



# **LEADERS IN ENVIRONMENTAL STEWARDSHIP**

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## THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA





South Hills at Diamond Valley Lake

**The mission of the Metropolitan Water District of Southern California is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.**

### **METROPOLITAN'S ENVIRONMENTAL LEGACY**

It's easy to see why so many people love to call Southern California home. In addition to unmatched economic and cultural diversity, our region is blessed with stunning mountains and coastlines, parks and productive agricultural lands, and water resources that are vital to sustain our people, businesses, communities, farms and environment.

When we talk about the accomplishments of the Metropolitan Water District of Southern California, we focus on the tremendous achievements over the past three-quarters of a century to build and run some of the world's largest

man-made water systems that deliver clean, safe and reliable water supplies every hour of every day. But the equally important measure of our success is the value we place on environmental stewardship. This commitment is reflected in our mission and everything we do - our programs, our systems and operations, our investments and our future initiatives.

Our challenge is not just to ensure water supply reliability but to do so in an environmentally responsible, interconnected, comprehensive and efficient manner that will continue to benefit future generations.

This report highlights some of Metropolitan's many environmental accomplishments and investments to protect open spaces for native species and their habitat, manage the nation's largest water conservation program, address climate change risks and impacts, preserve cultural treasures and promote sustainable business practices.

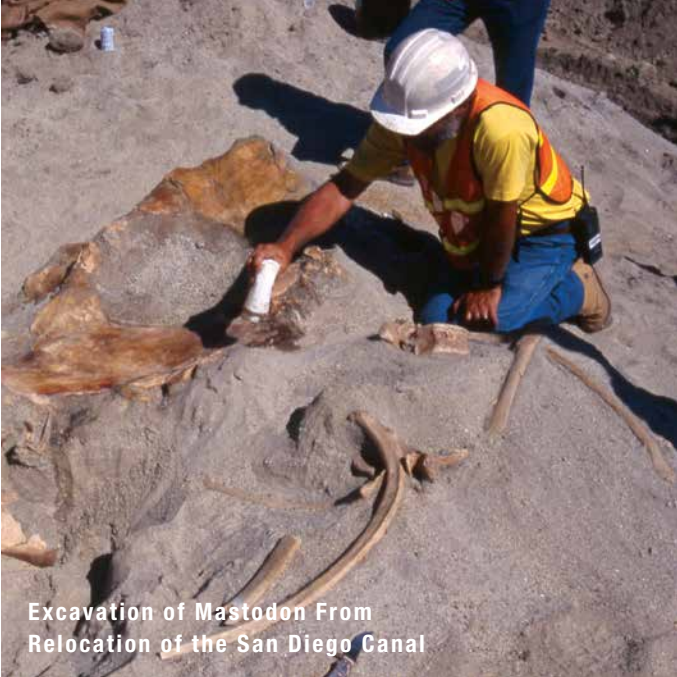
We invite you to learn more about Metropolitan's proud environmental legacy.

### **PRESERVING HABITAT AND HISTORY**

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Western Fence Lizard



Excavation of Mastodon From Relocation of the San Diego Canal



40-acre Upper Salt Creek Wetland Preserve in West Hemet

## PRESERVING SENSITIVE HABITAT AND CRITICAL ECOSYSTEMS

In the course of accomplishing its mission and mitigating for impacts of its projects and operations, Metropolitan establishes and manages open spaces, and partners with other organizations to preserve and support native species and habitat.



## ACCOMPLISHMENTS

### CREATING AND SUPPORTING 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 open space for native species and their habitat, trails for hiking and horseback riding, and opportunities for research and education.

#### Southwestern Riverside County Multi-species Reserve

Nearly 13,500 acres provides protection for habitat and many wildlife species with the connecting Shipley Reserve.

#### Upper Salt Creek Wetland Preserve

A 40-acre mitigation site for Diamond Valley Lake provides protection for unique vernal pool habitat and rare plants.

#### Santa Rosa Plateau Ecological Reserve

The 9,000-acre reserve is an innovative partnership with Riverside County, The Nature Conservancy and other conservation organizations. It is home to 200 species of native birds and 49 endangered, threatened or rare animals and plants including one rare species of fairy shrimp, which exists nowhere else on earth.

#### 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.

Quino Checkerspot Butterfly (previously thought to be extinct)



*“Our past, our present and our future are wrapped in a value that supports environmental sustainability. For this is the true legacy of the Metropolitan Water District of Southern California.”*

Metropolitan Board Chairman Randy Record

California Gnatcatcher



Audubon Cottontail



## ACCOMPLISHMENTS IN PRESERVING HABITAT AND ECOSYSTEMS (CONTINUED)

### **COLLABORATING ON HABITAT CONSERVATION EFFORTS**

The Shell/Metropolitan Habitat Conservation Plan is a multi-agency effort in Orange County to manage coastal sage scrub and cactus scrub habitat within 2,600 acres of Chino Hills State Park.

### **EXCHANGING LAND WITH THE U.S. FOREST SERVICE**

Metropolitan transferred nearly 900 acres of chaparral-covered hillside, pristine creeks and sycamore and alder trees to the San Bernardino National Forest in exchange for 40 acres of land used during construction of the Inland Feeder.

### **MITIGATING IMPACTS**

Biological mitigation for the Inland Feeder Project included revegetation of areas affected by construction and preservation of biological resources on-site and at existing ecological reserves.

### **PROTECTING SURFACE WATER FROM IMPACTS**

Extensive work goes into minimizing impacts on surface and groundwater resources during construction. For example, during tunneling activities in the San Bernardino Mountains, irrigation systems were built to replicate natural conditions for the plants and animals.

### **BENEFITING PLANTS AND WILDLIFE**

Metropolitan participates in the Orange County Central and Coastal Natural Communities Conservation Plan with 28,000 acres of protected open space managed to benefit plants and wildlife that define the character and natural diversity of the region.



## CREATING A SAFE AND CLEAN WATER SUPPLY

Safeguarding the quality of the Southland's drinking water is a core value of Metropolitan and essential to protecting public health. State-of-the-art treatment facilities and a commitment to applied research, monitoring and capital improvements ensure a safe and clean supply.



*“On any given day, there are hundreds of Metropolitan employees with a shared focus on the safety of Southern California’s drinking water. Together they ensure that Metropolitan’s water quality meets, or in many cases, is better than the requirements.”*

Metropolitan General Manager  
Jeffrey Kightlinger

## ACCOMPLISHMENTS

### PROTECTING WATER QUALITY AT THE SOURCE

Metropolitan invests in watershed protection programs because preventing contaminants from entering a public water system minimizes health risks, avoids additional water treatment, and reduces monitoring. Source water protection allows Metropolitan to reliably and cost-effectively comply with regulations and avoids the need for environmental cleanup actions.

### SAFEGUARDING DRINKING WATER QUALITY TO MEET ALL STANDARDS

For more than 75 years, Metropolitan has provided reliable drinking water that meets or surpasses all federal and state drinking water regulations. This involves testing for nearly 400 constituents and performing about 230,000 water quality tests annually.

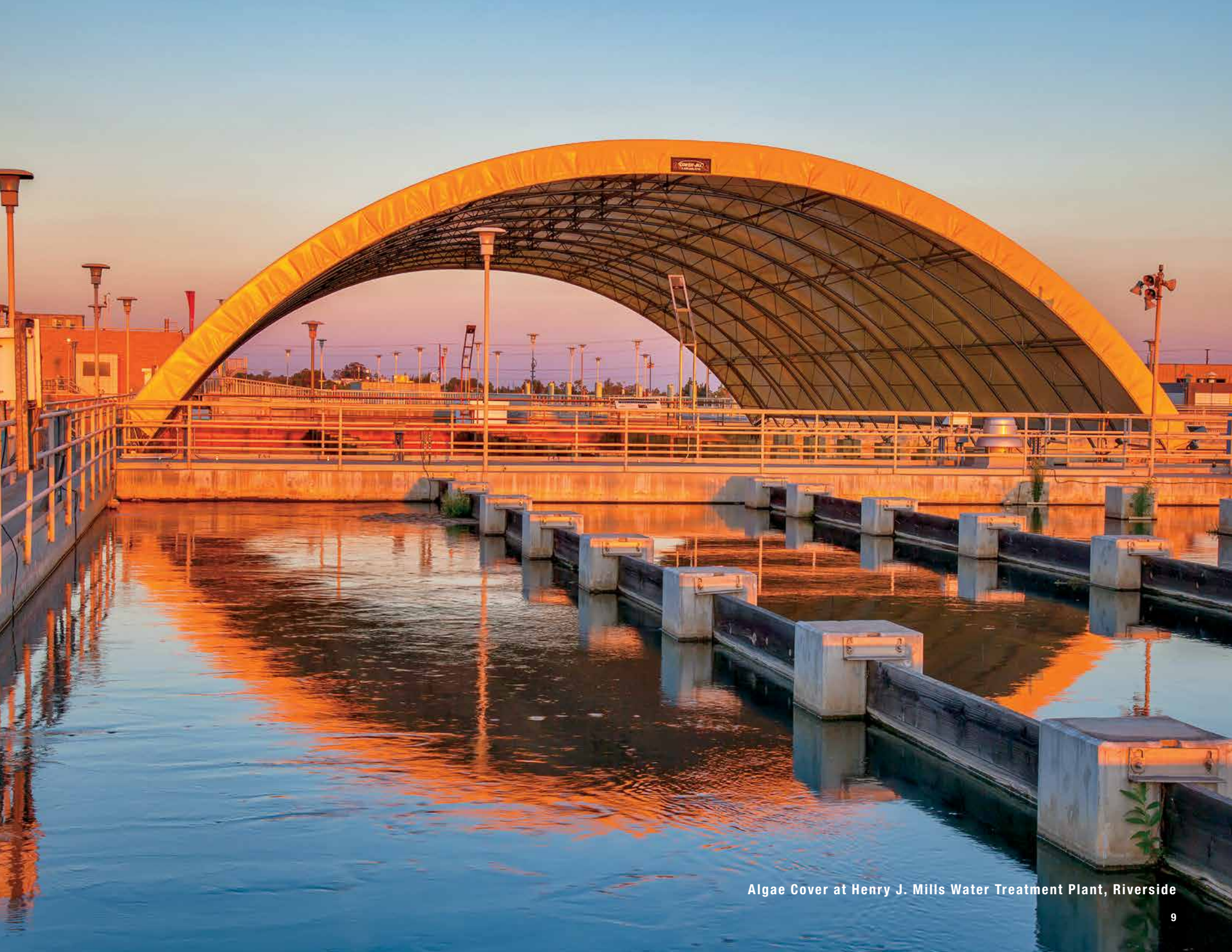
### ENLISTING STATE-OF-THE ART TREATMENT TECHNOLOGIES

Four of Metropolitan's five water treatment plants are among the 10 largest in the world. Work is nearly complete to retrofit all of the plants to an ozone process which is considered more effective than traditional chlorine disinfection, produces fewer byproducts, improves drinking water taste and smell, and reduces the need to store chlorine.

### CONTROLLING INVASIVE SPECIES

Aggressive action is being taken to manage the spread of invasive mussels, including quagga mussels. Tools to control quaggas include chlorination, old-fashioned hand labor by divers who scrape the mussels off underwater structures, and briefly drying out portions of the Colorado River Aqueduct system.





Algae Cover at Henry J. Mills Water Treatment Plant, Riverside





Great Blue Heron in the Yolo Bypass Wildlife Area  
*Photo Courtesy California Department of Water Resources*



## PROGRESS TO PROTECT THE DELTA

Metropolitan has a \$60 million annual share of investments in environmental activities in the Sacramento - San Joaquin Delta, the northern hub of the state's water system. To reach a balance between environmental and urban water needs, Metropolitan supports many programs that include ecosystem restoration, fish hatchery and mitigation projects, the Interagency Ecological Studies Program, water quality studies and environmental protection projects.



Bay Delta Waterway

*“California WaterFix has been subjected to 10 years of detailed analysis and more environmental review than any other project in the history of the world. It is absolutely essential if California is to maintain a reliable water supply.”*

Gov. Jerry Brown on the release of the Final Environmental Impact Reports, December 2016

## ACCOMPLISHMENTS

### **SUPPORTING BAY DELTA CONSERVATION PLAN/CALIFORNIA WATERFIX**

A comprehensive solution for the Delta is vital to restoring the ecosystem and water supply reliability for Southern California. Metropolitan is coordinating with state, federal and local water and wildlife agencies to evaluate how system improvements can best meet these co-equal goals that are critical to the state's economy and environment.

### **SUSTAINABLE LAND PRACTICES**

In July 2016, Metropolitan purchased five islands and tracts that represent an important investment for multiple potential activities to help restore the Delta, protect fish species and ensure a more reliable water supply for California. Metropolitan also is participating with the State and Federal Contractors Water Agency and DWR in funding projects to restore tidal and non-tidal wetlands, improve habitat, reduce carbon emissions and enhance water quality and reliability.

### **ADVANCING BAY-DELTA SCIENCE**

Expanding scientific studies that account for the many stressors in the Delta will continue to inform operational decisions, sometimes by incorporating real-time data. Studies include further exploration of food-web relationships, turbidity models and compliance monitoring activities related to fish populations.

### **FOLLOWING THROUGH ON COMMITMENTS**

Metropolitan's \$30 million financial support under the historic 1994 Bay/Delta Accord provided for projects related to habitat restoration, diversion improvements, and enhancements to help protect and restore endangered fisheries.

### **MAINTAINING OPERATIONAL FLEXIBILITY**

The new four-pumps agreement provides multiple benefits including enhanced fish protection and recovery for native Delta fish species.



## MANAGEMENT OF CULTURAL AND PALEONTOLOGIC RESOURCES

Studies were done and steps taken to document, and where possible, preserve cultural artifacts and fossils prior to and during construction of Metropolitan facilities. Some of the largest and most important projects include Diamond Valley Lake, the Inland Feeder, a section of San Diego Pipeline No. 6 and Metropolitan's headquarters facility in downtown Los Angeles.



Archaeology Site at  
Diamond Valley Lake

*“This is unbelievably important. You can get down on your knees and pray for this sort of thing, but it doesn't usually help.”*

Eric Scott, field supervisor of the paleontological team at DVL on the discovery of mastodon “Little Stevie.”

## ACCOMPLISHMENTS

### UNCOVERING EARLY LOS ANGELES HISTORY

Metropolitan's headquarters is located on 400 years of Los Angeles history. In addition to unearthing artifacts from Mexican, Chinese, and American settlers in Los Angeles, headquarters construction uncovered prehistoric Native American burials. Metropolitan consulted with the Gabrieleño Tongva tribe to reinter the remains with appropriate respect.

### MAINTAINING HISTORIC INTEGRITY

Eligible for listing in the California Register of Historical Resources, the F. E. Weymouth Water Treatment Plant is the iconic architectural face of Metropolitan. When modifications to structures are needed, significant historical elements are preserved and matched to the original (where feasible), which includes light fixtures, moldings, roof and floor tiles, window panels and guard rails.

### PRESERVING DISCOVERIES

The vast artifact and fossil collections resulting from the excavation at DVL inspired the development of the Western Science Center at the project site. The facility, constructed in cooperation with UC Riverside, houses materials from hundreds of prehistoric and historic-era finds including Ice Age mastodons, prehistoric villages and rock art features and historic adobes and homesteads.

### INSTITUTING BEST MANAGEMENT PRACTICES

Every effort is made to ensure the preservation of historical attributes of the Colorado River Aqueduct and its related facilities. It has been determined eligible for both the California Register of Historical Resources and the National Register of Historic Places.

### RESPECTING CULTURAL TRADITIONS

Metropolitan works closely with communities, including Native Americans, to respectfully address their cultural values and traditions, most importantly in the handling of burial grounds when encountered during construction.

“Little Stevie” the mastodon is estimated to have weighed about four tons and is among the 3,000 fossils found during DVL site excavation





Fossil Excavation in the Shadow of Construction at Diamond Valley Lake

## DEVELOPING RENEWABLE ENERGY AND ADDRESSING CLIMATE CHANGE

The far-felt impacts of climate change underline the need to develop renewable energy and commit to more sustainable business practices.



Electric Vehicle Charging Station at MWD Headquarters

*“Recycled water projects will provide a permanent, climate change resilient water supply for the region.”*

WaterReuse California, Dec. 2015

## ACCOMPLISHMENTS

### HARNESSING SOLAR POWER

Californians have a strong commitment to renewable energy resources. The solar power facility at Metropolitan’s Skinner Water Treatment Plant generates 2 million kilowatt hours annually to offset nearly 2 million pounds of carbon dioxide. Other solar facilities include the Diamond Valley Lake Visitors’ Center, Jensen and Weymouth Water Treatment Plants.

### COMMITTING TO SUSTAINABILITY

Metropolitan’s board adopted a sustainability initiative that included a roster of new green business practices. This included achieving LEED (Leadership in Energy & Environmental Design) silver certification and earning an ENERGY STAR score of 97/100. A hybrid transportation fleet, electric vehicle charging stations, proximity to public transportation, and employee rideshare programs help reduce greenhouse gas emissions.

### PROMOTING SUSTAINABILITY RESOURCES

A college and university grant program (World Water Forum), as well as the business focused Innovative Conservation Program help promote innovation and push ideas into the marketplace. An annual Spring Green Expo and monthly newsletter provide tips and resources for living and working green.

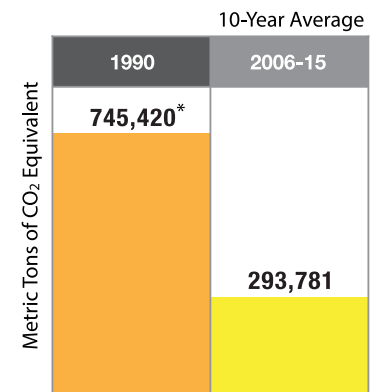
### PIONEERING THE USE OF RENEWABLE ENERGY

The use of renewable energy dates back to the beginnings of the Colorado River Aqueduct, which used hydroelectric power from Hoover and Parker dams to move water. Today, Metropolitan has 16 hydroelectric power plants.

### PROVIDING LEADERSHIP ON CLIMATE CHANGE

Metropolitan adopted energy management policies and was the first water agency to join the California Climate Change Action Registry, committed to report emissions data as part of an effort to help respond to the challenge of climate change.

Metropolitan reduced greenhouse gas emissions considerably since 1990. Since 1991, Metropolitan has not purchased electricity from any coal plants. The chart shows estimated 1990 greenhouse gas emissions compared to a 10-year average from 2006 to 2015.



Metropolitan Carbon Footprint (Greenhouse Gas Emissions)

\* Estimated





Solar Panels at Robert A. Skinner Water Treatment Plant, Riverside County



**Salmon Underwater**

*Photo Courtesy California Department of Water Resources*

## COLLABORATING OUTSIDE THE REGION

Metropolitan's commitment to sustainability and stewardship extends far beyond its service area. Taking a statewide view and working collaboratively with other agencies, organizations and communities to improve habitat and waterways has resulted in unprecedented investments to protect our land, water and wildlife for future generations.



### ACCOMPLISHMENTS: COLORADO RIVER

#### **BALANCING RESOURCE USE AND CONSERVATION**

Metropolitan is a partner in the Lower Colorado River Multi-Species Conservation Program, the gold standard for Endangered Species Act compliance.

#### **CREATING HABITAT**

As part of the Lower Colorado River Multi-Species Conservation Program, more than 8,100 acres of native habitat for wildlife species and fish is being created. The program benefits at least 26 species, most state or federally listed endangered, threatened, or sensitive species. More than 1.2 million native fish have been reared to augment existing populations.

### ACCOMPLISHMENTS: OROVILLE

#### **ADVANCING STEWARDSHIP OPPORTUNITIES**

Metropolitan is supporting the Lower Feather River Habitat Improvement Plan, an adaptive management plan to benefit threatened and endangered fish species. The plan was developed as part of a collaborative settlement agreement to operate the State Water Project Oroville Facilities for the next 50 years.

#### **PROTECTING TERRESTRIAL HABITAT**

Additional measures to improve terrestrial habitat in the area include protecting vernal pool habitat, minimizing disturbances to nesting bald eagles and California red-legged frogs, providing nest cover for waterfowl, and maintaining wildlife nesting boxes.



Red-Tailed Hawk

*“If others were as farsighted as Metropolitan when it comes to investing in a sustainable future, we would all be better off.”*

State Water Resources Control Board  
Chair Felicia Marcus



Metropolitan Sponsors Solar Cup™, the Nation's  
Largest Solar-Powered High School Boat Race

## ENSURING OUR LEGACY

Metropolitan was founded as a builder – the agency formed to engineer and build the Colorado River Aqueduct and bring water to Southern California. We build things, but we also build on a legacy of foresight, engineering acumen, and responsible planning.



Colorburst From a California Friendly™ Waterwise Garden

*“Our community of more than 300 homes believe it is important to set a good example to our city and to our country that we can be responsible citizens and still create a beautiful landscape.”*

Mountaingate Open Space Maintenance Association

## ACCOMPLISHMENTS

### PROMOTING LONG TERM TRANSFORMATIONS IN WATER USE

Since the early 1980s, investments of \$1 billion for water conservation, recycled water and groundwater recovery have led to a 25 percent per capita reduction in water use. Rebates and landscape ordinances championed by Metropolitan foster a market transformation which supports permanent water savings.

### EMPOWERING COMMUNITIES

Investing in programs and projects to protect the environment and safeguard watersheds is vital to our collective need for water reliability. Each year Metropolitan collaborates with communities, agencies and the public to support hundreds of important conservation initiatives, exhibits, water forums and events.

### TURNING AWARENESS INTO ACTION

Culturally focused outreach, creative social and traditional media, and research-based advertising in multiple languages have sparked a series of award-winning public awareness campaigns that have helped every community in the region become more water wise.

### EDUCATING CALIFORNIANS

Using engaging curriculum, cloud-based technologies and hands-on programs, Metropolitan’s education programs teach growing numbers of students about the importance of water quality, water use efficiency and conservation, and includes the annual Solar Cup™ competition.



## MAKING NEW PATHWAYS



*“For a century, California has pioneered innovations that have changed the way we all live. Without much fanfare, the state is doing that again, with water, moving to make standard what has been novel.”*

New York Times Opinion Piece  
Charles Fishman, Aug. 14, 2015

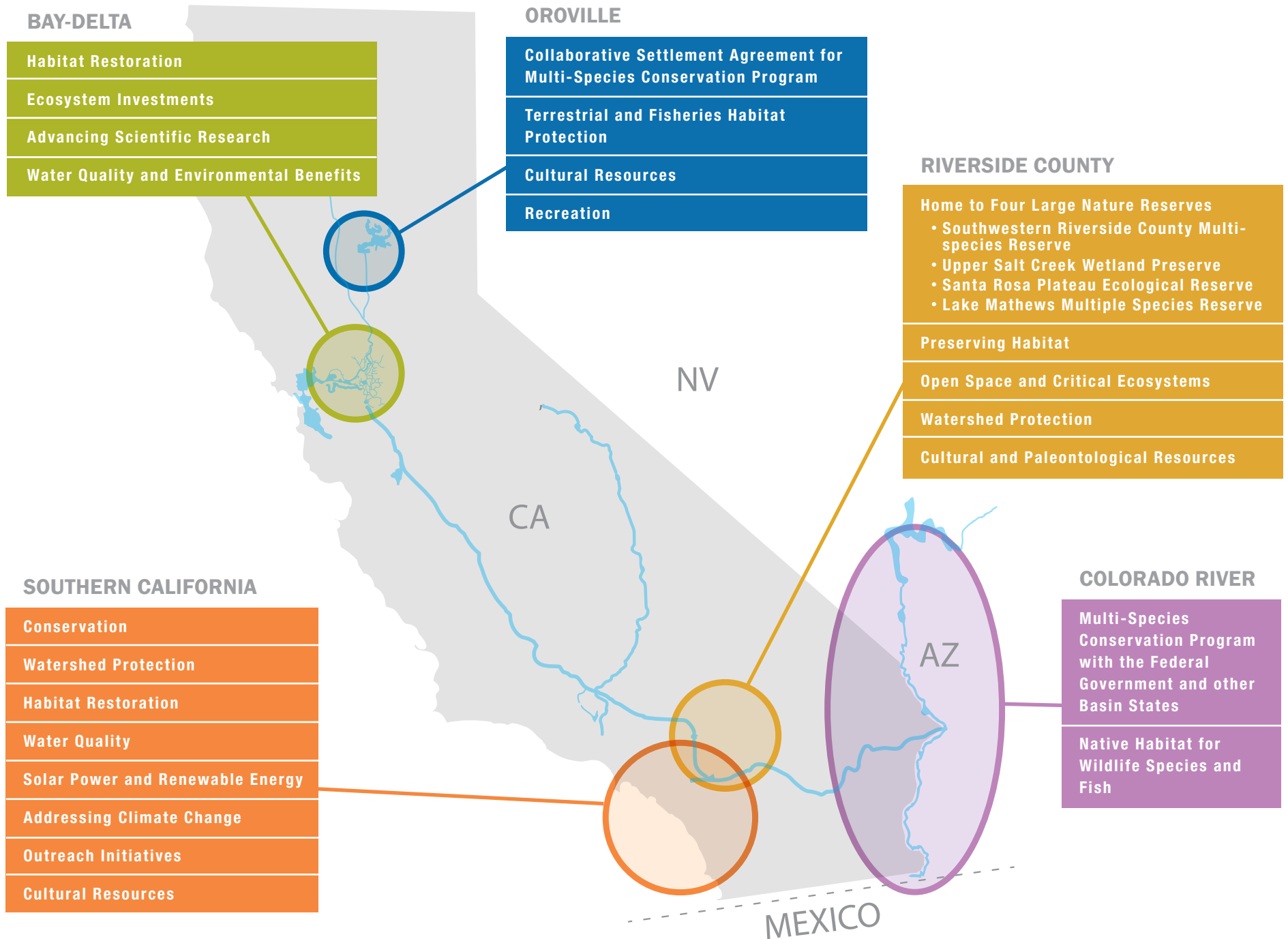
Metropolitan has long recognized the need to care for and preserve the environment. It started generations ago with an understanding that we as an organization have a fundamental responsibility to value water and other natural resources. That mission was first carried out by men and women from Metropolitan who were ahead of their time, demonstrating a true commitment to and passion for projects that protected the natural environment. It continues today with no less of a pioneering spirit by our employees, member agencies and stakeholders to advance programs that protect ecosystems and our water sources, adapt to climate change, respect the diversity of those we serve, and conserve water and energy.

Looking ahead, Metropolitan's tradition of leadership and stewardship will continue to grow with new opportunities and investments, new ideas and innovation, and new projects and initiatives that safeguard Southern California's treasured natural resources for generations to come. Our past, our present and our future are wrapped in a value that supports environmental sustainability. For this is the true legacy of the Metropolitan Water District of Southern California. And one to build on.

Western Kingbird



# METROPOLITAN INVESTS IN ENVIRONMENTAL PROGRAMS ACROSS CALIFORNIA





*THE METROPOLITAN WATER DISTRICT  
OF SOUTHERN CALIFORNIA*

[mwdh2o.com](http://mwdh2o.com)  
[bewaterwise.com](http://bewaterwise.com)

PHOTO CREDITS

Thank you to Bill Wagner for many of the images in this book. Bill is a contract biologist for Metropolitan's Environmental Planning Team. The EPT is responsible for environmental projects at Metropolitan facilities and reserves.

Other photographers include Tim Rue, Tom Bleicher, Larry LaCom and Joe Niehus.

