigation systems, design and plants. The campaign also reaches very diverse audiences in English, Spanish, Mandarin, Korean, Vietnamese and Tagalog through traditional and grassroots marketing efforts. Creative messaging included signs on food trucks, local convenience and hardware stores and a sponsorship with the LA Dodgers.

Media relations underscore the outreach effort. Metropolitan officials conducted dozens of interviews with news reporters to discuss a wide range of water-related topics such as the impact of the drought, water supply reliability and conservation. As part of this public outreach, Metropolitan's General Manager Jeffrey Kightlinger blogged both in print and video about various water challenges facing the region.

**Food trucks and local hardware and convenience stores were part of the multilingual grassroots outreach campaign.**

Metropolitan continues to provide direction and support to Southern California's businesses and industry. Metropolitan is an active member in chambers of commerce and other business organizations, providing regular updates to the members on water policy issues and programs. Water-use efficiency programs that help reduce demand for potable water are a key focus. In addition, Metropolitan hosts hundreds of community and business leaders on inspection trips of the State Water Project and Colorado River Aqueduct to help them better understand the challenges of providing reliable water to Southern California and how the Colorado River is managed to provide water for urban areas and agriculture in the lower basin.

Metropolitan’s conservation website, [bewaterwise.com](http://bewaterwise.com)®, completely revamped and updated for relaunch in 2018, provided water conservation information to hundreds of thousands of unique online visitors in English, Spanish and Chinese. The website offers extensive conservation ideas, drought information, and links to rebates and incentives for homes, businesses, industry, agriculture and institutions. It also features native plant resources and California Friendly® Garden of the Month spotlights where home gardeners and landscape professionals can learn the latest ways to reduce outdoor water use.

Growth in social media activity has been dramatic over the past two years. In 2018, Metropolitan’s Facebook page received more than 55 million impressions, with more than 27,000 followers. On Twitter, Metropolitan gained more than 700 followers in 2018 and received more than 1 million impressions. Metropolitan used a variety of short videos and animated gifs to reach a broader audience during its conservation campaign and for California WaterFix. Metropolitan used Facebook Live and Snapchat geofilters to reach a broader audience throughout 2017/18.

The success of Metropolitan’s outreach activities was recognized with several prestigious awards including the best in show for the National Association of Government Communicators. This organization is a national association of communication officials from local, state and federal public agencies. Metropolitan was a finalist in 13 of 40 award categories.



**Members of Metropolitan’s Black Employees Association spread the conservation message at the 13th annual Taste of Soul street fair.**

## Community Outreach

Metropolitan co-sponsored 50 water-related outreach events and initiatives through the Community Partnering Program. Together with member agencies, community groups, nonprofit organizations and educational institutions, these events engaged an audience of over 64,000 attendees for fiscal year 2017/18. Activities varied from conservation projects to community events and educational materials that addressed sustainability, conservation, watershed approaches and water recycling.



**Metropolitan’s conservation message is carried into the community by CicLAvia participants in the heart of downtown LA.**

## Education Programs

Solar Cup™ is the nation's largest solar boat competition, drawing hundreds of high school team competitors from across Southern California.



Metropolitan's World Water Forum grant program encourages the exploration of innovative water supply and energy solutions.

Metropolitan continues to update and expand a comprehensive K-12 water education curriculum that meets state standards for each grade level in the areas of science, math, language arts and social studies classroom materials. These educational resources align to modern education standards (Common Core and Next Generation Science Standards) and support early bilingual education (Spanish and Chinese). Metropolitan worked with member agencies to hold more than 200 water education events and promoted critical thinking of water through online and social media engagements. These efforts directly exposed more than 250,000 students, teachers, parents and educators to Metropolitan's water education programs, curricular materials, and resources. Metropolitan's water education services are offered to educators within its service area at no charge, which is critical for outreach to underserved communities.

Staff utilizes educational technologies, including virtual reality tours of the Colorado River Aqueduct and augmented reality watershed exhibits, to encourage students to think critically about water issues in Southern California. This year more than 14,000 public visitors and students toured the Diamond Valley Lake Visitor Center to learn more about Metropolitan's water systems and operations, programs and water stewardship.

The World Water Forum College Grant Program, a partnership between Metropolitan, the U.S. Bureau of Reclamation and the Sanitation Districts of Los Angeles County, provides grants to colleges and universities for local and globally-focused projects that foster a better understanding and community awareness of water issues, technologies related to water management and treatment, and water conservation. Student teams presented their work during Metropolitan's Spring Green event at Union Station, displaying numerous water conservation and treatment projects. Since its inception in 2004, the World Water Forum program has provided \$810,000 to more than 79 college and university teams. Metropolitan launched the fifth cycle of the World Water Forum in fall 2017.

The 2018 Solar Cup™ program, the nation's largest solar-powered boat competition, engaged 38 high school teams and more than 600 high school students in building STEAM (science, technology, engineering, art and math) skills, as well as learning topics of water stewardship and renewable energy.

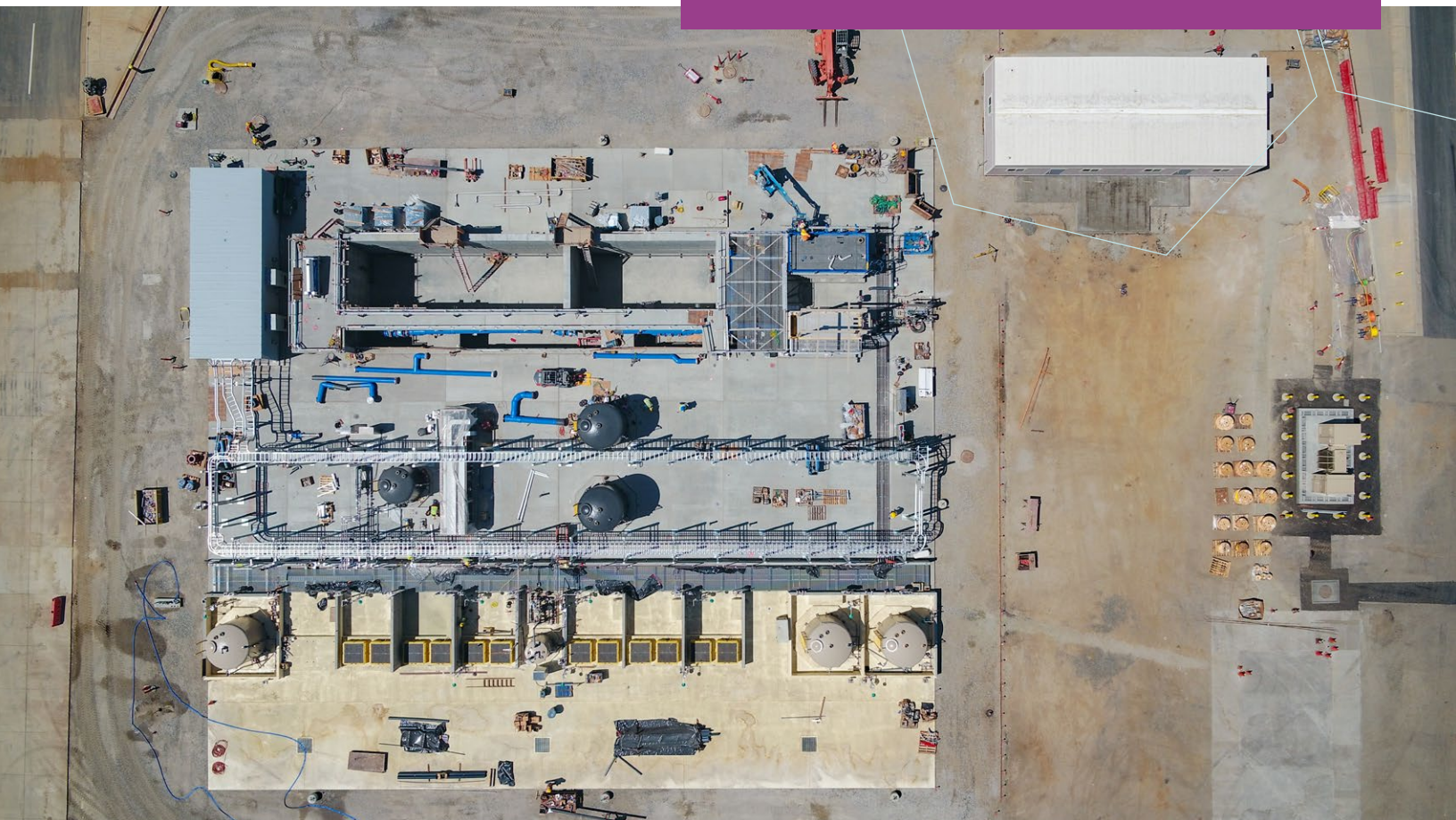
Metropolitan's "Water is Life" student art exhibit and calendar annually compiles over 12,000 pieces of art generated by K-12 students throughout Metropolitan's service area which tours in an exhibit across the Southland.



For more than three decades, Metropolitan has invested in regional projects, committing about \$474 million to help local agencies produce about 2.8 million acre-feet of recycled water. An investment of \$158 million has been made to recover about 941,000 acre-feet of degraded groundwater for municipal use. To date, there are 82 water recycling projects and 25 groundwater recovery projects under Metropolitan's Local Resources Program that cost-effectively supports local resource development.

Metropolitan has provided \$632 million for the development of approximately 3.7 million acre-feet of new water from recycling and groundwater recovery projects. For the first time, Metropolitan is embarking on a region-wide recycling demonstration project with the potential to become one of the nation's largest water recycling facilities if the program moves forward to full scale. The Advanced Purification Center is expected to be complete in early 2019.

## Local Resources



A drone view of construction at the Regional Recycled Water Advanced Purification Center, a .5 million gallon per day demonstration facility.





# Water Recycling and Groundwater Recovery

In fiscal year 2017/18, two Local Resources Program projects began operation and one entered construction. Metropolitan provided about \$26 million for production of 165,000 acre-feet of recycled water for non-potable and indirect potable uses. About \$7 million was provided by Metropolitan to support projects that produced about 48,000 acre-feet of recovered groundwater for municipal use. In addition, another 287,000 acre-feet of recycled water and 50,000 acre-feet of recovered groundwater were produced by local agencies through other funding sources. Figures 1 and 2 show total recycled water and groundwater recovery production in Metropolitan's service area, including local agency funded projects. Figure 1 includes treated wastewater discharged to the Santa Ana River that percolates into downstream groundwater basins.

## On-site Retrofit Program

The On-site Retrofit Program was launched in July 2014 as a two-year pilot program with a budget of \$7.5 million to provide financial incentives for conversion of potable irrigation or industrial water systems to recycled water. In addition, the pilot program received a \$700,000 grant from the U.S. Bureau of Reclamation. Building on the success of the pilot program, Metropolitan's board approved the continuation of the program with an additional budget of \$10 million through June 2018. Starting in fiscal year 2018/19, the annual budget for the program is \$3 million. To date, the On-site Retrofit Program provides funding to replace 11,800 acre-feet per year of potable water with recycled water for 354 sites.

**A recycled water pond pictured at Dos Lagos Golf Course located in Corona.**

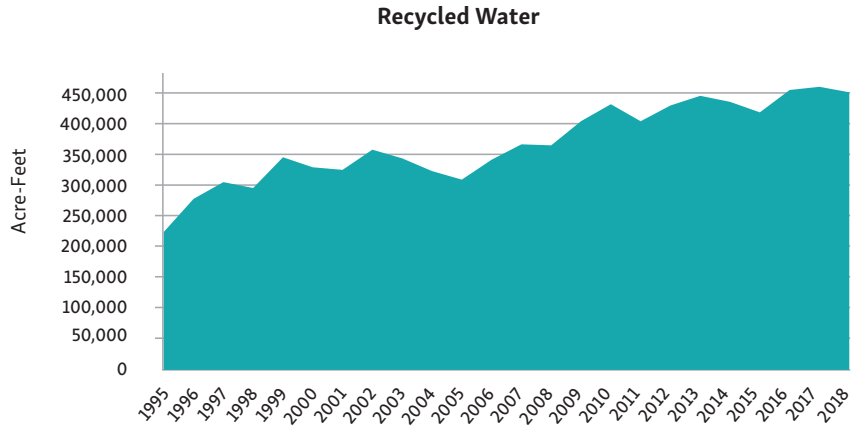


Figure 1

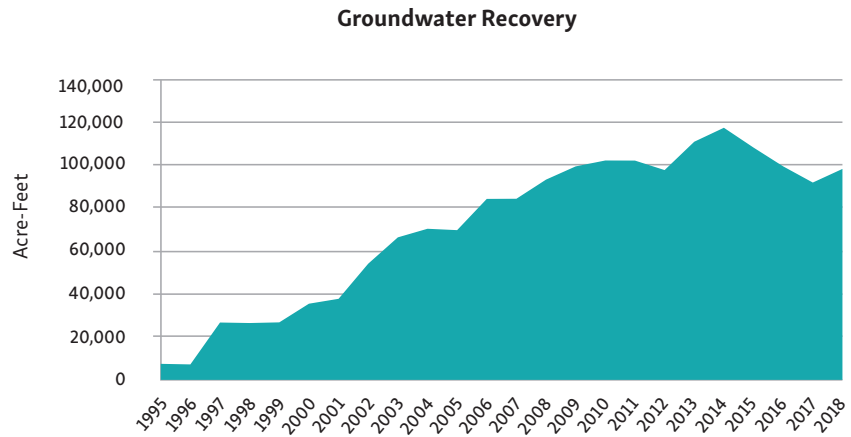
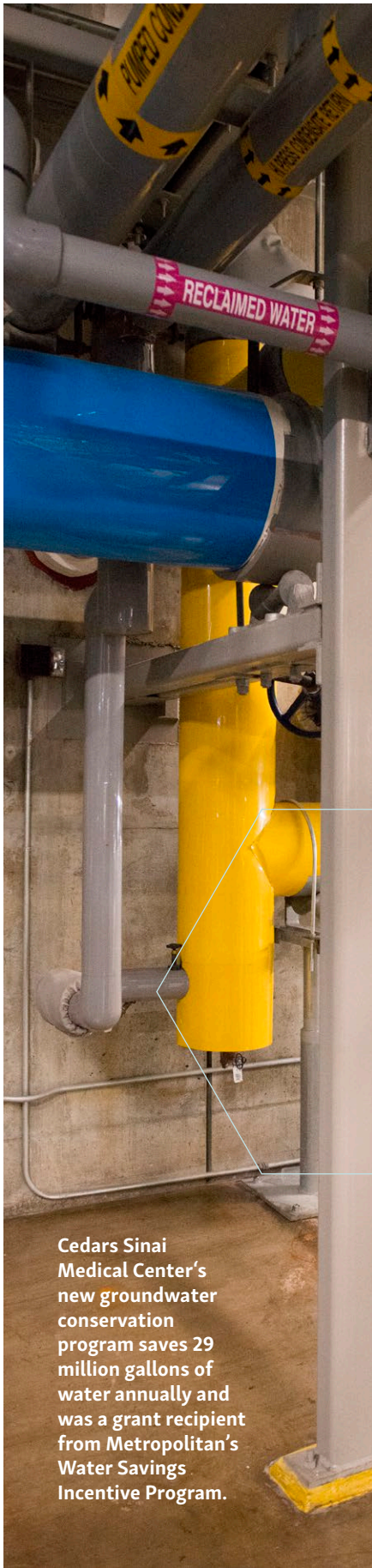


Figure 2





Cedars Sinai Medical Center's new groundwater conservation program saves 29 million gallons of water annually and was a grant recipient from Metropolitan's Water Savings Incentive Program.

## Groundwater Management

Metropolitan partners with local agencies to store imported surface water in groundwater basins for use in times of shortage under conjunctive use agreements. Metropolitan currently 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 called upon agencies to store water in the conjunctive use accounts. In fiscal year 2017/18, Metropolitan stored about 42,000 acre-feet for future drought mitigation.

Four new cyclic storage agreements were executed as of June 30, 2018 with the city of Burbank, Calleguas Municipal Water District, Eastern Municipal Water District, and the Municipal Water District of Orange County. Cyclic agreements allow for imported water to be stored for a member agency and be available for purchase at a later date if needed. These cyclic agreements are in addition to the existing agreements with Upper San Gabriel Valley Municipal Water District and Three Valleys Municipal Water District. During fiscal year 2017/18, 120,000 acre-feet was delivered under the cyclic program.

## Regional Recycled Water Program

The Regional Recycled Water Program, a partnership between Metropolitan and the Sanitation Districts of Los Angeles County, will purify wastewater to produce high quality water to replenish the region's groundwater basins. In fiscal year 2017/18, the conceptual study phase of the project was initiated to evaluate further groundwater basin conditions, treatment requirements, conveyance facilities, and the cost of a full-scale facility. Construction of the demonstration plant in Carson, California began in September 2017 and is expected to conclude in early 2019. The 500,000-gallon-per-day facility will be in operation for at least one year to generate information needed for the potential construction of a full-scale advanced water treatment facility – potentially one of the largest water recycling facilities in the nation.

Cable trays being installed at the Regional Recycled Water Advanced Purification Center – a demonstration plant expected to be complete in early 2019.



# Future Supply Actions

Future Supply Actions, which were once referred to as Foundational Actions, are low-cost, low-risk actions designed to remove barriers to local water resource development in order to better prepare the region for unforeseen water supply challenges. In 2013, Metropolitan's board approved this \$3 million innovative research, which consisted of member agency co-funded technical studies and pilot tests in the areas of groundwater, recycled water, seawater desalination, and stormwater.

In April 2018, Metropolitan's board approved a second round of funding which included \$3.5 million for member agency studies and a separate funding agreement with the Water Research Foundation. Metropolitan issued a request for proposals for member agency studies in summer 2018 and brought funding recommendations to the board in January 2019.

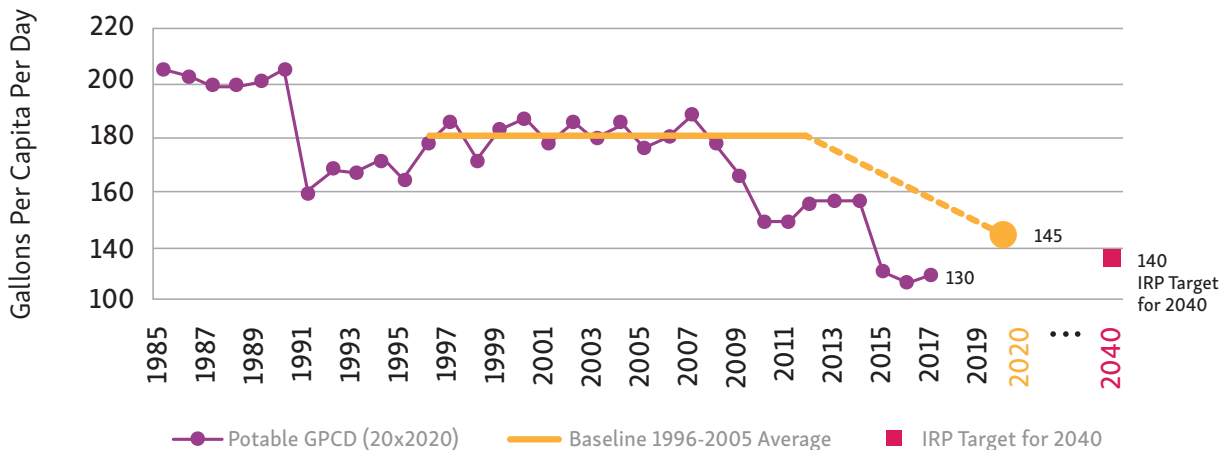
Under the \$975,000 funding agreement with WRF, Metropolitan is co-funding six potable and one non-potable reuse studies. Metropolitan selected the studies from WRF's nationwide Advancing Potable Reuse Initiative, which supports potable reuse as a reliable and sustainable component of integrated water resource management. Metropolitan's co-funding will complement nearly \$7 million in non-Metropolitan funds. WRF will be issuing individual RFPs for the seven studies through the spring of 2019.

## Water-Use Efficiency Strategy

Metropolitan and the Natural Resources Defense Council cosponsored the Water Conservation Act of 2009 (SBX7-7), which targets a 20 percent reduction statewide in urban per capita potable water use by the year 2020 (commonly known as 20x2020). Per capita water use is one indicator of progress in advancing water-use efficiency. Metropolitan's baseline is 181 gallons per capita per day (GPCD) and the 2020 reduction target is 145 GPCD. Between 2011 and 2014, there was a slight increase in per capita water use explained in part by continued economic recovery and drier weather as compared with previous years. GPCD fell significantly during calendar years 2015 and 2016, as the region responded to the governor's Executive Order B-29-15 that mandated a 25 percent emergency reduction in urban water use. In 2017, regional potable GPCD remained at a relatively low 130, which was below the 2020 target.

Metropolitan's programs are driven by long-term targets from its Integrated Water Resources Plan. Based on the 2015 IRP update's forecasts of demands, conservation, and recycled water development, potable GPCD is expected to be about 140 GPCD in 2040.

**Target: 20 Percent Reduction by 2020**  
Metropolitan's Service Area



Notes about the graph:

1. Calendar year data
2. 2017 GPCD based on best available data as of July 2018 and is subject to change
3. Baseline per capita water use based on 1996-2005 average (181 GPCD)
4. Target GPCD for 2020 based on 20% reduction from baseline (145 GPCD)

## Local Watersheds

Metropolitan's commitment to environmental stewardship is reflected in its many activities. Staff is active on planning boards and organizations focused on efforts that include the protection of water quality at the source.

## Integrated Regional Water Management

Metropolitan continues to participate in a multijurisdictional water planning effort, serving on the Greater Los Angeles County Region Leadership Committee as its surface water management area representative.

**Stormwater collects in the Los Angeles River, photo courtesy Nadia Hardjadinata.**



## Southern California Water Coalition Stormwater Task Force

In April 2018, Metropolitan, in coordination with the Southern California Water Coalition, Los Angeles County Department of Public Works, and others, completed a white paper on the study results of 50 stormwater projects in operation. The study assessed actual stormwater capture volumes and cost data. While agencies record and track their benefits and costs differently, many lessons have been learned to help guide the region's water planners as projects move from concept to operation.

In addition, Metropolitan hosted the SCWC Stormwater Task Force annual workshop on October 11, 2017 to bring together local agencies, regional planners, and non-government agencies for a discussion on regional stormwater issues.

## Council for Watershed Health

Metropolitan has partnered with the Council for Watershed Health on research studies and educational outreach efforts focused on water supply reliability, quality and efficiency. The Council currently has four programs: Living Laboratory, Sustainable Landscape Resources, Healthy Streams and Watershed Coordination and Planning. Metropolitan serves on the Council's board of directors and collaborates on projects to advance the health and sustainability of the region's watersheds and natural resources.

To better understand and support school water conservation efforts in underserved communities, Metropolitan entered into an agreement with the Council for Watershed Health in January 2018. Under this agreement, the Council will conduct research on K-12 schools in Metropolitan's service area that fall within underserved communities, as well as implement targeted engagement strategies to help stimulate rebate activity.



# Watershed Initiatives

A photogenic Western Fence Lizard.

## 1. Southwestern Riverside County Multi-Species Reserve

Protection for habitat and many wild-life species is provided in the nearly 13,500 acres surrounding Diamond Valley Lake and Lake Skinner, and in the connecting Dr. Roy E. Shipley Reserve. The reserve is home to at least eight types of habitat and up to 16 sensitive bird, animal and plant species. Metropolitan partners with the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, Riverside County Regional Park and Open-Space District, and Riverside County Habitat Conservation Agency to cooperatively manage the Multi-Species Reserve. Management includes important provisions for watershed protection for Diamond Valley Lake and Lake Skinner. This includes appropriate siting of public access, fire management, public education, interpretive services and careful review of vegetation management tools.

## Southern California Salinity Coalition

Formed in 2002, the Southern California Salinity Coalition promotes research and outreach activities that address the need to control or reduce salinity in drinking water, wastewater, groundwater and recycled water. Metropolitan is a founding member and holds a position on the board. In 2018, the SCSC completed a study of the impacts of increasing wastewater salinity concentrations on recycled water potential in Southern California and co-funded a study that informed legislation affecting recycled water use under California’s Model Water Efficient Landscape Ordinance.

## Ecological Reserves

Four large-scale multi-species reserves spanning more than 30,000 acres are the cornerstone of Metropolitan’s investments in environmental conservation and stewardship. Reserves provide mitigation for impacts from Metropolitan projects, watershed protection around reservoirs and protection of open space for native species and their habitat. There are also trails for hiking and horseback riding and opportunities for research and education. A snapshot of the four reserves follows:



## 2. Upper Salt Creek Wetland Preserve

A 40-acre mitigation site for the Eastside Pipeline feature of Diamond Valley Lake, the Upper Salt Creek Wetland Preserve provides protection for unique vernal pool habitat and rare plants. Metropolitan manages the preserve solely for the purpose of protecting these habitats and plants under an agreement with the U.S. Army Corps of Engineers. The preserve does not allow for public access and is protected in perpetuity from future development. It serves as a cornerstone for broader regional conservation goals under Riverside County's multi-species habitat conservation program.

## 3. Santa Rosa Plateau Ecological Reserve

The 9,000-acre Santa Rosa Plateau Ecological Reserve is home to 200 species of native birds and 49 endangered, threatened or rare animals and plants, including one rare species of fairy shrimp that exists nowhere else on earth. Establishment of the reserve, as partial mitigation for construction of Diamond Valley Lake, protected some of the most unique grassland, chaparral and oak habitats in California.

## 4. Lake Mathews Multiple Species Reserve

The 5,100-acre reserve surrounding Lake Mathews is managed for native habitat and sensitive plant and animal species, including the endangered Stephens' kangaroo rat. Lake Mathews is an important bird resting and feeding site, especially in winter, when ducks, double-crested cormorants, grebes and eagles visit. The reserve is cooperatively managed by Metropolitan, Riverside County Habitat Conservation Agency, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife under the provisions of a Habitat Conservation Plan and Natural Community Conservation Plan. Equally important to habitat preservation is protection of the watershed surrounding Lake Mathews. Habitat management tools and strategies are critically evaluated for potential effects to water quality, including the use of grazing and prescribed fires to enhance habitat and limit the potential for catastrophic wildfires.

## Colorado River

### The Lower Colorado River Multi-Species Conservation Program

The Lower Colorado River Multi-Species Conservation Program is a comprehensive restoration program along the Colorado River through the states of Arizona, Nevada and California. The plan targets the restoration of natural habitat communities once prevalent along the river corridor—riparian forests, marshes and backwaters. The benefits of restoring natural communities go beyond providing critical habitat for native aquatic and terrestrial species. Creation of more than 8,000 acres of new habitat provides other benefits including water quality improvements and greenhouse gas reduction. Through Metropolitan's support as the largest non-federal contributor, along with its federal and state partners, the program continued to make great advances in the restoration of native habitats and natural processes along the lower Colorado River from Lake Mead to the southern international boundary with Mexico. To date, approximately 6,000 acres of habitat have been restored providing important resources to support 27 sensitive species.



Snow geese gather on the Delta's Twitchell Island where wetland restoration projects and new waterside habitat features are planned, photo courtesy CA Department of Water Resources.

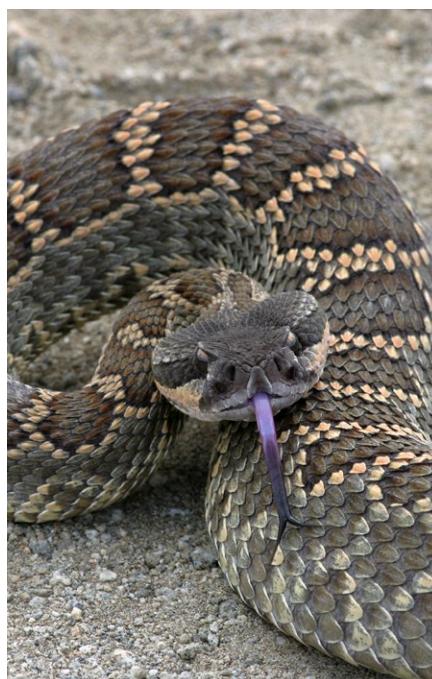
## Colorado River Salinity Control Forum

The Colorado River Basin Salinity Control Forum is an organization of the seven Colorado River Basin states of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming. The purpose of the forum is to coordinate salinity control efforts among the states; coordinate with federal agencies on the implementation of the Colorado River Basin Salinity Control Program; and work with Congress on the authorization and funding of the program. The forum funds efforts to reduce salt loading to the Colorado River, as well as disseminates information on salinity control. Metropolitan holds the vice chair position on the forum's board and participates in the forum's technical workgroup activities. In 2017, the forum's salinity control measures removed about 1.33 million tons of salt from the Colorado River. This translates to more than a 100 mg/L reduction in salinity concentration in the Colorado River's lower basin and Metropolitan's Colorado River Aqueduct supplies. Planned projects are expected to control an additional 63,500 tons per year by 2020.

A Pacific Rattlesnake.

## Multi-State Salinity Coalition

The Multi-State Salinity Coalition is a consortium of water agencies from across the country promoting information exchange on salinity management and desalination issues. A founding member, Metropolitan serves on the coalition board of directors. Metropolitan sponsored MSSC's Annual Salinity Summit held in Las Vegas in February 2018. The summit discussed a range of topics including salinity concentrate and management, watershed management, international projects, revenue stability, potable reuse and innovative salinity management strategies.



## Sacramento-San Joaquin Delta

### Habitat Restoration

Metropolitan participates in a Yolo Bypass working group dealing with compliance for a Biological Opinion for the State Water Project and Central Valley Project. It is also a cooperating agency for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project Environmental Impact Report/ Environmental Impact Statement, a comprehensive federal/state planning process to address BiOp requirements for enhanced access to salmonid rearing habitat and increased passage for adult salmonids and sturgeon. In fiscal year 2017/18, Metropolitan worked with the California Department of Water Resources, the U.S. Bureau of Reclamation, and local stakeholders to review the science and modeling used to develop project alternatives, and reviewed and provided comments on the public review Draft EIR/EIS, which was released for public review in October 2017. The final EIR/EIS is expected in early January 2019.

Metropolitan also continued working with the State and Federal Contractors Water Agency and DWR to develop the Tule Red Restoration Project in Suisun Marsh to restore tidal marsh wetlands. Fiscal year 2017/18 activities focused on permitting and earthwork at the restoration site. The Tule Red project is expected to provide benefits to native fish species.

## **Municipal Water Quality Investigations Program**

Metropolitan continues to support DWR's Municipal Water Quality Investigations Program, which implements water quality monitoring and special studies in the Delta and its tributaries. In fiscal year 2017/18, this program operated five real-time water quality monitoring stations, completed seasonal water quality forecasts, and conducted pre-habitat restoration baseline water quality monitoring in the Cache Slough watershed. The MWQI program also conducted a special study to evaluate the degradation of an herbicide used to treat aquatic weeds in Clifton Court Forebay.

## **Delta Nutrient Impact Studies**

To support studies and management actions that address the impact of nutrients and other water quality stressors in the Delta watershed, Metropolitan continues to work with state and federal water contractors. Metropolitan participated in the Delta Regional Monitoring Program, and in the Central Valley and San Francisco Bay Regional Water Quality Control Boards' nutrient management programs.

## **Battle Creek Salmon and Steelhead Restoration Project**

A partnership project between Pacific Gas and Electric Company, the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service and California Department of Fish and Wildlife is one of the largest cold water fish restoration efforts in North America. Metropolitan supported and financially assisted this project, which is restoring almost 50 miles of habitat in Battle Creek and Battle Creek tributaries within the Sacramento River watershed for threatened and endangered winter- and spring-run Chinook salmon and steelhead, while maintaining the continued production of hydroelectric power at the Battle Creek Hydroelectric Project. Construction is anticipated to be complete by 2023.

**A cloud-capped view of the Colorado River.**





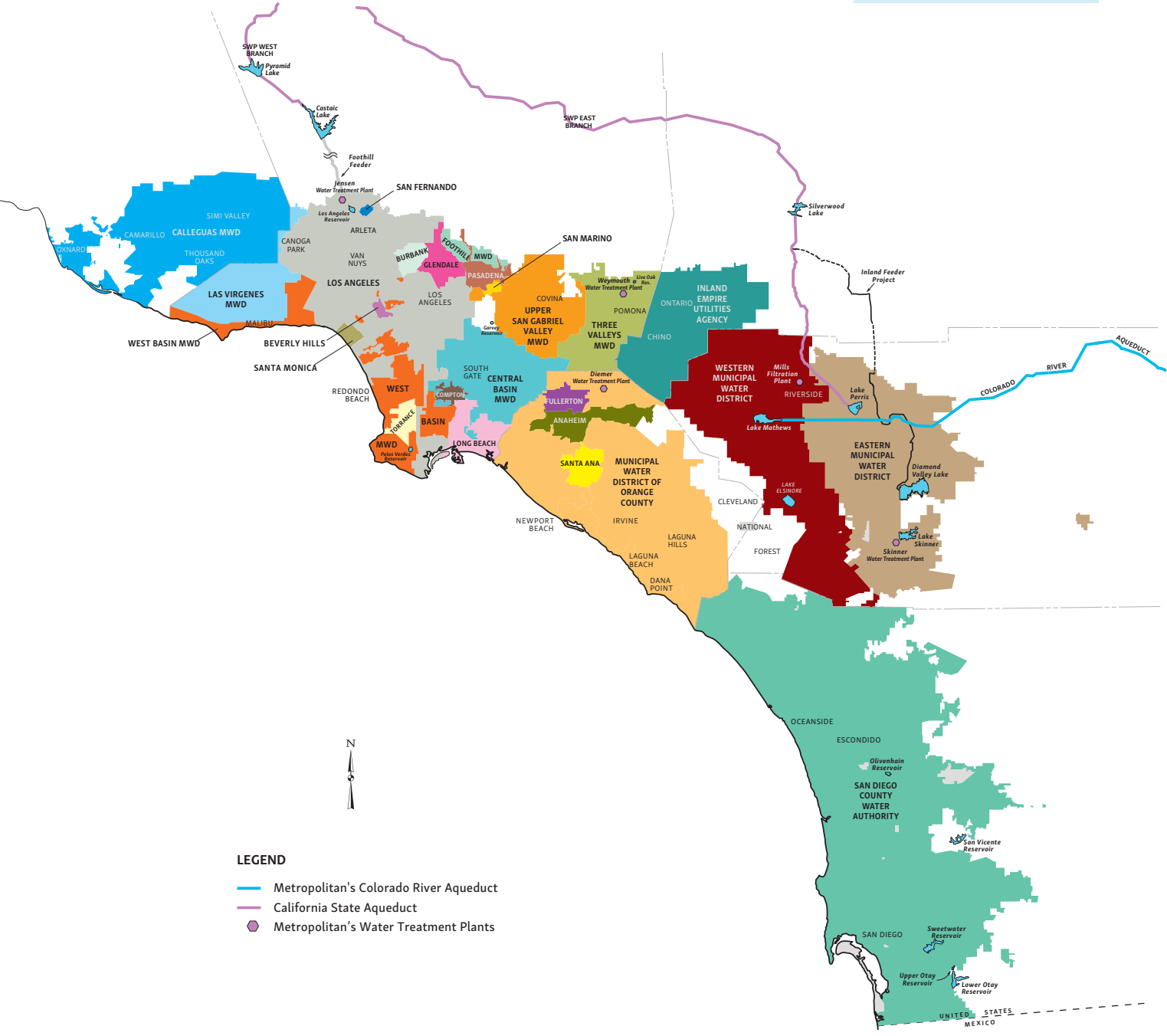
**Rain barrels are eligible for rebates from Metropolitan and capture rainwater for outdoor garden irrigation.**

## About This Report

Every year, Metropolitan reports its accomplishments in water conservation, recycling and groundwater recharge to the state Legislature. To coincide with the report preparation, the MWD Act requires Metropolitan to “hold an annual public hearing... during which the district shall review its urban water management plan... for adequacy in achieving an increased emphasis on cost-effective conservation, recycling, and groundwater recharge.” While the Urban Water Management Plan is prepared and updated every five years according to state requirements (with the next update due in July 2021), Metropolitan hosts an annual December hearing to share progress on fiscal year plan objectives, and to receive public comments. Metropolitan held a public hearing on December 10, 2018 to receive public and stakeholder input. Comments received at the hearing are on file at Metropolitan and are available upon request.



# METROPOLITAN'S MEMBER AGENCIES





City of Anaheim



City of Beverly Hills



City of Burbank



City of Compton



City of Fullerton



City of Glendale



City of Long Beach



City of Los Angeles



City of Pasadena



City of San Fernando



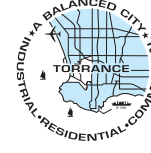
City of San Marino



City of Santa Ana



City of Santa Monica



City of Torrance



Calleguas Municipal Water District



Central Basin Municipal Water District



Eastern Municipal Water District



Foothill Municipal Water District



Inland Empire Utilities Agency



Las Virgenes Municipal Water District



Municipal Water District of Orange County



San Diego County Water Authority



Three Valley Municipal Water District



Upper San Gabriel Valley Municipal Water District



West Basin Municipal Water District



Western Municipal Water District of Riverside County

Metropolitan is a voluntary cooperative of 26 member agencies with a 38-member Board of Directors. Metropolitan board and committee meetings are open to the public and broadcast live through [mwdh2o.com](http://mwdh2o.com).



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