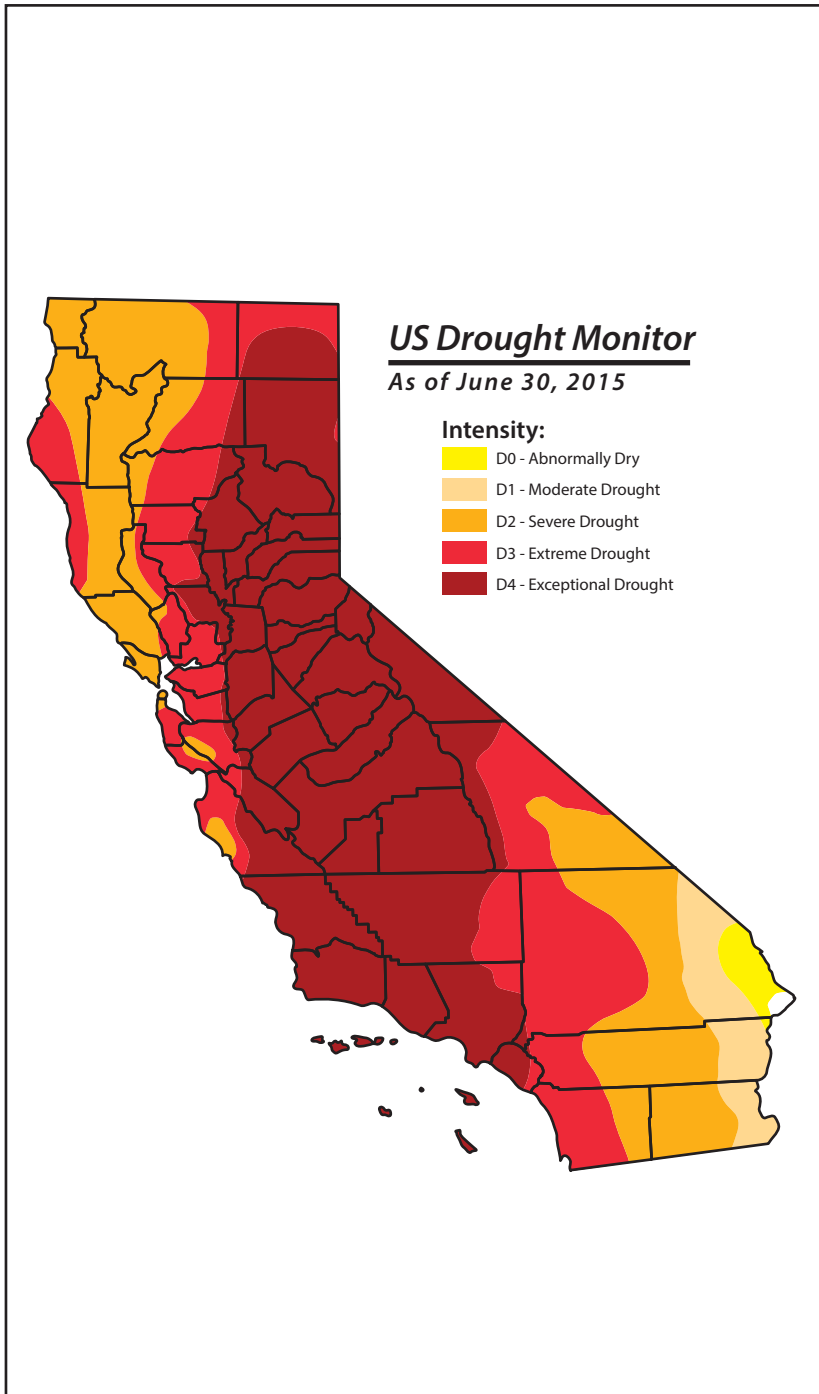


# THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA



## ANNUAL REPORT 2015



*As of June 2015, the U.S. Drought Monitor Map showed that most of California was in either extreme or exceptional drought conditions.*

**THE METROPOLITAN WATER DISTRICT  
OF SOUTHERN CALIFORNIA**

**ANNUAL REPORT FOR THE FISCAL YEAR**

*July 1, 2014 to June 30, 2015*



LOS ANGELES, CALIFORNIA  
2015

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## **LIST OF ABBREVIATIONS**

<b>Abbreviation</b>	<b>Term</b>
AB	Assembly Bill
AF	Acre-feet or acre-foot
BDCP	Bay Delta Conservation Plan
BTG	Business Technology Group
CalPERS	California Public Employee Retirement System
CARB	California Air Resources Board
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CFO	Chief Financial Officer
CIP	Capital Investment Plan
CRA	Colorado River Aqueduct
CVWD	Coachella Valley Water District
CY	Calendar year
D/DBP	Disinfectants/Disinfection Byproducts
DSC	Delta Stewardship Council
DVL	Diamond Valley Lake
DWR	Department of Water Resources
EEO	Equal Employment Opportunity
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FY	Fiscal year
GFOA	Government Finance Officers Association
GHG	Greenhouse gas
HAA5	Five haloacetic acids
HRIS	Human Resources Information System
IID	Imperial Irrigation District
IRP	Integrated Water Resources Plan
ICS	Intentionally Created Surplus
LRP	Local Resources Program
LT2	Long Term 2 Enhanced Surface Water Treatment Rule
MAF	Million acre-feet

## **LIST OF ABBREVIATIONS**

<b>Abbreviation</b>	<b>Term</b>
MCL	Maximum Contaminant Level
MIB	Methylisoborneol
MOU	Memorandum of Understanding
NDMA	N-Nitrosodimethylamine
OEHHA	Office of Environmental Health Hazard Assessment
O&M	Operations & Maintenance
RAA	Running Annual Average
RFP	Request for Proposal
RPDM	Real Property Development and Management
SB	Senate Bill
SDCWA	San Diego County Water Authority
SES	Safety and Environmental Services
SIFMA	Securities Industry & Financial Markets Association
SWP	State Water Project
SWRCB	State Water Resources Control Board
T&O	Taste and odor
TDS	Total dissolved solids
TOC	Total organic carbon
TTHM	Total trihalomethane
USBR	U.S. Bureau of Reclamation
USDOE	U.S. Department of Energy
USFWS	U.S. Fish and Wildlife Service
WIFIA	Water Infrastructure Financing & Innovation Act
WRM	Water Resource Management
WRRDA	Water Resources Reform & Development Act
WSO	Water System Operations





*In 2014/15, Metropolitan increased its conservation budget to \$450 million in response to a 20-fold increase in rebate requests, including the home above.*



*Metropolitan board room, May 2015.*

# About Metropolitan

**T**he Metropolitan Water District of Southern California is a regional wholesaler that delivers water to 26 member public agencies serving about 19 million people living in Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura counties.

Metropolitan is governed by a 37-member board of directors representing the 26 member agencies consisting of 14 cities, 11 municipal water districts and one county water authority, which collectively serve the residents and businesses of more than 300 cities and numerous unincorporated communities.

Metropolitan directors are selected by their respective member agencies and may serve on the board of that particular member agency. It is a diverse group drawn from a variety of sectors, including business, government, engineering and agriculture. The board operates under a weighted voting system, with voting share determined by assessed property valuation.

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.

To supply Southern California with reliable and safe water, Metropolitan owns and operates an extensive range of capital facilities including the Colorado River Aqueduct, 16 hydroelectric facilities, nine reservoirs, 830 miles of large-scale pipes, and five water treatment plants. Four of these treatment plants are among the 10 largest plants in the nation. In fact, Metropolitan is the largest distributor of treated drinking water in the United States.

The district imports water from the Colorado River and Northern California to supplement local supplies, and helps its member agencies develop increased water conservation, recycling, storage and other local resource programs.



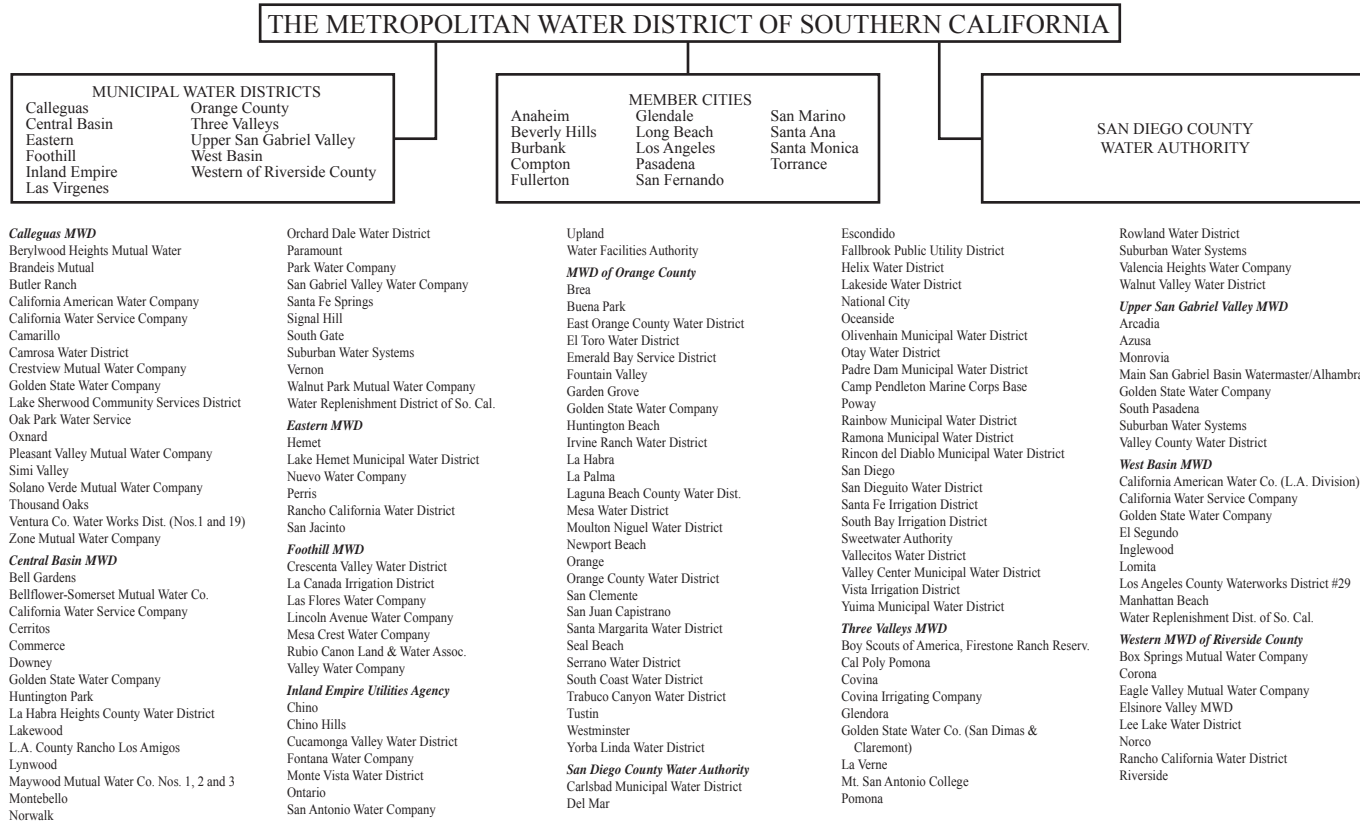
Metropolitan was established in 1928 under an act of the state Legislature to construct and operate the 242-mile Colorado River Aqueduct, which runs from an intake at Lake Havasu on the California-Arizona border, to an endpoint at Metropolitan's Lake Mathews reservoir in Riverside County.

When Metropolitan began delivering water, its service area consisted of approximately 625 square miles. Its service area has increased by 4,575 square miles since that time. The expansion is primarily the result of annexation of the service areas of member agencies.

In 1960, Metropolitan, along with 30 other public agencies, signed a long-term contract that made possible the construction of the State Water Project's 444-mile California Aqueduct, which currently serves urban and agricultural agencies from the San Francisco Bay Area to Southern California. As the largest of the State Water Contractors, Metropolitan contracts with the state Department of Water Resources, which operates the SWP, for slightly less than half of all State Water Project supplies.

Water supplies from the State Water Project travel to Southern California via the California Aqueduct. Metropolitan also has ground-water banking partnerships and water transfer arrangements that secure additional supplies, and provides financial incentives to its member agencies for local investments in water management projects and programs. An increasing percentage of Southern California's water supply comes from these local resources, including conservation, water recycling and recovered groundwater.

Metropolitan's Board of Directors typically meets on the second Tuesday of each month. Board committee meetings usually occur on the Monday preceding the board meeting, and the second and fourth Tuesday of the month. Board and committee meetings are open to the public and are broadcast on the Internet through Metropolitan's website, [www.mwdh2o.com](http://www.mwdh2o.com). A schedule of board and committee meetings is available on the website.



*Figure 1. Composition of The Metropolitan Water District of Southern California*

## **DIRECTORS**

**JUNE 30, 2015**



**Chairman**  
Randy A. Record  
*Eastern Municipal  
Water District*



**Vice Chair**  
Linda Ackerman  
*Municipal Water  
District of  
Orange County*



**Vice Chair**  
Gloria Gray  
*West Basin Municipal  
Water District*



**Vice Chair**  
John W. Murray Jr.  
*Los Angeles*



**Vice Chair**  
Michael Touhey  
*Upper San Gabriel  
Valley Municipal  
Water District*



**Secretary**  
John T. Morris  
*San Marino*

**DIRECTORS**  
**JUNE 30, 2015**



Judy Abdo  
*Santa Monica*



Robert Apodaca  
*Central Basin  
Municipal Water  
District*



Yvonne Arcenaux  
*Compton*



Richard W. Atwater  
*Foothill Municipal  
Water District*



Sylvia Ballin  
*San Fernando*



Brett R. Barbre  
*Municipal Water  
District of  
Orange County*



Peter A. Beard  
*Fullerton*



Steve Blois  
*Calleguas Municipal  
Water District*



Michael Camacho  
*Inland Empire  
Utilities Agency*



Glen C. Dake  
*Los Angeles*



Donald L. Dear  
*West Basin Municipal  
Water District*



David D. De Jesus  
*Three Valleys  
Municipal Water  
District*

**DIRECTORS**  
**JUNE 30, 2015**



Larry D. Dick  
*Municipal Water  
District of  
Orange County*



Stephen J. Faessel  
*Anaheim*



Laura Friedman  
*Glendale*



Donald Galleano  
*Western Municipal  
Water District of  
Riverside County*



Michael T. Hogan  
*San Diego County  
Water Authority*



Paul Koretz  
*Los Angeles*



Cynthia Kurtz  
*Pasadena*



Russell Lefevre  
*Torrance*



Keith Lewinger  
*San Diego County  
Water Authority*



Suja Lowenthal  
*Long Beach*



Michele Martinez  
*Santa Ana*



**DIRECTORS**  
**JUNE 30, 2015**



Larry McKenney  
*Municipal Water  
District of Orange  
County*



Glen D. Peterson  
*Las Virgenes  
Municipal Water  
District*



Jesús E. Quiñonez  
*Los Angeles*



Marsha Ramos  
*Burbank*



Fern Steiner  
*San Diego County  
Water Authority*



Yen C. Tu  
*San Diego County  
Water Authority*



Leticia Vasquez  
*Central Basin  
Municipal Water  
District*



Robert Wunderlich  
*Beverly Hills*

**BOARD OF DIRECTORS**  
**July 1, 2014 to June 30, 2015**

**OFFICERS OF THE BOARD**

Chairman.....	Randy A. Record
Vice Chair.....	Linda Ackerman
Vice Chair.....	Gloria Gray
Vice Chair.....	John W. Murray Jr.
Vice Chair.....	Michael Touhey
Secretary .....	John T. Morris

**MEMBERS OF THE BOARD**

Anaheim.....	Kristine L. Murray
Anaheim.....	Don Calkins
Anaheim.....	Stephen J. Faessel
Beverly Hills .....	Robert Wunderlich
Burbank.....	Glenn A. Brown
Burbank.....	Marsha Ramos
Calleguas Municipal Water District .....	Steve Blois
Central Basin Municipal Water District .....	Robert Apodaca
Central Basin Municipal Water District .....	Phillip D. Hawkins
Central Basin Municipal Water District .....	Leticia Vasquez
Compton .....	Yvonne Arceneaux
Eastern Municipal Water District .....	Randy A. Record
Foothill Municipal Water District.....	Richard W. Atwater
Fullerton.....	Jennifer Fitzgerald
Fullerton.....	Peter A. Beard
Glendale.....	Laura Friedman
Inland Empire Utilities Agency .....	Michael Camacho
Las Virgenes Municipal Water District .....	Glen D. Peterson
Long Beach.....	Suja Lowenthal
Los Angeles .....	Glen C. Dake
Los Angeles .....	Paul Koretz
Los Angeles .....	John W. Murray Jr.
Los Angeles .....	Jesús E. Quiñonez

# **BOARD OF DIRECTORS** **July 1, 2014 to June 30, 2015**

Municipal Water District of Orange County .....	Linda Ackerman
Municipal Water District of Orange County .....	Brett R. Barbre
Municipal Water District of Orange County .....	Larry D. Dick
Municipal Water District of Orange County .....	Larry McKenney
Pasadena .....	Cynthia Kurtz
San Diego County Water Authority.....	Michael Hogan
San Diego County Water Authority.....	Keith Lewinger
San Diego County Water Authority.....	Vincent Mudd
San Diego County Water Authority.....	Fern Steiner
San Diego County Water Authority.....	Yen C. Tu
San Fernando .....	Sylvia Ballin
San Marino.....	John T. Morris
Santa Ana.....	Daniel E. Griset
Santa Ana.....	Michele Martinez
Santa Monica .....	Judy Abdo
Three Valleys Municipal Water District.....	David D. De Jesus
Torrance .....	Russell Lefevre
Upper San Gabriel Valley	
Municipal Water District .....	Michael Touhey
West Basin Municipal Water District .....	Donald L. Dear
West Basin Municipal Water District .....	Gloria Gray
Western Municipal Water District	
of Riverside County .....	Thomas P. Evans
Western Municipal Water District	
of Riverside Country.....	Donald Galleano

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## **Note:**

This list includes all officers and members who served on the board at any time during the fiscal year.

**BOARD OF DIRECTORS**  
**MEMBERS OF STANDING COMMITTEES**  
**June 30, 2015**

**EXECUTIVE COMMITTEE**

Randy A. Record, Chair	Michael Camacho
Linda Ackerman, Vice Chair	David D. De Jesus
Gloria Gray, Vice Chair	Michael T. Hogan
John W. Murray Jr., Vice Chair	Cynthia Kurtz
Michael R. Touhey, Vice Chair	Glen D. Peterson
John T. Morris, Secretary	Jesús E. Quiñonez
Brett R. Barbre	

**COMMUNICATIONS AND LEGISLATION**

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Gloria Gray, Vice Chair	Russell Lefevre
Judy Abdo	Keith Lewinger
Linda Ackerman	Michele Martinez
Robert Apodaca	John T. Morris
Yvonne Arceneaux	John W. Murray Jr.
Sylvia Ballin	Glen D. Peterson
Brett R. Barbre	Yen C. Tu
Michael Camacho	Leticia Vasquez
Laura Friedman	

**ENGINEERING AND OPERATIONS**

Glen D. Peterson, Chair	Stephen Faessel
Steve Blois, Vice Chair	Donald Galleano
Brett R. Barbre	Russell Lefevre
Peter A. Beard	Suja Lowenthal
Michael Camacho	John T. Morris
Glen C. Dake	Fern Steiner
David D. De Jesus	

## **FINANCE AND INSURANCE**

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Robert Wunderlich, Vice Chair  
Robert Apodaca  
Steve Blois  
Glen C. Dake  
Donald L. Dear  
David D. De Jesus  
Stephen Faessel

Cynthia Kurtz  
Keith Lewinger  
Suja Lowenthal  
Michele Martinez  
Larry McKenney  
Marsha Ramos  
Michael Touhey

## **LEGAL AND CLAIMS**

Jesús E. Quiñonez, Chair  
Larry McKenney, Vice Chair  
Richard W. Atwater  
Michael Camacho  
Donald L. Dear

Larry D. Dick  
John W. Murray Jr.  
Fern Steiner  
Yen C. Tu  
Robert Wunderlich

## **ORGANIZATION, PERSONNEL AND TECHNOLOGY**

John W. Murray Jr., Chair  
Michael Camacho, Vice Chair  
Yvonne Arceneaux  
Sylvia Ballin  
Larry D. Dick  
Stephen Faessel

Laura Friedman  
Gloria Gray  
Michael T. Hogan  
Jesús E. Quiñonez  
Leticia Vasquez  
Robert Wunderlich

## **WATER PLANNING AND STEWARDSHIP**

David D. De Jesus, Chair  
Richard W. Atwater, Vice Chair  
Judy Abdo  
Linda Ackerman  
Michael Camacho  
Larry D. Dick  
Gloria Gray  
Paul Koretz

Keith Lewinger  
Michele Martinez  
John T. Morris  
Glen D. Peterson  
Jesús E. Quiñonez  
Fern Steiner  
Michael R. Touhey

# HISTORICAL ROLL OF DIRECTORS June 30, 2015

## ANAHEIM

A. W. Franzen .....	March 1, 1929 to April 11, 1930
O. E. Steward.....	April 18, 1930 to April 12, 1935
E. P. Hapgood.....	May 3, 1935 to June 14, 1960
Charles A. Pearson .....	July 12, 1960 to May 8, 1972
Keith A. Murdoch.....	June 13, 1972 to May 29, 1979
Joseph C. Truxaw .....	August 17, 1979 to November 20, 1990
Bob Kazarian .....	November 20, 1990 to July 12, 1994
Edward G. Alario .....	November 8, 1994 to April 14, 1998
S. Dale Stanton.....	April 14, 1998 to July 8, 2004
Tom Tait.....	July 8, 2004 to December 13, 2005
Marcie L. Edwards .....	December 13, 2005 to August 18, 2009
Kristine L. Murray.....	August 18, 2009 to August 20, 2014
Don Calkins.....	October 3, 2014 to June 8, 2015
STEPHEN J. FAESSEL .....	June 8, 2015 to

## BEVERLY HILLS

Paul E. Schwab.....	March 1, 1929 to June 19, 1931
George R. Barker.....	June 19, 1931 to August 2, 1935
Arthur Taylor.....	August 2, 1935 to August 2, 1951
Floyd E. Fischer .....	August 17, 1951 to December 2, 1977
Ellen Stern Harris .....	January 10, 1978 to March 10, 1981
Nicholas H. Cominos.....	March 10, 1981 to September 1, 1984
Mel Odom.....	January 11, 1983 to February 14, 1984
Ina S. Roth.....	February 14, 1984 to February 11, 1992
Dan Webster.....	March 10, 1992 to September 8, 1999
Betty H. Harris .....	September 8, 1999 to June 14, 2007
ROBERT WUNDERLICH .....	July 6, 2007 to

## BURBANK

Harvey E. Bruce .....	March 1, 1929 to February 11, 1933
James L. Norwood.....	March 10, 1933 to April 30, 1943
	May 9, 1947 to October 13, 1953
Frank C. Tillson.....	May 14, 1943 to May 9, 1947
Walter H. Long.....	October 13, 1953 to June 13, 1961
Earle C. Blais.....	June 13, 1961 to June 11, 1985
Michael A. Nolan .....	June 11, 1985 to July 9, 1991
Larry L. Stamper .....	July 9, 1991 to June 6, 1995

Thomas H. McCauley .....	June 6, 1995 to December 16, 1998
Fred Lantz .....	January 12, 1999 to March 9, 1999
George E. Battey Jr. ....	March 9, 1999 to December 10, 2001
Glenn A. Brown .....	December 10, 2001 to January 13, 2015
MARSHA RAMOS .....	January 13, 2015 to

#### CALLEGUAS MUNICIPAL WATER DISTRICT

Richard Bard .....	January 10, 1961 to August 22, 1969
Carl E. Ward .....	September 16, 1969 to February 9, 1993
Vincent M. Hardy .....	October 14, 1980 to June 30, 1990
Patrick H. Miller .....	August 21, 1990 to February 1, 1999
Jeffrey A. Borenstein .....	April 7, 1999 to December 31, 2000
Ted Grandsen .....	February 9, 1993 to December 11, 2012
Gail Pringle .....	December 11, 2012 to March 10, 2014
STEVE BLOIS .....	March 10, 2014 to

#### CENTRAL BASIN MUNICIPAL WATER DISTRICT

Milo Dellmann .....	November 23, 1954 to November 23, 1983
Claire S. Thompson .....	November 23, 1954 to November 30, 1959
Frank H. Wheelock .....	November 23, 1954 to April 10, 1973
Victor H. York .....	November 23, 1954 to November 30, 1963
E. Thornton Ibbetson .....	December 8, 1959 to January 12, 1998
William H. Kent .....	October 10, 1961 to April 7, 1977
Carl Fossette .....	March 13, 1973 to May 30, 1986
Douglas W. Ferguson .....	June 14, 1977 to August 11, 1993
Leonis C. Malburg .....	July 8, 1986 to May 8, 1995
Gary A. Morse .....	August 11, 1993 to February 10, 1997
	January 5, 1999 to June 6, 2003
Jorge G. Castro .....	February 10, 1997 to March 9, 1999
Phillip J. Pace .....	May 8, 1995 to January 8, 2008
Richard F. Mayér .....	January 12, 1998 to January 5, 1999
Charles M. Treviño .....	March 9, 1999 to December 31, 2000
ROBERT APODACA .....	June 6, 2003 to August 18, 2009
	February 11, 2013 to
Phillip D. Hawkins .....	January 8, 2008 to February 11, 2013
	July 7, 2014 to February 10, 2015
Edward C. Vasquez .....	August 18, 2009 to July 13, 2010

Rudy C. Montalvo .....July 13, 2010 to February 11, 2013  
 LETICIA VASQUEZ.....February 11, 2013 to July 7, 2014  
 February 10, 2015 to

COASTAL MUNICIPAL WATER DISTRICT  
 (absorbed into MWDOC in 2001)

C. C. Cravath .....August 14, 1942 to January 22, 1957  
 Lynndon L. Aufdenkamp .....January 22, 1957 to February 12, 1991  
 James E. O'Connor .....December 7, 1976 to July 1, 1979  
 John Killefer .....January 12, 1982 to September 9, 1993  
 Wayne T. McMurray .....February 12, 1991 to December 31, 2000  
 Donald C. Simpson.....October 7, 1996 to December 9, 1996  
 Langdon W. Owen.....December 9, 1996 to January 17, 2001

COMPTON

C. A. Dickison .....July 17, 1931 to January 20, 1933  
 William H. Foster .....January 20, 1933 to June 28, 1935  
 Warren W. Butler .....June 28, 1935 to January 24, 1980  
 Regina Murph.....March 11, 1980 to March 25, 2003  
 Kenneth M. Orduna .....April 8, 2003 to January 14, 2004  
 Isadore Hall III .....February 9, 2004 to April 13, 2009  
 YVONNE ARCENEUX.....April 13, 2009 to September 14, 2010  
 March 11, 2014 to  
 Diana Sanchez .....September 14, 2010 to March 11, 2014

EASTERN MUNICIPAL WATER DISTRICT

Irwin E. Farrar .....August 31, 1951 to March 1, 1982  
 Doyle F. Boen.....March 9, 1982 to October 11, 1994  
 Chester C. Gilbert.....October 11, 1994 to June 1, 1999  
 Clayton A. Record Jr. ....June 1, 1999 to January 9, 2001  
 Marion V. Ashley .....January 9, 2001 to January 6, 2003  
 RANDY A. RECORD.....January 14, 2003 to

FOOTHILL MUNICIPAL WATER DISTRICT

Nelson Hayward .....February 8, 1955 to July 4, 1959  
 Conrad R. Fanton .....November 10, 1959 to November 2, 1964  
 A. B. Smedley .....April 13, 1965 to August 1, 1990



Brooks T. Morris..... September 11, 1990 to November 27, 1991  
 William T. O'Neil ..... January 14, 1992 to May 10, 1999  
 James T. Edwards ..... May 10, 1999 to April 1, 2014  
 RICHARD W. ATWATER ..... April 3, 2014 to

#### FULLERTON

Walter Humphreys ..... April 10, 1931 to January 19, 1945  
 H. H. Kohlenberger..... July 27, 1945 to March 7, 1959  
 Hubert C. Ferry ..... February 23, 1960 to February 8, 1983  
 Norman L. De Vilbiss ..... February 8, 1983 to April 12, 1988  
 James H. Blake ..... August 23, 1988 to August 3, 2012  
 Thomas Babcock..... September 6, 2012 to February 11, 2014  
 Jennifer Fitzgerald ..... February 11, 2014 to July 7, 2014  
 PETER A. BEARD..... July 7, 2014 to

#### GLENDALE

W. Turney Fox..... March 1, 1929 to November 27, 1931  
 Samuel G. McClure ..... November 27, 1931 to January 13, 1933  
 Frank P. Taggart ..... January 13, 1933 to August 31, 1934  
 Bernard C. Brennan ..... August 31, 1934 to April 23, 1937  
 Herman Nelson ..... June 4, 1937 to August 27, 1954  
 Paul L. Burkhard..... September 28, 1954 to June 10, 1958  
 Normal C. Hayhurst..... June 10, 1958 to June 9, 1970  
 Lauren W. Grayson..... June 9, 1970 to May 21, 1972  
 William H. Fell ..... June 13, 1972 to July 13, 1976  
 C. E. Perkins ..... July 13, 1976 to July 13, 1988  
 James M. Rez..... August 23, 1988 to March 9, 2009  
 Peter Kavounas ..... March 9, 2009 to December 8, 2009  
 LAURA FRIEDMAN..... December 8, 2009 to

#### INLAND EMPIRE UTILITIES AGENCY (formerly Chino Basin MWD)

A. C. Reynolds..... February 12, 1952 to March 12, 1963  
 Ray W. Ferguson ..... March 12, 1963 to December 31, 1980  
 Carl B. Masingale ..... March 10, 1981 to August 9, 1984  
 John G. Gilday ..... September 11, 1984 to February 15, 1985  
 Edward A. Girard..... March 12, 1985 to May 31, 1990  
 Anne W. Dunihue ..... September 20, 1988 to February 11, 1992

Bill M. Hill .....	August 21, 1990 to February 9, 1999
Dwight F. French.....	February 11, 1992 to August 18, 1994
Wyatt L. Troxel .....	August 19, 1994 to November 14, 2003
Gene Koopman.....	February 9, 1999 to December 31, 2000
	November 14, 2003 to February 10, 2009
Angel Santiago .....	February 10, 2009 to February 3, 2011
MICHAEL CAMACHO .....	February 3, 2011 to

#### LAS VIRGENES MUNICIPAL WATER DISTRICT

Earle Brookins .....	December 13, 1960 to March 26, 1963
A. Myron McBride .....	March 26, 1963 to May 11, 1965
A. Macneil Stelle .....	June 8, 1965 to October 23, 1967
	March 11, 1975 to February 9, 1993
Whitney P. Reeve .....	December 19, 1967 to March 11, 1975
GLEN D. PETERSON .....	February 9, 1993 to

#### LONG BEACH

Nowland M. Reid .....	April 10, 1931 to January 27, 1933
W. M. Cook .....	January 27, 1933 to April 30, 1943
Gus A. Walker .....	April 30, 1943 to December 31, 1976
Lloyd C. Leedom.....	May 9, 1947 to June 30, 1979
Samuel C. Rue .....	October 9, 1979 to March 12, 1985
Ida Frances Lowry.....	March 12, 1985 to February 9, 1993
Henry J. Meyer .....	February 9, 1993 to August 19, 1997
Helen Z. Hansen .....	August 19, 1997 to May 13, 2008
SUJA LOWENTHAL .....	May 13, 2008 to

#### LOS ANGELES

John R. Haynes.....	March 1, 1929 to February 4, 1930
John R. Richards.....	March 1, 1929 to October 28, 1947
W. P. Whitsett .....	March 1, 1929 to January 10, 1947
John G. Bullock.....	November 1, 1929 to September 15, 1933
O. T. Johnson Jr.....	November 5, 1929 to August 29, 1930
W. L. Honnold.....	February 28, 1930 to July 21, 1933
J. Eisner .....	August 29, 1930 to July 2, 1937
Walter A. Ham .....	January 20, 1933 to January 4, 1935
D. W. Pontius .....	January 20, 1933 to September 3, 1955
Perry H. Greer .....	July 21, 1933 to August 14, 1950

V. H. Rossetti.....	October 13, 1933 to November 19, 1960
Otto J. Emme .....	January 11, 1935 to October 22, 1947
Louis S. Nordlinger.....	August 13, 1937 to June 8, 1940
Joseph Jensen.....	August 16, 1940 to February 3, 1944
	March 8, 1946 to July 8, 1974
Ransom W. Chase.....	March 14, 1947 to February 11, 1975
Gordon B. Crary .....	March 14, 1947 to November 8, 1959
Howard D. Mills .....	March 14, 1947 to March 17, 1965
W. R. Fawcett .....	May 13, 1952 to November 27, 1953
Luther C. Anderson.....	January 12, 1954 to February 11, 1975
Noah Dietrich.....	November 8, 1955 to November 23, 1970
Ferdinand Mendenhall .....	July 29, 1958 to October 8, 1974
Ben P. Griffith.....	August 9, 1960 to June 7, 1961
Pietro Di Carlo .....	February 14, 1961 to November 7, 1967
William S. Peterson .....	February 14, 1961 to August 10, 1979
Aubrey E. Austin Jr.....	February 28, 1961 to May 13, 1975
Albert F. Bush.....	November 14, 1961 to February 11, 1975
John W. Luhring .....	January 16, 1962 to August 8, 1967
Joseph M. Quinn.....	May 14, 1968 to September 18, 1973
B. Walter Hicks.....	May 8, 1973 to August 20, 1974
Samuel B. Nelson .....	September 18, 1973 to October 9, 1984
Katherine B. Dunlap .....	August 20, 1974 to September 11, 1984
Jerry Godell.....	October 8, 1974 to October 9, 1984
Edward L. Kussman.....	October 8, 1974 to November 8, 1993
Herman Leavitt .....	February 11, 1975 to August 19, 1975
Yolanda M. Nava .....	February 11, 1975 to September 14, 1976
S. Dell Scott .....	February 11, 1975 to October 12, 1993
Willie J. Stennis .....	May 13, 1975 to December 31, 1978
Mladin Zarubica.....	August 19, 1975 to March 16, 1981
Soledad S. Garcia.....	September 14, 1976 to September 11, 1984
Mark Lainer .....	November 13, 1979 to February 12, 1991
Mark Nathanson.....	April 14, 1981 to September 11, 1984
Michael Glazer.....	September 11, 1984 to April 9, 1991
Helen Romero Shaw .....	September 11, 1984 to November 8, 1993
Marilyn L. Garcia.....	October 9, 1984 to February 9, 1993
Rachel Levin.....	October 9, 1984 to April 4, 1989
Frank S. Wyle .....	October 9, 1984 to August 1, 1991
Robert Abernethy.....	April 4, 1989 to October 13, 1992
	February 9, 1993 to November 8, 1993
Vernon R. Watkins.....	February 12, 1991 to August 20, 1992

Alf W. Brandt.....	April 9, 1991 to February 13, 1996
Michael J. Gage.....	August 1, 1991 to September 21, 1993
Carolyn L. Green.....	August 20, 1992 to December 31, 1995
	April 30, 1996 to May 16, 1997
William G. Luddy.....	October 13, 1992 to May 10, 2005
George Wein.....	October 12, 1992 to August 20, 2002
David Y. Handelman.....	November 8, 1993 to November 14, 1995
Kenneth T. Lombard.....	November 8, 1993 to April 11, 1995
Katherine W. Moret.....	November 8, 1993 to December 31, 2000
Christopher C. Pak.....	November 8, 1993 to December 19, 1995
Bonny L. Herman.....	April 11, 1995 to April 12, 2004
Larry J. Kosmont.....	February 13, 1996 to December 31, 2000
Aaron E. Michaelsen.....	February 13, 1996 to January 13, 1997
L. Michael Russell.....	June 11, 1996 to January 12, 1998
S. David Freeman.....	January 12, 1998 to December 31, 2000
Ronald R. Gastelum.....	January 12, 1998 to November 10, 1998
Jorge G. Castro.....	June 7, 1999 to October 7, 2003
Deborah Dentler.....	August 20, 2002 to January 6, 2006
David Farrar.....	October 7, 2003 to January 6, 2006
Robert B. Simonds.....	April 12, 2004 to January 6, 2006
Ronald F. Deaton.....	May 10, 2005 to January 6, 2006
Aaron A. Grunfeld.....	January 6, 2006 to May 12, 2014
JOHN W. MURRAY JR.....	January 6, 2006 to
JESÚS E. QUIÑONEZ.....	January 6, 2006 to
Nancy Sutley.....	January 6, 2006 to May 12, 2009
David W. Fleming.....	May 12, 2009 to January 14, 2014
PAUL KORETZ.....	January 14, 2014 to
GLEN C. DAKE.....	May 12, 2014 to

#### MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Glenn P. Allen.....	December 11, 1951 to December 17, 1986
W. B. Hellis.....	August 19, 1955 to February 9, 1975
William J. Teague.....	February 11, 1969 to October 10, 1972
Robert R. Dowling.....	September 14, 1971 to May 11, 1976
Doyle Miller.....	October 10, 1972 to October 31, 1987
Carl J. Kymla.....	October 9, 1973 to October 20, 1993
Philip J. Reilly.....	December 9, 1975 to December 8, 1978
Gerald E. Price.....	May 11, 1976 to December 31, 1988
M. Roy Knauft Jr.....	September 13, 1977 to January 12, 1993

Kenneth H. Witt.....	October 13, 1981 to December 31, 2000
William F. Davenport .....	January 13, 1987 to February 14, 1995
John V. Foley.....	August 22, 1989 to March 21, 2014
Wesley M. Bannister.....	January 12, 1993 to October 31, 2006
Jerry A. King.....	January 11, 1994 to July 21, 1999
Robert J. Huntley .....	February 14, 1995 to October 31, 1999
Peer A. Swan.....	August 31, 1999 to June 30, 2002
Ed Royce Sr. ....	February 7, 2000 to December 31, 2000
Langdon W. Owen .....	January 17, 2001 to April 24, 2003
Ergun Bakall .....	July 1, 2002 to December 8, 2009
LARRY D. DICK .....	August 12, 2003 to
Steve Anderson .....	January 30, 2007 to January 16, 2008
LINDA ACKERMAN .....	April 8, 2008 to
BRETT R. BARBRE .....	December 8, 2009 to
LARRY MCKENNEY .....	October 13, 2014 to

#### PASADENA

Franklin Thomas .....	March 1, 1929 to August 27, 1952
Morris S. Jones .....	September 16, 1952 to October 10, 1961
Robert B. Diemer .....	January 16, 1962 to October 27, 1966
Don C. McMillan.....	January 10, 1967 to October 26, 1975
Karl A. Johnson .....	December 9, 1975 to April 11, 1980
Martin Goldsmith.....	July 8, 1980 to June 11, 1985
Timothy F. Brick.....	June 11, 1985 to December 31, 2012
CYNTHIA KURTZ .....	April 8, 2013 to

#### SAN DIEGO COUNTY WATER AUTHORITY

Fred A. Heilbron.....	January 10, 1947 to February 14, 1973
J. L. Burkholder .....	January 24, 1947 to April 6, 1953
Richard S. Holmgren .....	August 11, 1953 to February 19, 1963
J. William Fisher.....	April 12, 1955 to October 11, 1955
Hans H. Doe.....	August 20, 1959 to October 20, 1986
Paul Beermann .....	February 19, 1963 to July 9, 1963
Harry Griffen .....	February 19, 1963 to October 13, 1997
George R. Henderson.....	August 13, 1963 to November 29, 1964
Ralph E. Graham.....	September 14, 1971 to January 14, 1975
	August 17, 1979 to June 28, 1982
Raymond E. Badger .....	September 18, 1973 to May 14, 1979
Lloyd L. Lee .....	November 20, 1973 to December 31, 1980

John M. Cranston .....	January 14, 1975 to December 31, 1986
John P. Starkey .....	January 13, 1981 to March 12, 1992
Michael D. Madigan .....	August 18, 1982 to October 13, 1992
Francesca M. Krauel .....	November 8, 1983 to August 20, 2001
John F. Hennigar .....	November 18, 1986 to October 31, 1989
Dale Mason .....	January 13, 1987 to February 8, 1999
Herbert H. Stickney .....	November 14, 1989 to April 13, 1993
Christine M. Frahm .....	April 14, 1992 to March 12, 1999
John M. Leach .....	October 13, 1992 to October 25, 1993
Joseph Parker .....	April 13, 1993 to January 11, 1999
	June 7, 1999 to February 10, 2009
Mark W. Watton .....	December 13, 1993 to January 12, 1998
	February 8, 1999 to May 14, 2001
Gordon W. Tinker .....	October 12, 1997 to December 31, 2000
Claude A. "Bud" Lewis .....	January 12, 1998 to December 7, 2006
James F. Turner .....	January 11, 1999 to December 31, 2000
	February 10, 2003 to August 17, 2004
Harold W. Ball .....	May 14, 2001 to February 10, 2003
George I. Loveland .....	October 15, 2001 to November 1, 2006
W.D. "Bud" Pocklington .....	August 17, 2004 to December 14, 2010
James H. "Jim" Bond .....	November 1, 2006 to February 10, 2009
James M. Barrett .....	December 7, 2006 to July 12, 2010
KEITH LEWINGER .....	February 10, 2009 to
FERN STEINER .....	February 10, 2009 to
Lynne L. Heidel .....	July 12, 2010 to November 5, 2012
James Bowersox .....	December 14, 2010 to December 12, 2011
Douglas Wilson .....	December 12, 2011 to August 27, 2013
Vincent Mudd .....	November 5, 2012 to October 13, 2014
MICHAEL T. HOGAN .....	August 27, 2013 to
YEN C. TU .....	October 13, 2014 to

#### SAN FERNANDO

Neville R. Lewis .....	December 14, 1971 to August 21, 1984
Pat J. Modugno .....	August 21, 1984 to August 8, 1986
Doude Wysbeek .....	December 9, 1986 to June 10, 1997
Sergio Rascon .....	June 10, 1997 to July 7, 2000
Hugo C. Mejia .....	July 7, 2000 to November 8, 2004
Steven Veres .....	November 8, 2004 to September 5, 2007
SYLVIA BALLIN .....	September 5, 2007 to

## SAN MARINO

Harry L. Heffner .....	March 1, 1929 to September 29, 1933
John H. Ramboz .....	September 29, 1933 to November 18, 1960
Howard A. Miller .....	January 10, 1961 to April 26, 1975
Preston Hotchkis .....	June 10, 1975 to September 10, 1986
Preston B. Hotchkis .....	March 10, 1987 to March 13, 1990
JOHN T. MORRIS .....	March 13, 1990 to

## SANTA ANA

S.H. Finley .....	March 1, 1929 to April 10, 1942
A. H. Allen .....	April 10, 1942 to December 10, 1968
Howard W. Crooke .....	December 10, 1968 to September 1, 1977
John Garthe .....	November 8, 1977 to July 9, 1991
Daniel H. Young .....	July 9, 1991 to December 31, 1993
Lee Harry .....	February 8, 1994 to April 8, 1997
Thom Coughran .....	April 8, 1997 to February 3, 2005
Daniel E. Grisct .....	February 3, 2005 to March 10, 2015
MICHELE MARTINEZ .....	March 10, 2015 to

## SANTA MONICA

George H. Hutton .....	March 1, 1929 to January 16, 1931
Arthur A. Weber .....	January 16, 1931 to October 12, 1934
William H. Carter .....	February 15, 1935 to March 13, 1936
Edmond S. Gillette .....	June 12, 1936 to January 8, 1937
Arthur P. Creel .....	January 8, 1937 to March 3, 1941
Samuel G. McClure .....	March 21, 1941 to November 14, 1947
Samuel J. Crawford .....	December 5, 1947 to September 15, 1959
Mark T. Gates .....	January 12, 1960 to July 12, 1972
Francis A. Goplen .....	August 18, 1972 to December 9, 1980
Robert Gottlieb .....	December 9, 1980 to December 8, 1987
Christine E. Reed .....	March 8, 1988 to April 24, 1996
JUDY ABDO .....	June 11, 1996 to

## THREE VALLEYS MUNICIPAL WATER DISTRICT

Hugh W. Stiles .....	December 8, 1950 to December 31, 1961
Arthur H. Cox .....	January 16, 1962 to April 16, 1974
William C. Leech .....	April 16, 1974 to February 9, 1982

William H. Koch .....	February 9, 1982 to February 12, 1985
Mel Harper .....	February 12, 1985 to February 18, 1986
Richard W. Hansen.....	June 10, 1986 to August 20, 1991
Bruce R. J. Milne.....	August 20, 1991 to February 10, 1997
Henry S. Barbosa.....	February 10, 1997 to February 20, 2002
DAVID D. DE JESUS.....	March 8, 2002 to

#### TORRANCE

John Dennis .....	March 17, 1931 to April 14, 1933
J. R. Jensen .....	April 14, 1933 to December 31, 1933
Charles T. Rippy.....	January 19, 1934 to August 8, 1950
George W. Stevens .....	September 22, 1950 to June 13, 1961
George A. Bradford.....	June 13, 1961 to October 13, 1964
George Vico .....	November 17, 1964 to August 13, 1968
Ben Haggott.....	August 13, 1968 to November 14, 1982
Marvin Brewer .....	March 8, 1983 to November 27, 1993
Bill D. Wright.....	March 8, 1994 to July 1, 2013
RUSSELL LEFEVRE .....	September 24, 2013 to

#### UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT

J. Ercel Cleminson.....	April 9, 1963 to January 30, 1964
Howard H. Hawkins .....	April 9, 1963 to December 31, 1989
	February 9, 1993 to March 4, 1997
Frank E. Vachon.....	March 10, 1964 to March 10, 1970
Robert T. Radford.....	March 10, 1970 to December 31, 1970
Travis L. Manning.....	January 12, 1971 to December 31, 1978
Burton E. Jones.....	January 9, 1979 to February 9, 1993
John E. Maulding .....	January 9, 1990 to February 9, 1993
Anthony R. Fellow .....	February 9, 1993 to February 10, 2009
	February 9, 2010 to July 19, 2011
Edward L. Chavez .....	August 30, 2011 to January 9, 2012
Frank F. Forbes.....	March 4, 1997 to December 31, 2000
R. William "Bill" Robinson.....	February 10, 2009 to February 9, 2010
Stephen Millard .....	January 9, 2012 to February 8, 2013
MICHAEL TOUHEY .....	February 8, 2013 to



## WEST BASIN MUNICIPAL WATER DISTRICT

Robert E. Austin .....	August 20, 1948 to October 21, 1968
Ben Haggott .....	March 10, 1953 to October 8, 1956
W. C. Farquhar.....	August 19, 1955 to July 13, 1976
T. V. Tallon.....	August 9, 1960 to April 9, 1963
Louis J. Alexander .....	August 13, 1963 to March 30, 1972
Charles D. Barker .....	September 10, 1963 to December 31, 2000
Einar C. Matson .....	November 12, 1968 to February 12, 1984
Lester E. Carlson.....	October 8, 1974 to September 2, 1988
E. L. Balmer.....	August 19, 1976 to May 23, 1989
Harold E. Crozier.....	October 25, 1988 to April 9, 1991
Charles L. Stuart .....	July 11, 1989 to April 11, 1995
Robert Goldsworthy.....	April 9, 1991 to March 8, 1994
Edward C. Little.....	March 8, 1994 to January 12, 1998
	January 5, 1999 to September 5, 2001
	April 9, 2007 to September 24, 2013
Bondie O. Gambrell.....	April 11, 1995 to February 10, 1997
Mark S. Dymally.....	February 10, 1997 to January 5, 1999
Carol W. Kwan .....	January 12, 1998 to January 5, 1999
	September 5, 2001 to April 9, 2007
Willard H. Murray Jr.....	January 5, 1999 to April 13, 2009
GLORIA GRAY .....	April 13, 2009 to
DONALD L. DEAR .....	September 24, 2013 to

## WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY

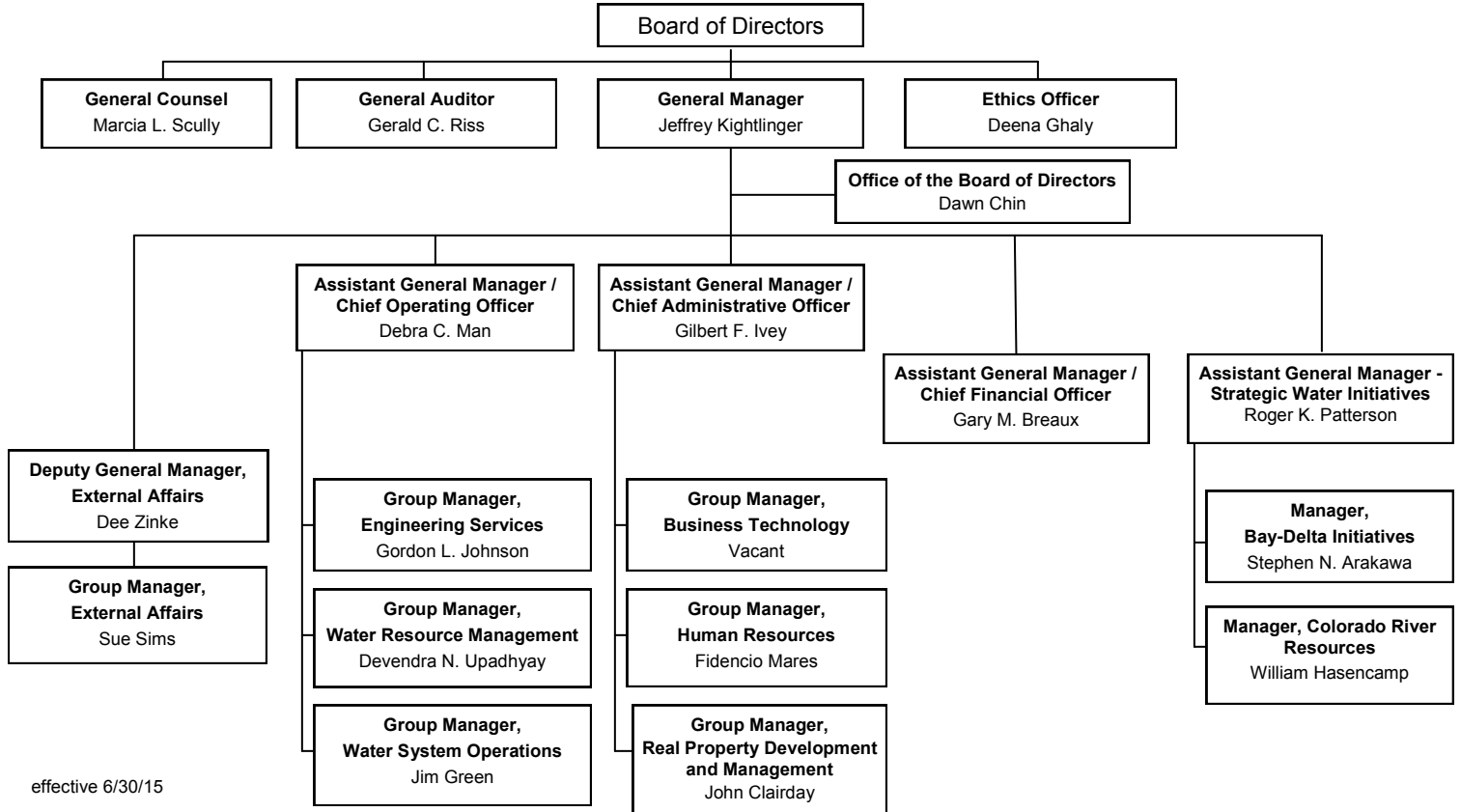
Howard Boylan .....	December 14, 1954 to July 13, 1976
Lois B. Krieger .....	August 19, 1976 to December 31, 2000
John M. Mylne III.....	October 12, 1993 to January 7, 2008
S.R. "Al" Lopez.....	January 7, 2008 to July 13, 2009
Thomas P. Evans.....	July 13, 2009 to May 11, 2015
DONALD GALLEANO .....	May 11, 2015 to

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### Notes:

Current Directors' names are shown in capital letters.

A 2001 reorganization reduced the number of directors on the board from 51 to 37.



effective 6/30/15

**STAFF**  
June 30, 2015

**EXECUTIVE MANAGEMENT**

General Manager.....	J. Kightlinger
General Counsel.....	M.L. Scully
General Auditor.....	G.C. Riss
Ethics Officer .....	D. Ghaly
Assistant General Manager/Chief Operating Officer .....	D. Man
Assistant General Manager/Chief Administrative Officer .....	G.F. Ivey
Assistant General Manager/Chief Financial Officer .....	G. Breaux
Assistant General Manager/Strategic Water Initiatives.....	R.K. Patterson
Deputy General Manager, External Affairs.....	D. Zinke

**BUSINESS TECHNOLOGY**

Group Manager .....	Vacant
Director, Information Technology Section.....	T. Miller
Manager, Administrative Services Section .....	O. Tucker
Manager, Business Outreach Section .....	J. Arena

**CHIEF FINANCIAL OFFICER**

Manager, Financial Services Section .....	K.R. Norris
Controller .....	H.S. Soper
Manager, Budget & Financial Planning .....	J.M. Skillman

**ENGINEERING SERVICES**

Group Manager/Chief Engineer .....	G. Johnson
Manager, Facility Development Section .....	M. Rojas
Manager, Infrastructure Reliability Section .....	J. Bednarski
Manager, Program Management Section .....	Vacant

**EXTERNAL AFFAIRS**

Group Manager .....	S. Sims
State Legislative Representative .....	K. Cole
Federal Legislative Representative .....	B. Hiltscher
Manager, Conservation & Community Services Section .....	Y.L. Martinez
Manager, Legislative Services Section .....	N. Purkiss
Manager, Media Services Section .....	A. Acuña
Executive Strategist.....	T. Philp
Special Projects Manager.....	M. Westford

**STAFF**  
June 30, 2015

**HUMAN RESOURCES**

Group Manager .....F. Mares  
Manager, Employee Relations Section ..... S. Lem  
Manager, Total Compensation Section .....D. Pitman

**LEGAL**

Assistant General Counsel.....H.C. Beatty  
Assistant General Counsel .....J.A. Vanderhorst

**OFFICE OF THE BOARD OF DIRECTORS**

Board Executive Secretary ..... D. Chin

**REAL PROPERTY DEVELOPMENT & MANAGEMENT**

Group Manager ..... J.C. Clairday

**STRATEGIC WATER INITIATIVES**

Manager, Bay-Delta Initiatives .....S.N. Arakawa  
Manager, Colorado River Resources..... W.J. Hasencamp  
Special Projects Manager..... B.W. Burman  
Special Projects Manager..... R.D. Neudeck  
Executive Strategist..... M.J. Wheeler

**WATER RESOURCE MANAGEMENT**

Group Manager .....D. Upadhyay  
Manager, Resource Implementation Section.....K. Donhoff  
Manager, Resource Planning & Development Section ..... G.L. Chan

**WATER SYSTEM OPERATIONS**

Group Manager .....J.F. Green  
Assistant Group Manager..... B. Coffey  
Manager, Conveyance & Distribution Section..... G. Boyd  
Manager, Operational Safety & Environmental Services Section.....B. Koch  
Manager, Operations Support Services Section ..... C. Spradling  
Manager, Power Operations & Planning Section.....J. Lambeck  
Manager, Water Operations & Planning Section .....B.M. Yamasaki  
Manager, Water Quality Section..... M.H. Stewart  
Manager, Water Treatment Section.....H. Collins



This 1938 depiction of Colorado River Aqueduct workers constructing the San Jacinto Tunnel was among the works of watercolorist Rex Brandt on display in Metropolitan's downtown Los Angeles headquarters.





*In the first appearance of a sitting governor before Metropolitan's Board of Directors, Gov. Jerry Brown praises Metropolitan's conservation efforts, June 2015.*

# Introduction

Unlike any drought year in history, the 2014/15 year tested the state and the Metropolitan Water District of Southern California as never before. As Sierra snowpack dwindled to virtually zero and communities in much of California endured extremely dry conditions, Metropolitan and its member agencies rose to the challenge by carefully managing available water supplies and promoting successful conservation activities, resulting in dramatic reductions in water use in homes and businesses. Metropolitan drew global attention as it launched the nation's largest water conservation program, including rebates for turf removal to accelerate the transformation of the conventional Southland landscape to one that embraces an outdoor aesthetic that is more appropriate for the region. The silver lining of this drought may turn out to be the remarkable opportunity to capitalize on the public's awareness of water conditions and conservation opportunities that has now positioned Southern California as a leader in sustainability.

Drought dominated the year's headlines, but progress also advanced on several other important water fronts. The effort to modernize the water system in the Sacramento-San Joaquin Delta and restore its struggling ecosystem evolved in important ways. Agreements on the Colorado River created a platform for partnerships between states and farming regions in the Lower Basin. Voters in November 2014 decisively approved a \$7.5 billion water bond that contained important matching funds for local and regional investments in water storage, water quality, and groundwater. And Metropolitan prepared to update its Integrated Water Resources Plan known as Water Tomorrow, a refined long-term strategy to meet demands in the face of ever-changing circumstances.

No water year is quiet. But 2014/15 marked a fourth year of drought in California and proved to be a constant challenge to deal with complex water management operations, policies and actions.

The year began with a media blitz in response to record public concern and media attention in the drought. Metropolitan invested in a

\$5.5 million multi-lingual regional communications outreach and advertising campaign featuring a Miss California mascot who was dismayed at water wasters and delighted at the sight of Californians following her water-saving tips. The “Don’t Waste Another Minute Wasting Water” campaign prompted a surge of interest in conservation and established Metropolitan’s [bewaterwise.com](http://bewaterwise.com) website as a prime source of information about rebates, water-saving tips, and community activities.

As winter approached, Metropolitan worked closely with its 26 member agencies to fine-tune the district’s allocation plan to prepare for the possibility of reduced water deliveries in the coming year.

Above-average rain and snowfall in early winter brought a ray of hope that the drought cycle would end. But the storm door slammed shut in early 2015, leading to another year of below normal precipitation. In April, Gov. Jerry Brown stood in a bone dry meadow high in what should have been the snow-filled Sierra Nevada mountains and ordered the first-ever statewide mandatory water restrictions. Brown directed the State Water Resources Control Board to establish conservation targets for cities that would lead to an overall 25 percent reduction in urban water use compared to 2013 levels.

That same month, Metropolitan voted to enact its allocation plan, and reduce deliveries by at least 15 percent compared to baseline levels. To further support the governor’s goal of a 25 percent reduction, Metropolitan promoted a wide range of conservation programs and incentives, and moved forward with another aggressive multi-media outreach and advertising campaign in five languages to reach the diverse and large Southern California audience.

Public awareness of the severity of the drought rose following the governor’s declaration, and so did interest in Metropolitan’s rebate programs. In December, the board added \$60 million to the conservation program’s two-year budget, bringing the total investment to \$100 million. But as demand for conservation incentives climbed, the Metropolitan board in May approved an additional investment of \$350 million. A major component of the now \$450 million rebate program was to remove lawns from homes, businesses, campuses and public spaces. All told, more than 170 million square feet of turf were expected to be removed as a result of the rebate program. Along with the added conservation from water-saving devices and other program



elements, Metropolitan expects to save about 800,000 acre-feet of water in the coming decade, nearly enough to fill the region's largest reservoir, Diamond Valley Lake. "Our goal is to... lock-in permanent changes in water use by transforming to drought-tolerant landscapes that better fit our Mediterranean climate," said Metropolitan board Chairman Randy Record.

Increasing water-use efficiency within Southern California is a key part of Metropolitan's overall water strategy that also calls for stabilizing imported supplies from Northern California and the Colorado River. The 2014/15 year had key advances on those fronts as well.

The ongoing effort to modernize the Delta water system took an important shift in April. Governor Brown announced plans to advance the co-equal goals of water system reliability and ecosystem improvements with separate, but coordinated programs. California WaterFix became the new moniker to build three intakes in the northern Delta on the Sacramento River and a twin tunnel pipeline system to transport supplies to the existing state and federal aqueduct systems in the southern Delta. California EcoRestore became the new program to accelerate at least 30,000 acres of ecosystem restoration in the Delta region in the coming years. "Metropolitan has long stood ready to invest in a Delta solution that works for both the environment and the California economy," General Manager Jeffrey Kightlinger said at the time. "Any successful final plan must do both."

The recirculation of draft environmental documents for the water modernization proposal was scheduled for July 2015, setting the stage for a final plan and investment decisions by participating agencies including Metropolitan in 2016.

On the Colorado River, Metropolitan in October 2014 collaborated with the Central Arizona Project, Denver Water, the Southern Nevada Water Authority and the U.S. Bureau of Reclamation in a landmark basin-wide effort to develop \$11 million in water conservation projects. In December, Metropolitan signed a Memorandum of Understanding with other Lower Basin water interests for pilot projects with the goal of developing between 1.5 and 3 million acre feet of water by 2019.

While drought conditions persisted on the Colorado River through the winter, precipitation throughout the watershed was 200 percent of normal in May and continued wet into June, providing much-needed runoff into Lake Powell and eliminating any imminent prospects of any shortage conditions in the Lower Basin.

As 2014/15 came to a close, Southern California faced the challenge of meeting historic conservation targets and a drought of uncertain duration. The warm ocean conditions known as El Niño were fast developing in the Pacific. While numerous experts said that the ocean pattern increased the potential for significant rain in Southern California, the same was not the case for Northern California, where predicted effects were unclear.

From the ongoing drought to looming decisions in the Delta, the stage was set for Metropolitan to end one historic year and enter yet another.

However, sound investments in water storage, recycling and other regional projects, together with infrastructure improvements that improve system reliability, record levels of water savings by consumers, and the foresight, leadership and cooperation of water agencies throughout Southern California will help ensure that Metropolitan is poised to meet these challenges.



*Sunrise at the Gene Pumping Plant, January 2015.*



*Work crews install a weir gate at the Joseph Jensen Water Treatment Plant to improve plant performance at low flows, as part of drought relief efforts.*

# Delivering Metropolitan's Water Supplies

Metropolitan supplies water to its 5,200-square-mile service area through a conveyance and distribution system consisting of the 242-mile-long Colorado River Aqueduct, five pumping plants, approximately 830 miles of pipeline, five water treatment plants and nine reservoirs, plus connections to the State Water Project. Metropolitan also has 16 hydroelectric power recovery plants throughout its system. See Table 1-1 for the rated capacity of Metropolitan's five treatment plants.

**TABLE 1-1  
METROPOLITAN'S DISTRIBUTION SYSTEM  
WATER TREATMENT PLANTS**

<b>Plant (Location)</b>	<b>Process/ Water Type</b>	<b>Rated Capacity (MGD)</b>
Joseph Jensen Water Treatment Plant (Granada Hills)	Conventional treatment with ozone SPW	750
Robert A. Skinner Water Treatment Plants #1, #2, & #3 (Winchester)*	Conventional treatment and direct filtration with ozone, blend of CRW/SPW	630
F. E. Weymouth Water Treatment Plant (La Verne)	Conventional treatment, blend of CRW/SPW	520
Robert B. Diemer Water Treatment Plant (Yorba Linda)	Conventional treatment with ozone, blend of CRW/SPW	520
Henry J. Mills Water Treatment Plant (Riverside)	Conventional treatment with ozone SPW	220

SPW = State Project Water

CRW = Colorado River Water

MGD = Million Gallons per Day

\* Consists of three separately regulated water treatment plants

In fiscal year 2014/15, Metropolitan faced a fourth year of record drought in California. The final SWP allocation for calendar year 2014 was just 5 percent, or 96,000 acre-feet, the lowest in history. An acre-foot provides enough water for two households for a year. As the drought continued into CY 2015, SWP supplies improved slightly but were still very low at a 20 percent allocation, or 382,000 AF, the second lowest in history. Such low back-to-back SWP deliveries set up a significant challenge to meet the region's water demands.

Metropolitan responded to this challenge by maximizing the use of Colorado River supplies, operationally minimizing the use of SWP supplies, relying on storage reserves, and increasing conservation and outreach efforts.

Metropolitan operated the Colorado River Aqueduct at the maximum 8-pump flow to help make up for the low SWP supply. CRA pumping was stopped only temporarily to accommodate a 17-day outage beginning in February to perform critical maintenance and aqueduct cleaning to maintain maximum flow. Metropolitan resumed an 8-pump flow for the remainder of the fiscal year, resulting in a total CRA delivery of 1.19 MAF, the highest in 13 years.

Metropolitan continued the operational strategy that began in early 2014 to minimize the use of SWP supplies. Strategic actions included: (1) operating the Greg Avenue Pump Station on the East Valley Feeder to move Colorado River supplies as far west as the San Fernando Valley; (2) suspending Inland Feeder deliveries; (3) using only Colorado River supplies at Skinner, Weymouth and Diemer; (4) delivering Lake Perris water to Mills; and (5) continuing to collaborate with member agencies to expand the use of CRA and DVL water within their service areas. Collectively, these actions offset 20 percent of SWP demand (or approximately 140,000 AF), and resulted in 44,000 AF more than Metropolitan's entire SWP allocation for CY 2014.

To meet the gap between supply and demand, Metropolitan relied on its storage reserves. The shortfall in SWP supplies was replaced with 108,000 AF from groundwater banking programs, 116,000 AF from SWP carryover storage, 30,000 AF from Lake Perris Flexible storage, and 24,000 AF from the Desert Water and Coachella Valley Advanced Delivery Account. To support maximum flow on the CRA, 323,000 AF was drawn from Lake Mead intentionally

created surplus storage. The remaining demand within Metropolitan's service area was met with 142,000 AF of surface storage from DVL, Lake Mathews and Lake Skinner, and 35,000 AF from in-basin conjunctive use groundwater storage programs. In total, Metropolitan drew on about 780,000 AF of storage reserves and took the total dry-year storage reserves down to 1.09 million AF by the end of the fiscal year. Table 1-2 shows Metropolitan's monthly water sales for FY 2014/15.

**TABLE 1-2**  
**MONTHLY WATER SALES FOR ALL MEMBER AGENCIES**  
 Fiscal Year 2014/15  
 (Acre-Feet)

<b>Month</b>	<b>Full Service<sup>1</sup></b>	<b>Agricultural</b>	<b>Storage Programs<sup>2</sup></b>	<b>Totals</b>
July	197,480	0	1,916	199,396
August	186,514	0	3,578	190,092
September	177,040	0	3,955	180,995
October	179,667	0	10,902	190,569
November	142,357	0	3,609	145,966
December	108,409	0	19,056	127,465
January	126,533	0	154	126,687
February	112,951	0	0	112,951
March	156,406	0	0	156,406
April	164,520	0	629	165,149
May	143,901	0	2,718	146,619
June	162,817	0	369	163,185
<b>Totals</b>	<b>1,858,595</b>	<b>0</b>	<b>46,885</b>	<b>1,905,480</b>

<sup>1</sup> Includes Full Service, Wheeling and Exchange sales

<sup>2</sup> Includes sales from the Conjunctive Use, Cyclic Storage and Soboba Settlement programs

Metropolitan responded to the worsening water supply conditions by heightening conservation messaging and public drought awareness. As dry winter conditions threatened to continue into 2015, Metropolitan revised the region-wide water supply allocation plan which was last used in 2010. On April 1, 2015, Gov. Jerry Brown issued a mandatory cutback on urban water users throughout the state, effective June 1, 2015. This reduction will continue through at least February 2016, and requires urban potable water users to cut use 25 percent below the same months of CY 2013. In April 2015, Metropolitan's board voted to implement the revised imported water

allocation plan beginning July 1, 2015. The plan calls for a 15 percent reduction in imported water use by member agencies. As a result of these substantial drought response actions, Metropolitan's water sales for FY 2014/15 dropped 7.3 percent below water sales in the prior fiscal year.

The growing awareness of drought and retail conservation caused sales in FY 2014/15 to fall below the 10-year average annual sales of 1.99 MAF. In FY 2014/15, Metropolitan sold 1.91 MAF of water, about 150,000 AF (7.3 percent) lower than the prior fiscal year. Treated water sales were 890,000 AF or 47 percent of total sales, with maximum daily system deliveries as high as 7,150 AF per day.

Figure 1-1 shows total fiscal year water sales by category. Figure 1-2 shows monthly water sales by category. Figure 1-3 shows a comparison of water sales by category for the past two fiscal years. Table 1-3 shows historical water sales by calendar and fiscal years, and Table 1-4 shows water use by member agency. Major shutdowns and service interruptions are shown in Table 1-5.

## *Major Accomplishments for Fiscal Year 2014/15*

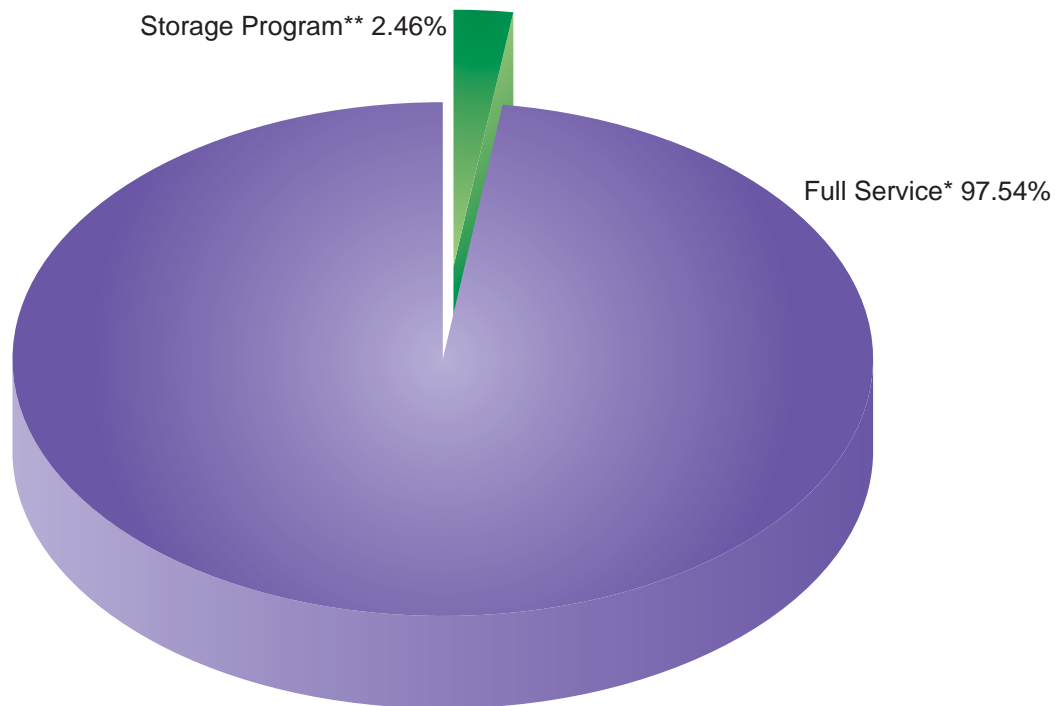
### *System Operations and Planning*

- Effectively managed supplies and storage programs to meet member agency demands during California's fourth year of record drought.
- Collaborated with Engineering Services to implement capital projects to further enhance operational flexibility by reducing areas traditionally served by only SWP supplies.
- Adjusted system operations to decrease the use of scarce SWP supplies by about 140,000 AF.

### *Colorado River*

- Maintained an 8-pump flow on the CRA throughout FY 2014/15 and delivered 1.19 MAF of CRA water, the largest delivery in 13 years.
- Withdrew approximately 321,000 AF of intentionally created surplus water from Lake Mead during CY 2014, supplies that had been conserved and stored in Lake Mead in prior years for use in dry years.

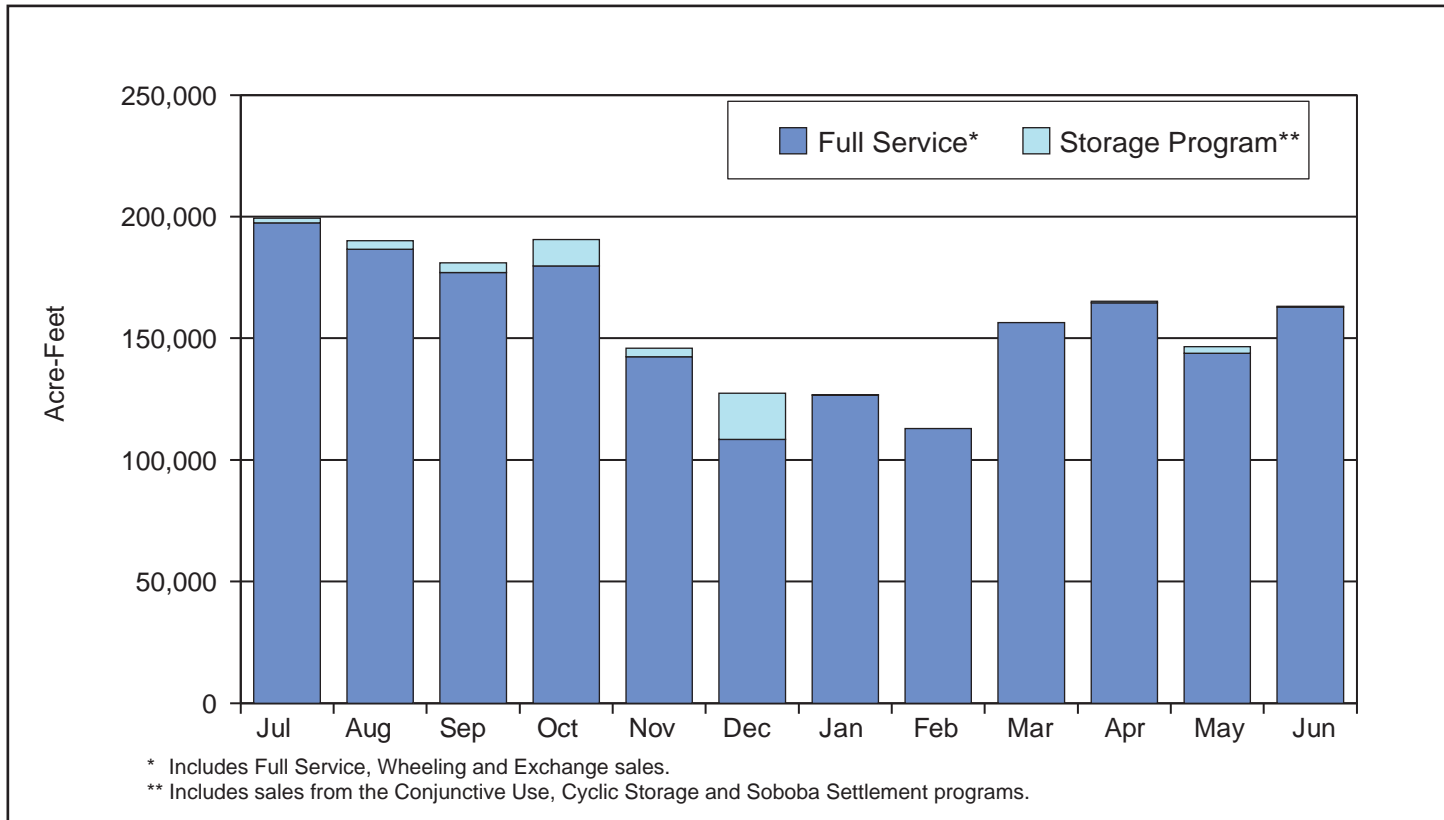




\* Includes Full Service, Wheeling and Exchange sales.

\*\* Includes sales from the Conjunctive Use, Cyclic Storage and Soboba Settlement programs.

*Figure I-1. Total Water Sales for Fiscal Year 2014/15 - All Member Agencies*



*Figure 1-2. Monthly Water Sales for Fiscal Year 2014/15 - All Member Agencies*

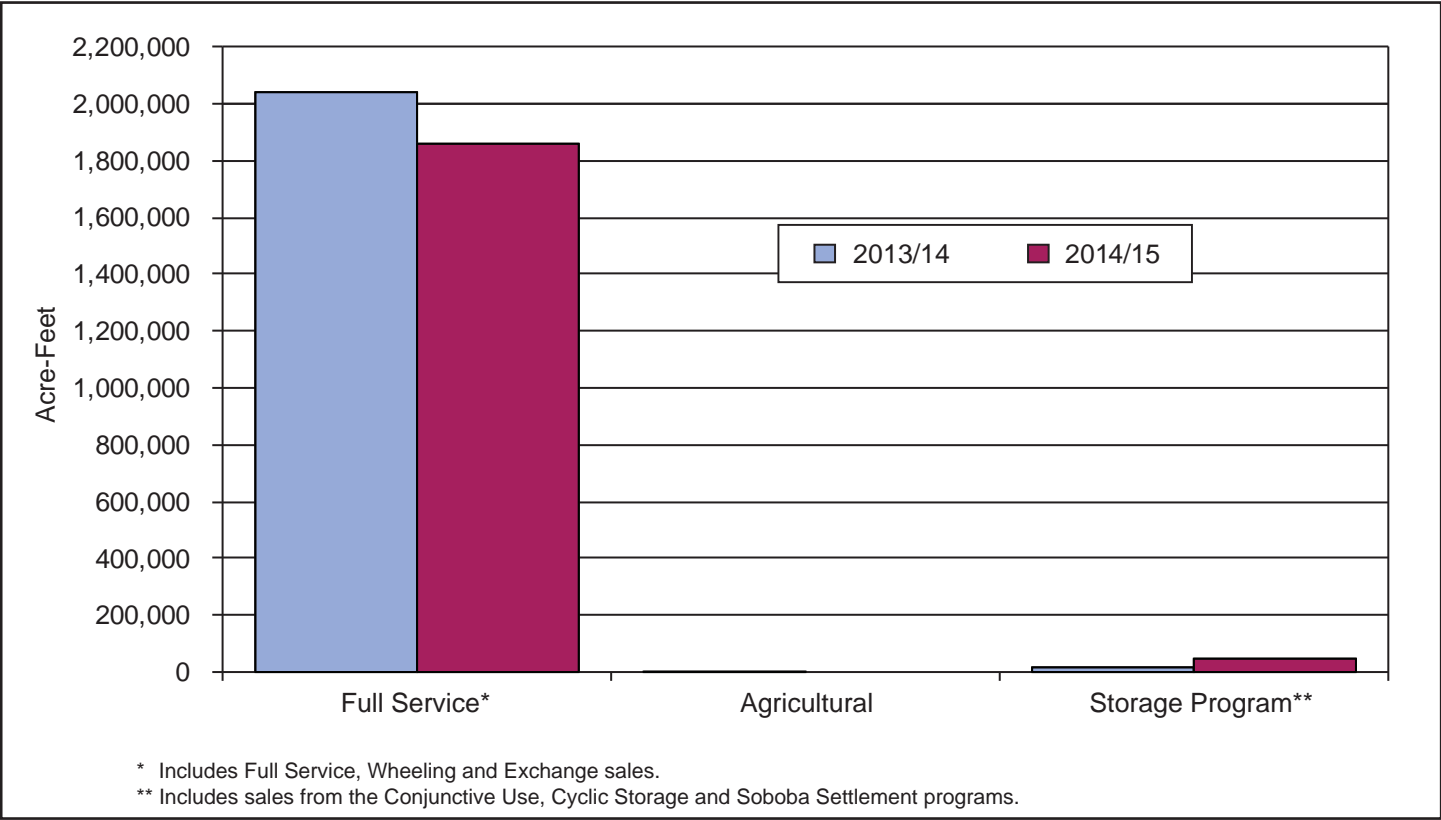


Figure 1-3. Comparison of Water Sales to Member Agencies For The Past Two Fiscal Years

**TABLE 1-3**  
**HISTORICAL WATER SALES**  
**Calendar Year & Fiscal Year Totals**  
**(Acre-Feet)**

	Calendar Year	Fiscal Year		Calendar Year	Fiscal Year
1941	4,444		1979	1,230,068	1,235,193
1942	12,391	9,739	1980	1,295,903	1,282,064
1943	16,355	14,566	1981	1,597,315	1,462,825
1944	24,567	15,875	1982	1,366,664	1,502,949
1945	37,883	30,606	1983	1,180,616	1,226,783
1946	54,134	46,686	1984	1,547,078	1,428,253
1947	73,573	59,721	1985	1,653,414	1,574,216
1948	148,178	113,090	1986	1,685,359	1,642,249
1949*	163,817	145,008	1987	1,857,591	1,825,657
1950*	170,825	165,616	1988	2,017,403	1,923,824
1951*	192,416	165,473	1989	2,371,479	2,095,079
1952	203,068	197,210	1990	2,626,124	2,511,375
1953	221,022	219,397	1991	1,809,606	2,264,864
1954	333,968	245,875	1992	1,989,165	1,888,907
1955	386,341	385,946	1993	1,812,644	1,910,644
1956	482,909	405,962	1994	1,955,411	1,930,529
1957	518,754	543,706	1995	1,458,237	1,591,496
1958	578,384	539,734	1996	1,675,254	1,641,670
1959	660,718	601,099	1997	1,838,675	1,787,857
1960	816,722	734,919	1998	1,413,674	1,569,024
1961	977,795	935,228	1999	1,776,306	1,593,687
1962	1,033,361	931,795	2000	2,325,836	2,075,680
1963	943,745	1,020,822	2001	2,100,771	2,164,556
1964	1,122,880	1,064,381	2002	2,438,570	2,326,920
1965	1,105,809	1,148,847	2003	2,251,051	2,271,628
1966	1,115,040	1,059,631	2004	2,440,724	2,437,678
1967	1,008,946	1,059,354	2005	2,003,041	2,076,100
1968	1,208,064	1,077,178	2006	2,129,518	2,116,039
1969	997,623	1,057,335	2007	2,390,535	2,351,927
1970	1,152,914	1,165,866	2008	2,178,630	2,250,184
1971	1,184,697	1,113,968	2009	1,963,448	2,137,979
1972	1,213,417	1,248,710	2010	1,658,597	1,780,030
1973	1,218,156	1,177,860	2011	1,650,260	1,613,529
1974	1,223,256	1,139,175	2012	1,748,167	1,708,565
1975	1,294,650	1,329,636	2013	1,955,799	1,856,537
1976	1,390,822	1,389,248	2014	2,015,848	2,056,396
1977	1,312,876	1,390,466	2015		1,905,480
1978	1,302,312	1,198,325			

Note:

\* Calendar years 1949, 1950 and 1951 are estimated values.

Figures from 1979 to present consist of billable sales of treated and untreated water, including exchanges.

**TABLE 1-4**  
**WATER USE BY METROPOLITAN'S MEMBER AGENCIES**  
 Fiscal Year 2014/15<sup>1</sup>  
 (Acre-Feet)

<b>Member Agency</b>	<b>Total Local Production<sup>2</sup></b>	<b>Total Local Use<sup>3</sup></b>	<b>MWD Direct Deliveries<sup>4</sup></b>	<b>MWD Indirect Deliveries</b>	<b>MWD Total Deliveries</b>	<b>Total Water Use<sup>5</sup></b>	<b>MWD Direct Deliveries as % of Total Use</b>
Anaheim	47,001	47,001	14,477		14,477	61,478	24%
Beverly Hills	219	219	11,092		11,092	11,311	98%
Burbank	12,555	12,555	14,101	150	14,252	26,657	53%
Calleguas	36,772	47,225	95,199		95,199	142,424	67%
Central Basin	196,250	219,598	30,345	15,015	45,360	249,943	12%
Compton	6,146	6,146	0.3		0.3	6,147	0%
Eastern	123,835	123,835	94,327		94,327	218,162	43%
Foothill	7,876	7,876	7,824		7,824	15,699	50%
Fullerton	18,946	18,946	8,298		8,298	27,244	30%
Glendale	9,445	9,445	17,046		17,046	26,490	64%
Inland Empire	194,476	194,476	58,908		58,908	253,383	23%
Las Virgenes	4,480	4,608	17,471		17,471	22,079	79%
Long Beach	25,738	25,738	38,743		38,743	64,481	60%
Los Angeles	154,805	155,691	378,315		378,315	534,005	71%
MWD OC	365,197	378,318	163,511	48,617	212,128	541,829	30%
Pasadena	11,864	11,841	17,451		17,451	29,292	60%
San Diego CWA	54,257	54,257	540,141		540,141	594,397	91%
San Fernando	2,938	2,938	100		100	3,037	3%

**TABLE 1-4 (Continued)**  
**WATER USE BY METROPOLITAN'S MEMBER AGENCIES**  
 Fiscal Year 2014/15<sup>1</sup>  
 (Acre-Feet)

<b>Member Agency</b>	<b>Total Local Production<sup>2</sup></b>	<b>Total Local Use<sup>3</sup></b>	<b>MWD Direct Deliveries<sup>4</sup></b>	<b>MWD Indirect Deliveries</b>	<b>MWD Total Deliveries</b>	<b>Total Water Use<sup>5</sup></b>	<b>MWD Direct Deliveries as % of Total Use</b>
San Marino	5,199	5,199	731		731	5,930	12%
Santa Ana	26,659	26,659	4,995		4,995	31,653	16%
Santa Monica	8,831	8,831	4,258		4,258	13,089	33%
Three Valleys	57,395	57,395	56,580	1,474	58,053	113,975	50%
Torrance	3,455	8,696	16,205		16,205	24,901	65%
Upper San Gabriel	186,058	148,957	9,069	42,341	51,410	158,027	6%
West Basin	75,656	73,823	112,893		112,893	186,716	60%
Western	186,526	186,526	63,721		63,721	250,246	25%
	1,822,577	1,836,798	1,775,799	107,597	1,883,396	3,612,597	49%

Footnotes:

<sup>1</sup> Local supply data includes three year averages for those sources unavailable at time of publication.

<sup>2</sup> Total Local Production = groundwater, groundwater recovery, surface water, recycled water and Los Angeles Aqueduct supplies produced, but not necessarily used, within a member agency boundary, not including water used for environmental purposes.

<sup>3</sup> Total Local Use = Total Local Production adjusted for inter-agency water transfers and locally produced water, not including water used for environmental purposes.

<sup>4</sup> MWD Direct Deliveries includes exchanges with SDCWA for Imperial Irrigation District transfers and canal lining.

<sup>5</sup> Total Water Use = Total Local Use + MWD Direct Deliveries.

**TABLE 1-5**  
**2014/15 MAJOR SHUTDOWNS & SERVICE INTERRUPTIONS**

<b>FACILITY</b>	<b>DATES</b>	<b>NO. OF DAYS</b>	<b>LIMITS OF SHUTDOWN</b>	<b>PURPOSE</b>
ETIWANDA PIPELINE	Jul 1 - Dec 1, 2014	154	From the Rialto Pipeline to the Upper Feeder (Untreated)	For the repair of pipeline lining
LAKEVIEW PIPELINE	Jul 12 - 18, 2014	7	From state Department of Water Resources' Lake Perris to the San Diego Canal	For the installation of a bulkhead near Service Connection EM-14 to allow construction of the Lakeview Pipeline/Inland Feeder Interconnection.
INLAND FEEDER	Jul 12 - Oct 31, 2014	112	From DWR's Devil Canyon Power Plant to the Lakeview Pipeline	To tie in the interconnection lines from Inland Feeder to the Lakeview Pipeline.
LAKEVIEW PIPELINE	Jul 18, 2014 - Apr 30, 2015	287	From DWR's Lake Perris to the San Diego Canal	To construct the Lakview Pipeline / Inland Feeder Interconnection at the PC-1 Facility and install internal buttstraps at several locations on the Lakeview Pipeline and complete Bernasconi Tunnel Lining.
SANTA MONICA FEEDER	Oct 6 - 8, 2014	3	From the Beverly Hills Pressure Control Structure to the pipeline terminus	To install new sectionalizing valve and bypass line for relocation project currently underway.
SAN DIEGO PIPELINE 3	Oct 19 - Dec 10, 2014	53	From the Skinner plant to the San Diego County Water Authority's jurisdiction line	For the San Diego Pipeline No. 3 relining project under State Route 76 and to perform inspections and convert (19) blowoffs to pumping wells and replace valves at five additional locations.
SANTIAGO LATERAL	Oct 20 - 24, 2014	5	From the Weir Canyon sectionalizing valve to the pipeline terminus	For Service Connection OC-33 modifications and replacement of Air/Vac valves from below ground to above ground.

**TABLE 1-5 (Continued)**  
**2014/15 MAJOR SHUTDOWNS & SERVICE INTERRUPTIONS**

<b>FACILITY</b>	<b>DATES</b>	<b>NO. OF DAYS</b>	<b>LIMITS OF SHUTDOWN</b>	<b>PURPOSE</b>
PERRIS BYPASS PIPELINE	Oct 22 - 30, 2014	9	The Perris Control and Pumping Plant Facility	To tie in the 60-inch bypass valve structure around the Perris Pumpback.
LAKEVIEW PIPELINE	Oct 27 - 31, 2014	5	From DWR's Lake Perris to the San Diego Canal	To remove bulkhead.
SAN DIEGO PIPELINE 4	Nov 12 - 21, 2014	10	From Skinner plant to SDCWA jurisdiction line	To install bulkhead for San Diego County Water Authority's relining project and for pipeline inspections.
LAKE SKINNER OUTLET CONDUIT -San Diego Pipeline 6	Nov 30 - Dec 7, 2014	8	From the Lake Skinner Outlet Tower to the pipeline terminus	For removal and blind flange installation and thimble installation and Outlet Tower inspection.
SECOND LOWER FEEDER	Dec 1, 2014 - Apr 4, 2015	120	Bixby sectionalizing valve to Carson/Bataan sectionalizing valve	For prestressed concrete cylinder pipe repairs
PALOS VERDES FEEDER	Jan 19 - 22, 2015	4	From Appian Way sectionalizing valve to the pipeline terminus	To repair corroded underdrain line in the access structure.
SANTA MONICA FEEDER	Jan 20 - 21, 2015	2	From the Beverly Hills Pressure Control Structure to the pipeline terminus	To remove bulkhead.
SAN DIEGO PIPELINE 4	Jan 20 - 27, 2015	8	From Skinner plant to SDCWA jurisdiction line	To remove bulkhead and for pipeline inspections.
RIALTO PIPELINE	Jan 26 - 31, 2015	6	From the San Dimas Pressure Control Structure to the Indian Hill sectionalizing valve	For PCCP (prestressed concrete cylinder pipe) inspection.
SAN DIEGO PIPELINE 5	Feb 5 - Mar 11, 2015	35	From Skinner plant to SDCWA jurisdiction line	For the San Diego Pipeline No. 5 relining work south of MWD jurisdiction and to perform pipeline inspections.



**TABLE 1-5 (Continued)**  
**2014/15 MAJOR SHUTDOWNS & SERVICE INTERRUPTIONS**

<b>FACILITY</b>	<b>DATES</b>	<b>NO. OF DAYS</b>	<b>LIMITS OF SHUTDOWN</b>	<b>PURPOSE</b>
LAKE SKINNER OUTLET CONDUIT -San Diego Pipeline 6	Feb 9 - 16, 2015	8	From the Lake Skinner Outlet Tower to the pipeline terminus	For inspection of Outlet Conduit and Ozone Influent Meter.
AULD VALLEY PIPELINE -San Diego Pipeline Nos. 1 & 2	Feb 10 - 14, 2015	5	From the Skinner plant to the pipeline terminus	For PCCP inspection.
COLORADO RIVER AQUEDUCT -San Jacinto Pipeline -San Diego Pipeline 1 & 2	Feb 17 - Mar 6, 2015	17	From Intake Pumping Plant to Lake Mathews	Perform critical maintenance, rehabilitate and clean tunnels and conduct electrical reliability testing
SAN DIEGO CANAL	Feb 20 - Mar 3, 2015	12	From Casa Loma Canal to Lake Skinner	For cleaning and inspection of canal and remotely operated vehicle inspection of 4 siphons.
JENSEN FILTRATION PLANT	Feb 26 - Mar 1, 2015	4	Jensen plant	Install weir plate, relocate plant effluent sample pump and install new finished water chlorine injection point.
ORANGE COUNTY FEEDER	Apr 27 - May 1, 2015	5	From the sectionalizing valve at Raymond and East Santa Fe avenues to the sectionalizing valve at Raymond and East Ash avenues	For relocation of the pipeline for a street and railroad grade separation at Raymond Avenue



*The April 1 Phillips Station snow survey in 2014 (top) and 2015, as Gov. Brown addresses the media. 2015 was the first time in 75 years that the early April Sierra survey found no snow at all.*

# Strategic Water Initiatives

**M**etropolitan provides imported water supplies to its member agencies from two primary sources, the Colorado River and the Sacramento-San Joaquin Delta watersheds. The staff of Strategic Water Initiatives coordinates resources throughout the organization to manage and protect Metropolitan's interests in these two key watersheds.

## *Bay-Delta Initiatives*

California continues to endure one of the most severe droughts on record and water agencies have been finding ways to manage available water resources, promote conservation and make California more drought resilient. Metropolitan has entered into member contribution agreements with the State and Federal Contractors Water Agency to pursue specific coordinated science programs that take advantage of opportunities to study and monitor the Delta ecosystem at a time of severe drought. To address the need for a comprehensive Delta solution to meet the co-equal goals of water supply reliability and restoring the Delta ecosystem, the state proposed a new permitting approach and associated new alternatives on April 30, 2015. This new approach resulted in two separate efforts: California WaterFix and California EcoRestore. Figure 2-1 shows a map of the Delta region.

## *Near-Term Actions*

### *Turbidity Forecasting*

Staff participates in the Delta Condition Team process coordinated by the state and federal agencies to closely monitor trawl and turbidity data and evaluate turbidity forecast information as related to spawning conditions for Delta smelt. Staff developed and presented a model

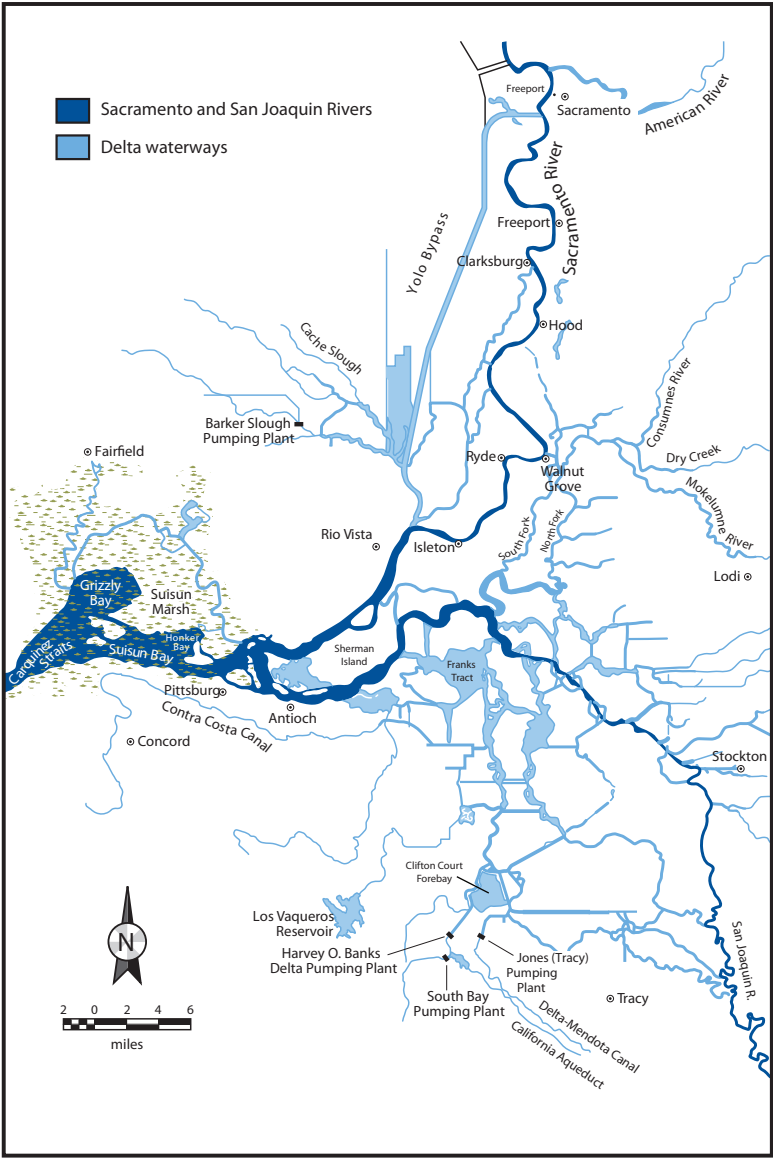


Figure 2-1. Map of the Delta Region

that serves as a water project operation quick evaluation tool. It was used during the December 2014 storm to identify measures to reduce fish showing up at the water project pumps while minimizing water supply impacts.

### *Incidental Take Limit*

On January 9, 2015, the U.S. Fish & Wildlife Service accepted a proposal from the federal Bureau of Reclamation to modify the method of calculating the adult Delta smelt incidental take limit. The determination adjusted the annual take limit from 78 to 196 for water year 2015. USFWS evaluated the proposal in light of a report prepared by the Independent Review Panel to the Delta Science Program and concluded that the proposed method, with modification, represents a viable interim approach to addressing incidental take. The proposed methodology was developed through contribution from Metropolitan staff and reflects technical review and support from state and federal agency and other biologists.

### *Science Development*

Bay-Delta Initiatives staff currently supervises a major study of longfin smelt vertical distribution that will involve several sets of round-the-clock trawls in San Pablo Bay at different water depths. The purpose of the study is to test the hypothesis that longfin smelt move to deeper water when turbidity decreases and become invisible to the existing standard sampling trawls.

### *Regulatory Activities*

Due to dry conditions in the Delta, the State Water Resources Control Board began issuing curtailment notices directing water diverters in the Delta watershed to cease diversions. Curtailment notices were issued to all holders of state appropriative water rights dating back to 1903. Those found to be diverting water beyond what is legally available to them may be subject to administrative fines, cease-and-desist orders or prosecution in court.

### *Water Quality*

Staff continued to participate in the San Francisco Bay and Central Valley Regional Water Quality Control Board processes addressing nutrient science and management. In May, staff participated in several

meetings with key stakeholders and agency staff involved in the San Francisco Bay Nutrient Management Strategy to discuss how to move forward on nutrient-related issues in the Delta and Suisun Bay where there is significant scientific disagreement. Several scientific reports and publications are expected during FY 2016 that will focus on the role of nutrient form and ratio, and other factors such as light, in affecting phytoplankton abundance and community composition in the Bay-Delta estuary. Staff is also coordinating with the State and Federal Contractors Water Agency to ensure participation in key nutrient-related meetings.

### *Emergency Preparedness Plan*

One of the state's priorities in the Delta continues to be an emergency preparedness plan that includes emergency response strategies, pre-positioning of emergency construction materials and levee improvements to support development of a freshwater pathway to the export pumps in the event of a major earthquake in the Delta. State and federal agencies have performed emergency exercises to test, revise and improve these plans. A proposal to improve levee conveyance in the south Delta is being considered at Bacon Island, including a substantial portion of Old River on the island's western perimeter. These and other levee improvements along Old and Middle rivers include proposed levee crown and slope fill, roadway improvements and quarry stone armoring along waterside slopes, which improves general conveyance and emergency response capabilities in the south Delta. Other projects expected to begin in late calendar year 2015 and finish in 2016 include the further enhancement of rock stockpiles, specialized levee repair materials and materials loading and warehousing facilities at the DWR Stockton and Rio Vista stockpile sites. Such efforts will expedite the ability to restore breached levees and levees in imminent threat of failure.

Staff is overseeing a consultant's efforts to analyze the cost effectiveness and seismic response capabilities of recent improvements to pathway levees in the south Delta region. The studies have demonstrated that while the improved pathway levees would sustain damage in a major earthquake and likely be breached in certain locations, most would be functional and greatly facilitate development of a freshwater pathway. Staff is also working on a similar effort where a consultant is analyzing remedial measures that would allow

new levee improvements to function better during major earthquakes and in post-earthquake emergency response situations.

### *Delta Stewardship Council*

The council has embarked on the Delta Levees Investment Strategy that will combine economics, engineering and decision-making techniques to identify funding priorities and assemble a comprehensive investment strategy for the Delta levees. This investment strategy will consider the assets protected by Delta levees, the threats to Delta levees, the multiple beneficiaries of Delta levee investments and both structural and non-structural approaches for reducing risk. The project's expected outcome includes a final report that proposes a Delta levee investment and risk reduction strategy, and a suite of investments that best addresses state goals and priorities. The strategy may also result in proposed revisions to the Delta Plan's flood risk-reduction regulatory policies and recommendations. The proposed strategy may also be submitted to the California Legislature to help guide its future decisions about funding for Delta levees. The council's new approach will be used to guide existing or new Delta levee programs and is required to be consistent with the state law that applies to these programs or as modified by future legislative actions.

### ***Long-Term Actions***

#### *Bay Delta Conservation Plan*

The new permitting approach and associated new alternatives to the BDCP, California WaterFix and California EcoRestore, would be implemented under a different Endangered Species Act regulatory permitting process (Section 7 versus Section 10[a]). This would fulfill the requirement of the 2009 Delta Reform Act to contribute toward meeting the coequal goals of providing a more reliable water supply for California and protecting, restoring and enhancing the Delta ecosystem.

The new water conveyance facilities would be constructed and operated under the California WaterFix, which proposes design changes to the water conveyance facilities that would reduce the overall environmental/construction impacts, minimize disruptions to local communities, and increase long term operational and cost benefits. Some of the engineering improvements would include the

elimination of pumping plants, reduction of power lines and power use, reconfiguration of sediment basins and reconfiguration/relocation of the construction staging sites in the North Delta.

The main objective under the EcoRestore Program is the restoration of at least 30,000 acres of Delta habitat over the next five years. These restoration programs would include projects and actions that comply with pre-existing regulatory requirements designed to improve the overall health of the Delta. Other priority restoration projects would also be identified by the Sacramento-San Joaquin Delta Conservancy and local governments. Funding would be provided through multiple sources including various local and federal partners, state bonds and other state-mandated funds. State Water Project/Central Valley Project contractors would provide funds as part of existing regulatory obligations.

The alternate ESA permitting approach, the proposed conveyance facilities in the California WaterFix, and the California EcoRestore Program will be evaluated in the partially Recirculated Draft EIR/EIS expected for release in summer 2015.

## *Colorado River Resources*

Drought conditions continued in the Colorado River Basin in 2014/15, with 13 of the previous 16 years experiencing below-normal snowfall and snowmelt runoff in the basin. Lake Mead, the largest reservoir in the United States, reached its lowest level since the reservoir was initially filled in the 1930s. Lake Mead measured 1,075.1 feet above sea level as of June 30, 2015, which is 37 percent of capacity. Lake Mead ended the fiscal year about one inch above the level that would trigger a first-ever shortage declaration on the Colorado River. Fortunately, because of wetter conditions in May and June, Lake Mead storage was forecast to rise a few feet in fall 2015, making it likely that a shortage declaration would be postponed for at least another year.

Figure 2-2 shows a map of the Colorado River Basin and the states that rely on the Colorado River system for water. The map also shows California's major water agencies with water supply contracts from the Bureau of Reclamation. California has a basic apportionment of



4.4 million acre-feet, most of which is used by Metropolitan and the higher-priority agricultural users (Palo Verde Irrigation District, Yuma Project Reservation Division, Imperial Irrigation District and Coachella Valley Water District).

For the 13th consecutive year, no surplus water was available to Metropolitan in FY 2015. Metropolitan's supplies from the Colorado River were limited to its 550,000 acre-foot Basic Apportionment plus water management programs developed to augment that amount. In calendar year 2014, a total of about 1.19 MAF of water was delivered to Metropolitan's service area from the Colorado River – the most water moved through the Colorado River Aqueduct since 2002. Of that amount, a total of 180,000 acre-feet was exchanged with San Diego County Water Authority.

### ***Managing Colorado River Programs***

During the fiscal year, Metropolitan continued partnering with Imperial Irrigation District to fund and implement their joint agricultural conservation program. Additional programs were added to reach the full yield of 105,000 acre-feet available under the agreement. On July 31, 2014, Metropolitan issued a maximum fallowing call to farmers enrolled in the Palo Verde Irrigation District Land Management and Crop Rotation Program. Because the fallowing call is made a year in advance, and the full fallowing will not go into effect until August 1, 2015, Metropolitan did not receive the full benefit of the fallowing call this fiscal year, receiving about 65,000 acre-feet of water.

### ***Lake Mead Storage***

Metropolitan took delivery of a record amount of intentionally created surplus water from Lake Mead during calendar year 2014, withdrawing 321,000 acre-feet from its ICS storage account. The water was added to the yield from the water supply programs and delivered through the Colorado River Aqueduct to Metropolitan's service area. Metropolitan's ICS storage credit balance was approximately 151,000 acre-feet as of June 30, 2015.



*Fig. 2-2. Map of the Colorado River Basin*

### ***Colorado River Drought Response***

To help alleviate the impact of drought conditions in the Colorado River Basin, Metropolitan, along with Southern Nevada Water Authority, Central Arizona Project, Denver Water, and the Bureau of Reclamation agreed to contribute \$11 million to fund conservation projects that would add water to Lake Powell and Lake Mead for the benefit of all Colorado River water users. To find willing participants for the program, Reclamation sent letters to Lower Basin water users, and the Upper Colorado River Commission sent letters to Upper Basin water users, soliciting proposals to conserve water. Proposals were received from six states, and evaluated based on criteria that included costs and amount of water to be conserved. At the end of the fiscal year, one project in Nevada was approved, while several other projects are likely to be approved early in FY 2016.

### ***Funding Conservation in Mexico***

During the fiscal year, Metropolitan provided \$3.3 million for its share of funding to line the Canal Revolución in the Mexicali Valley, as part of a pilot conservation project included in Minute 319 to the United States-Mexico International Water Treaty signed in late 2012. The pilot project is being funded by Metropolitan, Central Arizona Project, and Southern Nevada Water Authority, with the conserved water being shared by both the United States' funders and Mexico. In exchange for funding the canal lining project, Metropolitan will receive additional Colorado River water in 2017, when the project is scheduled to be complete.



*This drought-tolerant California Friendly garden is one of many recipients of Metropolitan's turf removal incentives. Information on Metropolitan rebates and other water-saving items is available at [bewaterwise.com](http://bewaterwise.com)*

# Water Resource Management

The Water Resource Management Group is responsible for planning, securing and managing high-quality water resources for Metropolitan's member agencies in a reliable, cost-effective and environmentally responsible manner. WRM's principal responsibilities include managing imported water supplies and quality, advancing water-use efficiency and local resource development, and providing supply and demand forecasts that are the foundation for resource and facility planning. Other responsibilities include developing and implementing timely resource programs and projects, creating facility plans, assisting member agencies in optimizing local resources to benefit the entire Metropolitan service area, and ensuring a fair return on Metropolitan's contractual investments in local and imported resources.

Hydrologic conditions in 2015 continued severe dry trends. On April 1, 2015, Gov. Brown issued an executive order calling for a 25 percent reduction in urban consumer water use and mandatory actions to reduce statewide water demands. That same month, Metropolitan's board called on its member agencies to reduce water purchases in fiscal year 2016. A month later, in a momentous decision, Metropolitan's board approved the nation's largest conservation program to incentivize water use reductions and support unparalleled levels of public awareness and participation in drought response efforts.

Metropolitan continued to develop programs to balance locally-developed resources with imported supplies, as the region faced one of the driest years on record. Water years 2012, 2013 and 2014 were dry in the California and Upper Colorado River Basin watersheds where Metropolitan imports its water supplies. Water year 2015, which began on October 1, continued this dry trend, and calendar year 2014 was the hottest year on record for California, more than 4 degrees warmer than the 20<sup>th</sup> century average. The impacts of dry years on reservoir storage and groundwater levels are also significant.

## *State Water Project Resources*

Metropolitan holds a water supply contract for 1,911,500 acre-feet annually with the California Department of Water Resources, subject to availability. Drought conditions in fiscal year 2014/15 substantially reduced the amount of available State Water Project supplies with record low snowpack conditions reducing normally snow-covered Sierra watersheds to grassy meadows at the peak of the winter season. As a result, Metropolitan managed 634,679 AF through the State Water Project system (Fig. 3-1), about 250,000 AF less than the previous year. To bolster these supplies, Metropolitan withdrew water from storage programs and exercised transfer and exchange agreements with Desert Water Agency and Coachella Valley Water District, and other SWP partners. The impact of the drought reduced all available supplies throughout the state with some areas seeing historically low supply conditions. During FY 2014/15, Metropolitan exercised its SWP water management programs to ensure delivery capability under these dry-year conditions. This included drafting more than 108,000 AF from its San Joaquin Valley and Mojave storage accounts, the same as the previous year, and nearly 30,000 AF from its flexible storage accounts, the remaining balance after nearly depleting these supplies in the previous year. FY 2014/15 deliveries and storage are subject to change based on future reconciliations by the Department of Water Resources.

Metropolitan's net SWP payments during FY 2014/15 were \$440 million (Table 3-1) on a modified accrual basis. Metropolitan also administered existing storage programs located outside its service area along the SWP system. These programs are described on the following pages.

### ***Water Storage Programs***

#### *Semitropic/Metropolitan Water Banking and Exchange Program*

In 1994, Metropolitan entered into a groundwater storage agreement with Semitropic Water Storage District in Kern County that allows storage of up to 350,000 AF. During FY 2014/15, Metropolitan received 39,361 AF from Semitropic. The total water in storage on June 30, 2015 was 182,860 AF.

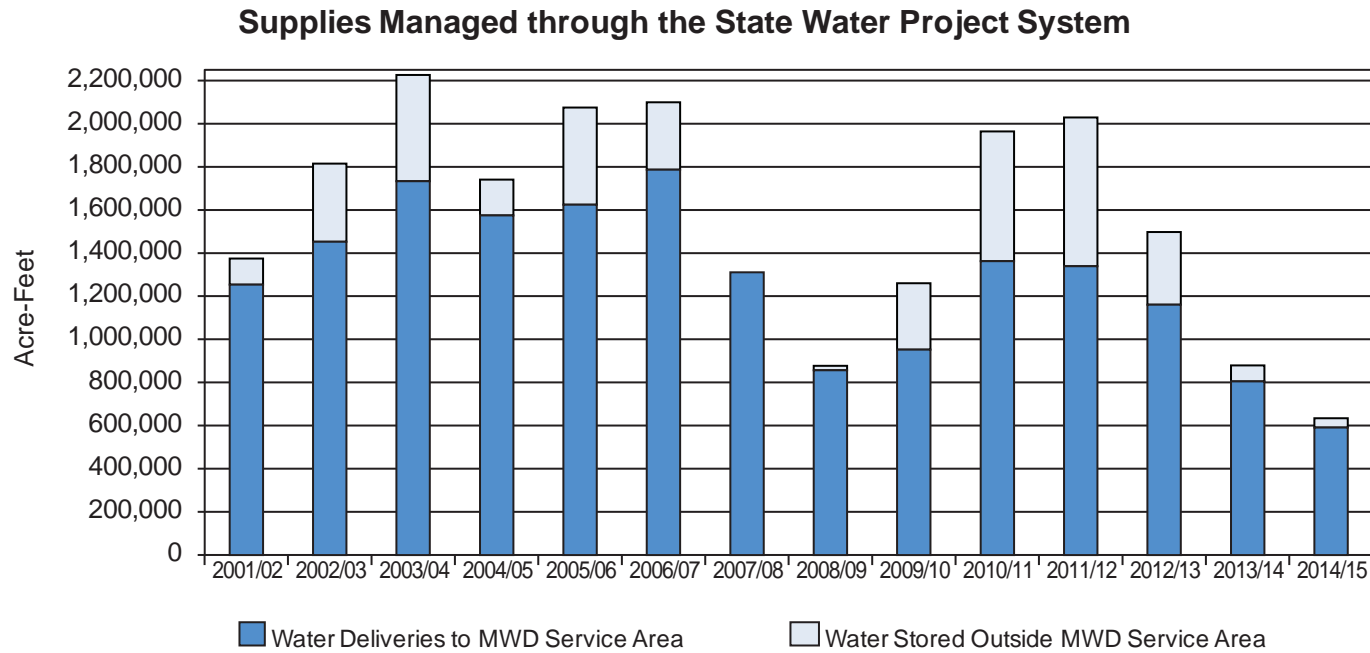


Figure 3-1. Supplies Managed through the State Water Project System

**TABLE 3-1**  
**CHARGES, PAYMENTS AND CREDITS UNDER THE STATE WATER**  
**AND DEVIL CANYON CASTAIC CONTRACTS**  
(Millions of Dollars)

Fiscal Year	Conservation ( Delta )		Transportation			Extra *	Devil	Subtotals	Credits	Totals	Accumulated Totals
	Capital	Minimum OMP&R <sup>1</sup>	Capital	Minimum OMP&R <sup>1</sup>	Variable	Capacity Costs	Canyon/ Castaic				
1963-73	2.50	0.66	197.31	19.33	1.02	39.16	3.56	263.54	(15.62)	247.91	247.91
1973-83	80.68	29.43	484.57	181.61	59.06		70.74	906.09	(49.53)	856.56	1,104.47
1983-93	163.85	127.62	662.42	1,391.73	88.29	85.62	88.50	2,608.03	(373.17)	2,234.86	3,339.33
1993/94	23.50	16.92	74.35	147.75	(5.86)	25.24	9.89	291.79	(101.81)	189.98	3,529.31
1994/95	22.58	17.29	77.05	150.63	8.96	24.01	10.24	310.76	(94.13)	216.63	3,745.94
1995/96	21.85	19.68	81.31	111.87	3.11	26.08	10.60	274.49	(65.33)	209.16	3,955.10
1996/97	21.51	21.19	85.23	109.56	10.00	29.18	10.44	287.11	(38.30)	248.81	4,203.91
1997/98	21.79	22.87	90.07	138.35	6.67	27.58	9.56	316.87	(64.74)	252.14	4,456.05
1998/99	20.56	23.07	90.58	139.60	6.50	29.48	9.40	319.19	(74.96)	244.23	4,700.28
1999/00	19.16	24.11	89.26	164.26	12.05	29.99	10.32	349.15	(70.06)	279.09	4,979.37
2000/01	26.91 <sup>2</sup>	24.60	115.99 <sup>2</sup>	156.53	35.73	32.99	10.81	403.57	(27.19)	376.38	5,355.75
2001/02	8.46	25.20	60.24	147.23	111.75	38.99	10.53	402.40	(68.44)	333.97	5,689.72
2002/03	16.32	25.90	88.45	161.36	64.83	32.95	10.26	400.07	(57.10)	342.97	6,032.68
2003/04	18.39	27.86	94.86	169.12	110.22	31.49	10.23	462.18	(69.47)	392.71	6,425.39
2004/05	20.60	29.65	98.51	149.53	102.39	28.28	10.99	439.94	(66.68)	373.26	6,798.65
2005/06	17.36	28.37	88.80	140.92	130.82	23.60	11.10	440.97	(41.33)	399.64	7,198.30
2006/07	21.34	25.40	87.95	172.78	88.82	28.64	11.90	436.83	(74.20)	362.63	7,560.92
2007/08	23.95	15.33	80.98	188.78	165.49	36.24	12.12	522.90	(58.60)	464.30	8,025.22
2008/09	23.18	30.50	73.30	224.90	56.72	31.30	13.40	453.30	(58.59)	394.71	8,419.93
2009/10	34.69	39.06	91.87	205.72	71.27	35.93	13.97	492.49	(54.28)	438.22	8,858.15
2010/11	34.70	49.13	97.02	206.13	100.66	36.22	14.10	537.96	(46.08)	491.88	9,350.03
2011/12	26.52	57.29	94.26	197.73	109.67	38.73	14.68	538.88	(59.04)	479.84	9,829.87
2012/13 <sup>3</sup>	34.62	61.06	72.72	170.08	135.15	35.30	14.35	523.28	(42.33)	480.95	10,310.81
2013/14	27.13	60.51	93.50	163.40	91.77	30.64	14.21	481.17	(49.77)	431.40	10,742.21
2014/15	25.74	68.67	97.40	160.18	97.27	26.84	15.63	491.73	(51.74)	439.99	11,182.20
TOTALS	757.91	871.39	3,268.00	5,169.07	1,662.36	804.45	421.51	12,954.69	(1,772.49)	11,182.20	

\* Includes costs for excess capacity constructed for Metropolitan on the System and East Branch Enlargement

<sup>1</sup> Minimum Operations, Maintenance, Power, and Replacement charge

<sup>2</sup> DWR requested early payment of \$36M to manage cash shortages due to 2001 California's energy crisis

<sup>3</sup> Reporting changed from cash to modified accrual basis in FY 2012/13



*Arvin-Edison/Metropolitan Water Management Program*

Under the December 1997 agreement with Arvin-Edison Water Storage District, Metropolitan can store up to 350,000 AF in the groundwater basin underlying Arvin-Edison, in the southern San Joaquin Valley. During FY 2014/15, Metropolitan recovered 35,688 AF from Arvin-Edison to improve reliability. The total water in storage on June 30, 2015 was 148,011 AF.

*San Bernardino/Metropolitan Coordinated Operating Agreement*

A July 2000 coordinated operating agreement with San Bernardino Valley Municipal Water District provides for the annual purchase of 20,000 AF and a carryover storage account of 50,000 AF. The agreement also provides Metropolitan with the option to purchase additional water when available. San Bernardino Valley Municipal Water District did not make any supplies available for Metropolitan to purchase in FY 2014/15 due to drought conditions limiting water availability. There was a carryover balance of zero on June 30, 2015.

*Kern Delta/Metropolitan Water Management Program*

A 2003 agreement with the Kern Delta Water District allows Metropolitan to store up to 250,000 AF in the groundwater basin underlying Kern Delta and retrieve up to 50,000 AF per year. During FY 2014/15, Metropolitan received 29,157 AF from Kern Delta, double the amount received in FY 2014. Total water in storage on June 30, 2015 was 139,997 AF.

*Mojave/Metropolitan Water Storage Program*

In 2003, Metropolitan entered into a demonstration agreement with Mojave Water Agency. The agreement allows for the exchange of SWP water on the basis of one acre-foot of return water for each acre-foot of water previously delivered to Mojave. In July 2011, the agreement was amended to extend the term to 2035 and reduce program costs. During FY 2014/15, Metropolitan recovered 4,290 AF, leaving 35,114 AF in the exchange account on June 30, 2015.

### ***Water Transfers and Exchanges***

Dry conditions in the SWP watershed resulted in a final 2014 SWP allocation of 5 percent. Continued record-dry conditions resulted in a 20 percent SWP allocation as of June 30, 2015. Due to these low allocations, Metropolitan entered into agreements to purchase significant SWP water transfer supplies in FY 2014/15. However, most of these water transfer supplies were not available because the sellers' water supplies were curtailed due to the continued dry conditions.

#### ***Yuba Accord Water Transfers***

In summer 2014, Metropolitan purchased 10,962 AF of supplies made available by the Yuba County Water Agency under a 2007 long-term agreement with DWR. After conveyance losses, Metropolitan received 8,770 AF of Yuba transfer supplies.

#### ***San Gabriel Valley Municipal Water District Exchange***

Metropolitan entered into a purchase and exchange agreement with San Gabriel Valley Municipal Water District in September 2013. As a result of the agreement, Metropolitan obtained 2,219 AF of additional supply by exchange and purchased an additional 563 AF for program operation during FY 2014/15.

## ***Colorado River Resources***

During FY 2014/15, no surplus was available to Metropolitan, and California was limited to its basic apportionment of 4.4 million acre-feet. Acquisitions and exchanges made possible by the 2003 Quantification Settlement Agreement continued during the year allowing Metropolitan to acquire water to augment its basic annual apportionment of Colorado River water. Metropolitan conveyed 1,176,334 AF in its Colorado River Aqueduct during CY 2014, about 163,000 AF more than the previous year. Metropolitan achieved this by taking advantage of 2007 water management agreements that allow agencies to develop and store new water supplies in Lake Mead as intentionally created surplus. Metropolitan withdrew about 321,000 AF of these surplus supplies in CY 2014, and as of January 2015, Metropolitan had 151,161 AF of intentionally created

surplus stored in Lake Mead. Metropolitan plans to continue withdrawing from this account during calendar year 2015 in order to maintain deliveries on the Colorado River Aqueduct. Figure 3-2 illustrates annual water supplies managed through the Colorado River system. These supplies include diversions into Metropolitan's service area and water stored or exchanged outside Metropolitan's service area, including intentionally created surplus supplies, since calendar year 2003.

Figure 3-3 illustrates the shift to long-term dry conditions that has impacted the storage levels of lakes Mead and Powell through FY 2015. As of June 30, there had been below-average precipitation for most of the months in the 2015 water year (October 1 to September 30), resulting in a projected unregulated inflow to Lake Powell of approximately 84 percent of normal from April through July 2015.

### ***Water Supply Acquisitions and Exchanges***

In calendar year 2014, Metropolitan obtained 84,305 AF from its agricultural conservation program with Imperial Irrigation District, while an additional 43,010 AF was made available from Metropolitan's land fallowing agreements with farmers in the Palo Verde Valley. In addition, 180,123 AF was delivered to San Diego County Water Authority by exchange, consisting of 100,000 AF of IID conservation plus 80,123 AF of conserved water from the Coachella Canal and All-American Canal lining projects, which was conveyed through the Colorado River Aqueduct. The lining projects also produced 16,000 AF that was used by Metropolitan.

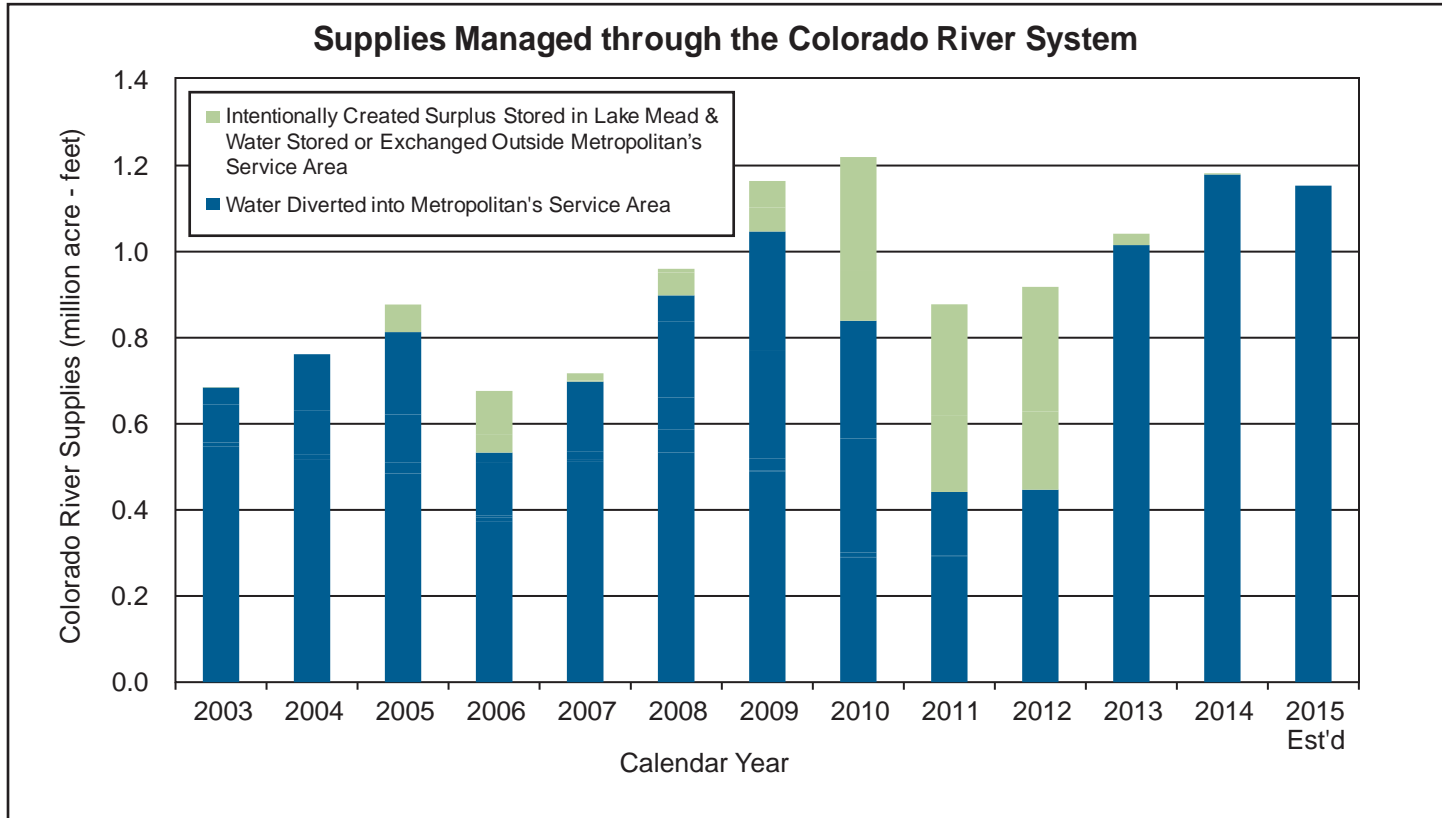


Figure 3-2. Supplies Managed through the Colorado River System

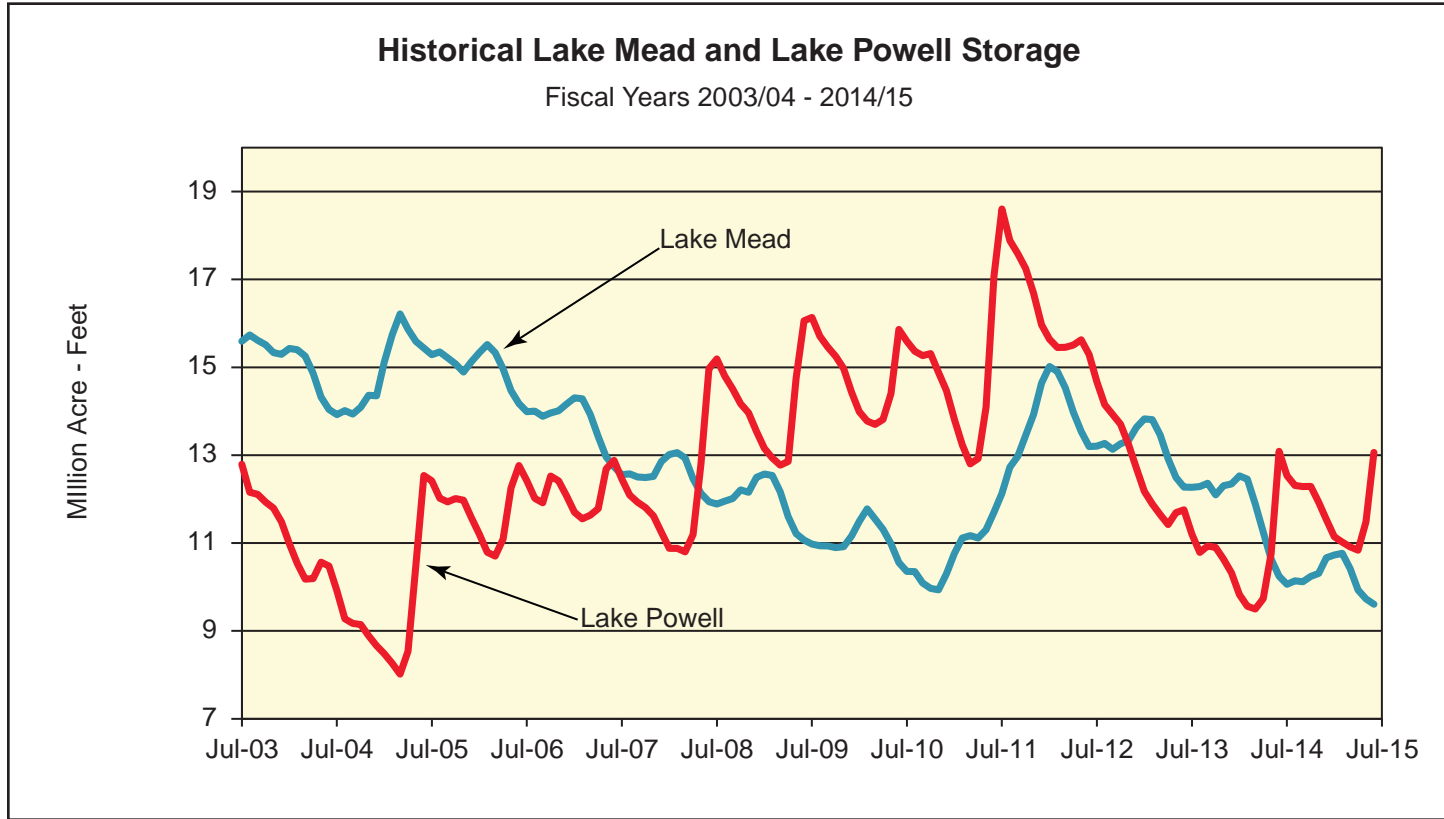
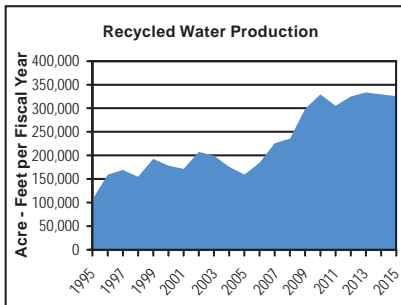


Figure 3-3. Historical Lake Mead & Lake Powell Storage

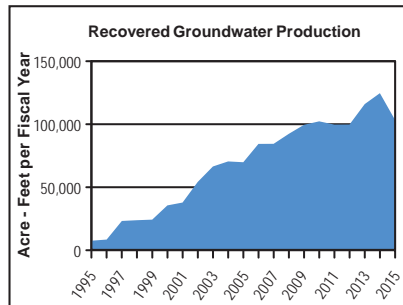
## *Local Resources*

### ***Water Recycling and Groundwater Recovery***

Metropolitan's Local Resources Program has provided about \$499 million since its inception in 1982, producing about 3 MAF of recycled water and recovered groundwater, through financial incentives of up to \$340 per acre-foot. In October 2014, Metropolitan adopted refinements to the LRP to further encourage development of recycled water projects in response to current drought conditions. During FY 2014/15, Metropolitan provided \$35 million for development of 224,000 AF under the LRP. Including LRP projects, the region used about 326,000 AF of recycled water (Fig. 3-4), and about 103,000 AF of recovered groundwater (Fig. 3-5). Currently, there are 99 projects under contract expected to produce about 419,000 AF per year once fully implemented. Contracts include performance targets that are assessed every year and when targets are not met, reductions to the contract can be made.



*Figure 3-4*



*Figure 3-5*

*Figures reflect deliveries for Metropolitan-assisted projects and payments reported through June 2014 and are subject to change.*

### ***Seawater Desalination***

In October 2014, Metropolitan added seawater desalination as a local supply eligible for LRP incentives. Metropolitan also provides financial incentives of up to \$340 per acre-foot for development and use of desalinated seawater under the revised Local Resources Program. Since 2001, Metropolitan has entered into agreements with its member agencies to fund three local seawater desalination projects amounting to 46,000 AFY of potential production. The three projects are currently in the planning stages. During FY 2014/15, Metropolitan continued coordinating regulatory policy for seawater desalination through financial support and participation in CalDesal, a consortium of California water agencies and other stakeholders working to advance seawater and groundwater desalination.

### ***Groundwater Storage***

Metropolitan's dry-year conjunctive use programs store wet-year imported supplies to enhance reliability during dry, drought and emergency conditions. In late FY 2014/15, Metropolitan initiated calls for use of the remaining balance of conjunctive use storage, due to continuing dry conditions. Performance of these calls over the coming year will empty the storage accounts. Table 3-2 shows the balance of stored water in each in-region groundwater conjunctive use program.

**TABLE 3-2**  
**METROPOLITAN'S CONJUNCTIVE USE PROGRAMS**

<b>Conjunctive Use Program</b>	<b>Total Storage Capacity (AF)</b>	<b>2014/15 Beginning Balance (AF)</b>	<b>Change in Storage (AF)</b>	<b>2014/15 Ending Balance (AF)</b>
<b>Los Angeles County</b>				
Claremont	3,000	1,501	795	706
Compton	2,289	0	0	0
Foothill	9,000	283	200	83
Live Oak	3,000	687	0	687
Long Beach Phase 1	13,000	6,402	6,402	0
Long Beach – Lakewood	3,600	900	900	0
<b>Orange County</b>				
Orange County	66,000	39,547	22,917	16,630
<b>San Bernardino County</b>				
Chino Basin	100,000	0	0	0
<b>Riverside County</b>				
Elsinore Basin	12,000	6,124	4,263	1,861
<b>TOTAL</b>	<b>211,889</b>	<b>55,444</b>	<b>35,477</b>	<b>19,967</b>

Some 2014/15 beginning balances differ from 2013/14 ending balances due to data received after publication of the 2014 Annual Report. 2014/15 data presented in this table includes CUP production data that was received by June 30, 2015 and are subject to change.



## *Conservation and Water-Use Efficiency*

In April 2015, with California in one of its worst droughts on record, Metropolitan's board adopted a Water Supply Allocation Plan at a Level 3 Regional Shortage Level calling for its member agencies, retail water agencies, and cities to reduce water purchases by 15 percent in FY 2015/16.

On May 27, 2015, Metropolitan's board approved a record addition of \$350 million to Metropolitan's existing conservation budget, raising the total budget to \$450 million over two years without impacting water rates. As of June 30, 2015, Metropolitan had paid out \$135 million of its \$450 million budget, saving a projected 18,600 acre-feet of water per year for Southern California.

Since 1985, the population within Metropolitan's service area has increased by more than 5 million, but demands have remained flat. Potable per capita water use has declined by about 24 percent during this period, largely attributed to conservation efforts.

## *Water Resource and System Planning*

### *Integrated Water Resources Planning*

Metropolitan's Integrated Water Resources Plan represents a diversified 25-year strategy to balance locally-developed resources with imported supplies. Adopted by Metropolitan's board in 1996 and updated in 2004 and 2010, the IRP has fostered supply diversity and stability through investments in water conservation, recycling, groundwater treatment, storage and transfers. In December 2014, Metropolitan staff updated the board on progress made over the last year towards achieving the 2010 IRP's goals in four major resource areas: the Colorado River Aqueduct, the State Water Project, storage and transfers, and demand management. Throughout the year, Metropolitan developed programs to achieve long-term resource targets and near-term reliability.

In 2015, Metropolitan began work on Water Tomorrow, the next IRP Update process, to evaluate current conditions, determine changes in reliability from the 2010 IRP Update, and establish new goals and targets if needed. The IRP Update is structured as a two-part process, with a technical update to be followed by a review of resource policy issues. As with previous IRP updates, the Water Tomorrow process involves extensive participation from Metropolitan's board, member agencies and the public. Metropolitan staff gave an initial briefing to the board's Water Planning & Stewardship Committee in February 2015. To provide dedicated oversight and input into the IRP Update process, the board formed an Integrated Resources Planning Committee, which began meeting in March 2015. In April, Metropolitan staff began a series of technical workshops with member agency staff through an IRP Member Agency Technical Workgroup. An IRP Update report is expected to be published in early 2016.

### ***Water Supply Allocation Plan***

The Water Supply Allocation Plan, first adopted in 2008, has provided a formula for equitable distribution of available water supplies in case of extreme water shortages within Metropolitan's service area. Under the plan, member agencies could purchase up to a limited amount of Metropolitan water without paying penalties.

Through a series of workshops between July and November 2014, Metropolitan staff engaged with member agencies to review the WSAP. The purpose of the review process was to provide opportunity for Metropolitan staff and the member agencies to reevaluate the plan and recommend appropriate updates and changes for board consideration. In December 2014, the board approved adjustments for calculating member agency allocations. The adjustments included replacing the penalty rate with an allocation surcharge that is based on the cost of turf replacement programs. In April 2015, the board voted to implement WSAP Level 3; this is roughly a 15 percent reduction in wholesale water use on a regional level effective July 1, 2015 through June 30, 2016.

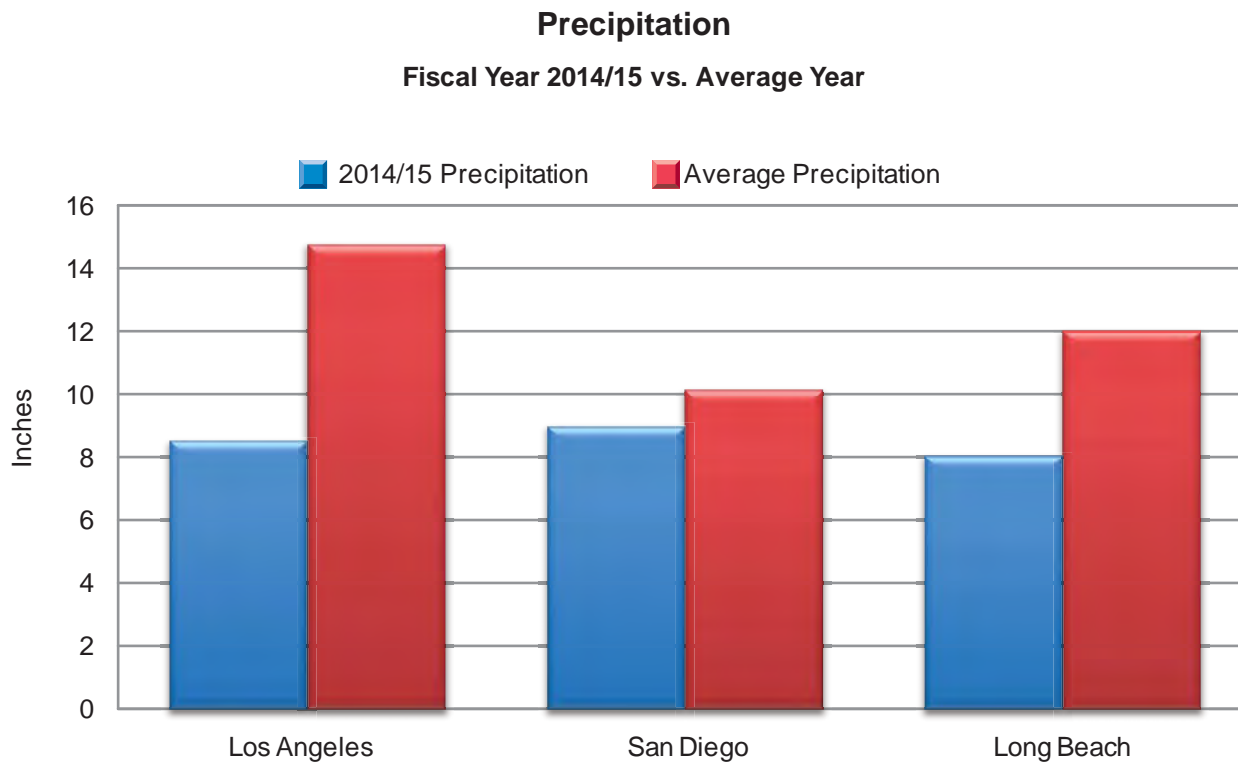
### ***Water Resource Data***

Figure 3-6 displays precipitation for FY 2014/15 compared to average annual precipitation figures for three weather stations within Metropolitan's service area. Annual precipitation figures for all three stations reflect continued drought conditions throughout the service area. For 2014/15, Los Angeles Civic Center recorded precipitation of 8.5 inches, about 58 percent of the average annual precipitation of about 15 inches.

Figure 3-7 displays population served by Metropolitan since 1990, with historical population based on state Department of Finance estimates and projections based on regional transportation planning agencies. In 1990, the population served was approximately 15 million people. Since 1990, the population served has increased to more than 18 million people.

Figure 3-8 displays Metropolitan's historical water sales and exchanges since FY 1989/90, which have ranged between 1.5 MAF and 2.51 MAF. Variations in sales are attributed to many factors that include weather, hydrologic conditions and economic activity.

Figure 3-9 displays Metropolitan's calendar year ending storage reserves for the past 10 years. Metropolitan stores water during wet years for use during dry years to mitigate shortfalls between supplies and demands buffering the region from significant storage impacts. However, persistent dry conditions and record low SWP deliveries prompted the largest single year withdrawal from storage in the amount of 1.1 MAF in calendar year 2014. At the end of calendar year 2014, Metropolitan had total storage reserves of 1.84 MAF, consisting of 1.21 MAF of dry-year storage and 630,000 AF of emergency storage. Previous withdrawals had taken place from 2007 to 2009 as a result of fisheries restrictions and dry hydrologic conditions, but Metropolitan was able to refill and add to this storage in the next three years due to improved hydrologic conditions on the SWP, combined with successful conservation measures and other strategic investments. As a result, Metropolitan entered the current drought in 2013 with record-level storage.



*Figure 3-6. Precipitation*

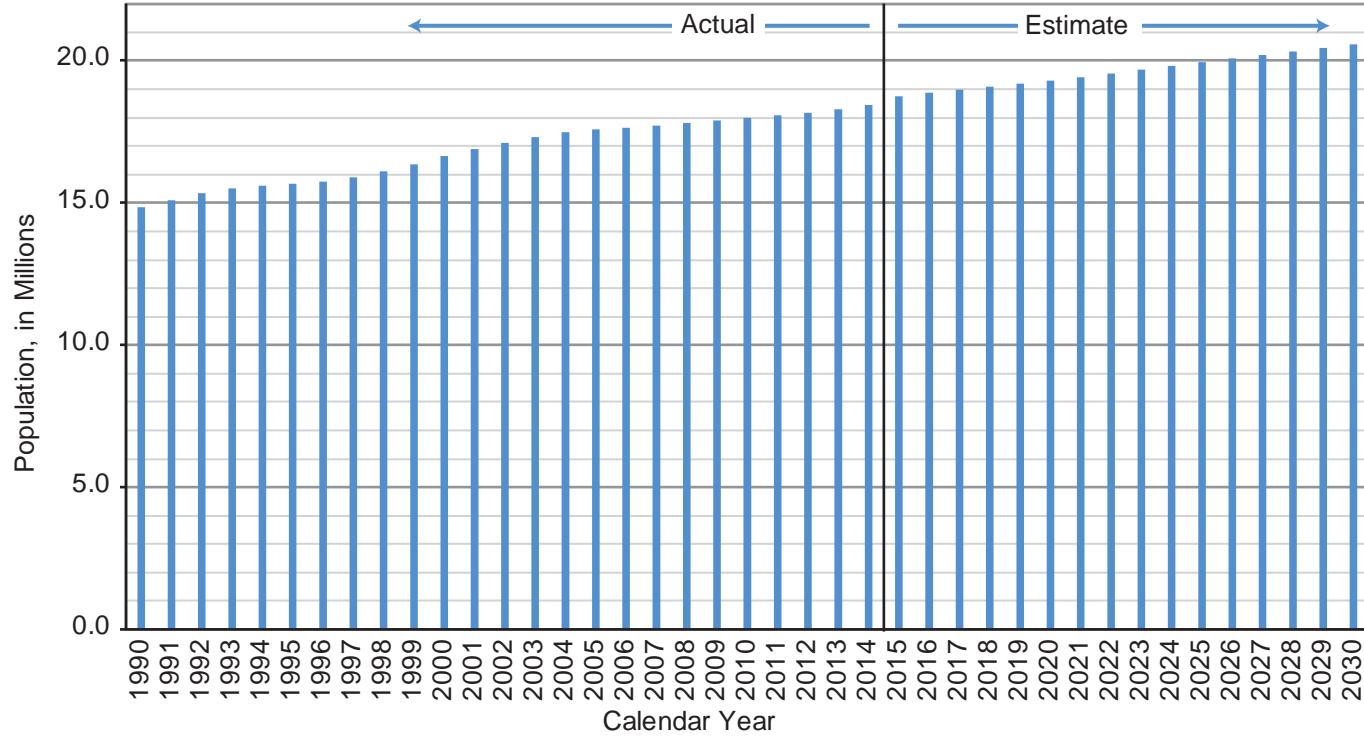


Figure 3-7. Population Growth

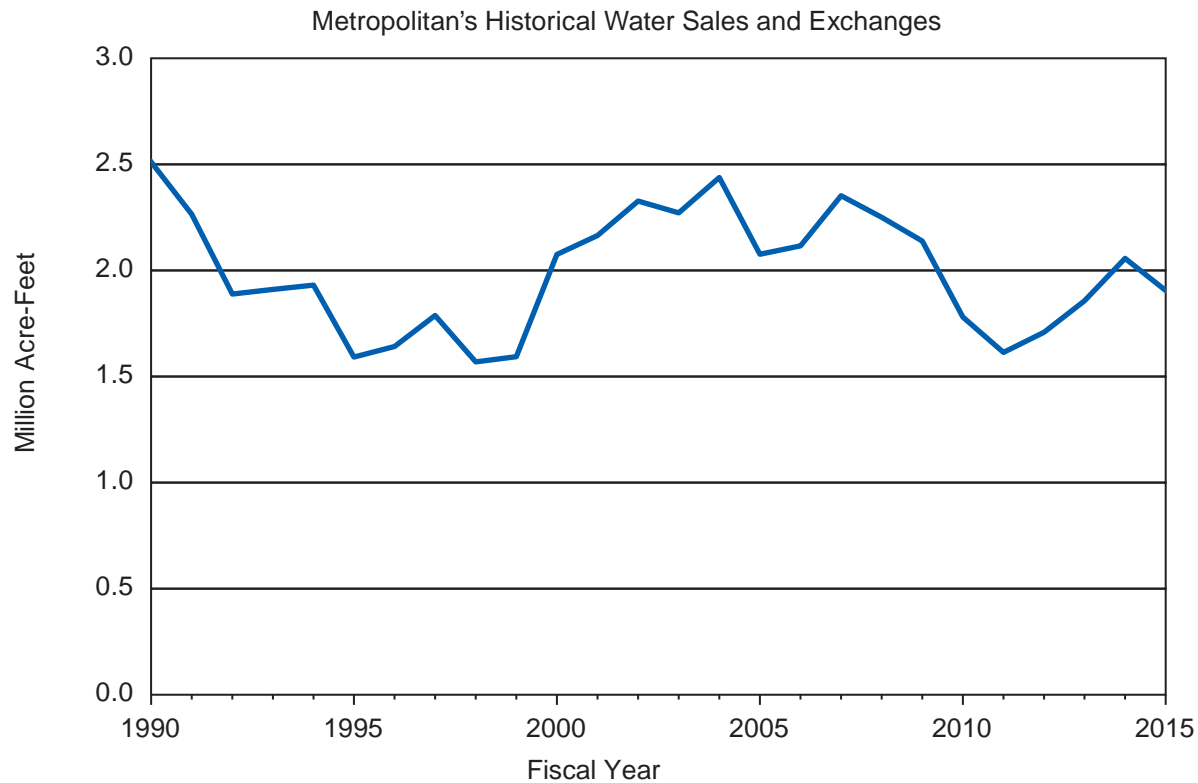


Figure 3-8. Metropolitan's Historical Water Sales and Exchanges

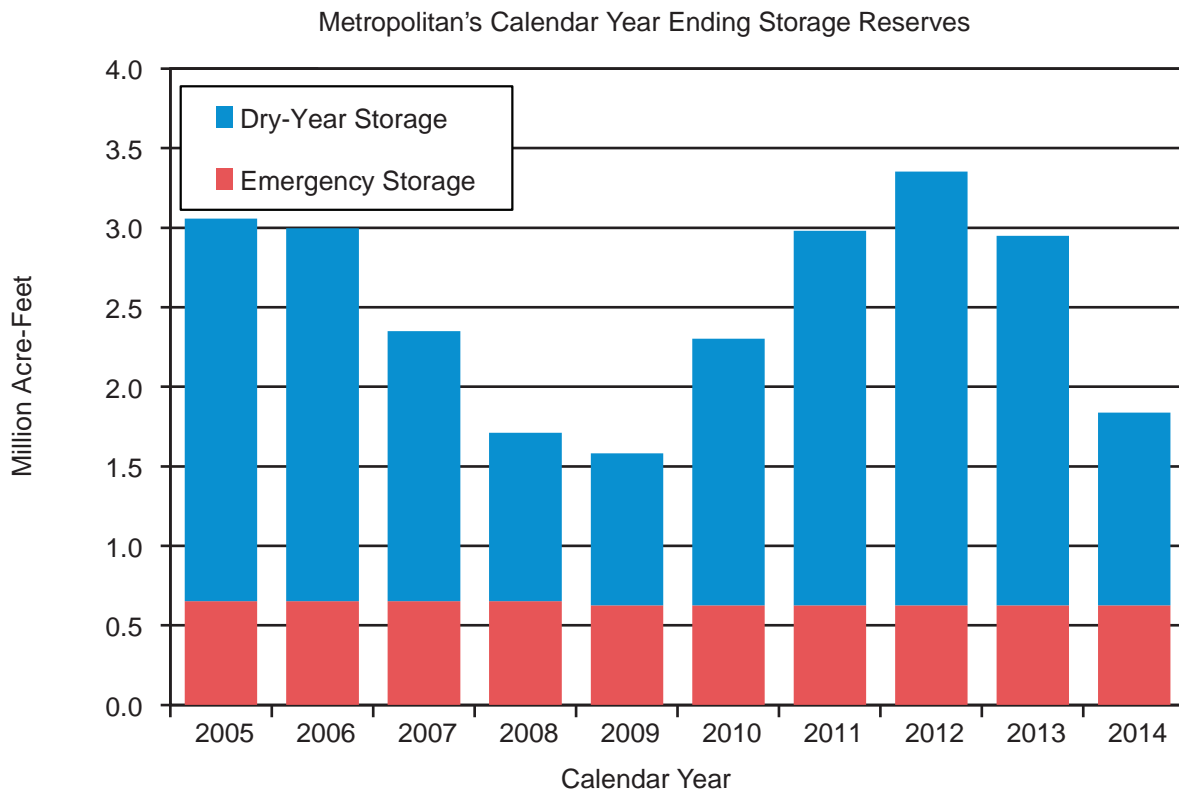


Figure 3-9. Metropolitan's Calendar Year Ending Storage Reserves



*Crews align a 96-inch flange during a pipeline shutdown near Lake Skinner, December 2014.*



# Water System Operations

**T**he Water System Operations Group conveys, treats and distributes water for nearly 19 million Southern Californians. WSO ensures excellent water quality for Metropolitan's six-county service area that meets all drinking water standards, and operates and maintains Metropolitan's five treatment plants with a combined capacity of more than 2.6 billion gallons of water per day. WSO balances demand and supply as it operates, manages and maintains Metropolitan's water and power systems. It also oversees security; provides machine and fabrication services to support Metropolitan infrastructure; offers technical advice and support to member agencies, customers and other entities; provides technical training to ensure an effective, efficient and safe work environment; runs Metropolitan's Apprenticeship Program; assists in planning, design and construction of new facilities; and responds to emergencies to restore service in the shortest time possible.

## *Water Treatment*

Metropolitan's five water treatment plants treat water from the Colorado River and Northern California. The Robert B. Diemer Water Treatment Plant provides treated water to areas of Orange County and coastal Los Angeles. The Joseph Jensen Water Treatment Plant supplements local water supplies in the San Fernando Valley, Ventura County and central Los Angeles, while the F.E. Weymouth Water Treatment Plant generally serves eastern Los Angeles County, the San Gabriel Valley and parts of Orange County. The Henry J. Mills Water Treatment Plant serves western Riverside County and Moreno Valley. The Robert A. Skinner Water Treatment Plant serves parts of Riverside County and meets the supplemental treated water needs of San Diego County.

This year, due to the prevailing drought conditions and limited availability of State Water Project supplies, system modifications

at the Jensen and Mills plants enabled reliable treated water deliveries to the plants' respective service areas. Using a variety of treatment techniques, the Mills plant successfully accommodated source water changes between Lake Perris and Lake Silverwood as the water resources dictated water availability. Increasing reliability in the delivery of water from Lake Perris to the Mills plant for treatment, staff made several major modifications to the Lake Perris water pump back facility including upgrading the flow control and monitoring systems.

Prior to the drought, the far western portions of the distribution system received only SWP supplies. In response to current drought conditions, Metropolitan reconfigured Jensen operations, enabling western portions of the service area to receive Colorado River water. The combination of low SWP supplies and use of Colorado River supplies from Weymouth meant that the Jensen plant operated below its minimum design flow. In February 2015, during an expedited two-day shutdown, staff from the Construction Services Unit installed a weir plate in the Sepulveda Feeder to enable improved control and steady hydraulic conditions downstream of the Jensen plant. As a part of the Oxidation Retrofit Program, staff increased the effluent chlorination capacity at the Weymouth plant by 50 percent, and staff completed construction of a new chlorination building including electrical and mechanical testing. The Weymouth plant staff also completed a major rehabilitation project for the washwater reclamation plant, which helps to maintain the quality of the treated water produced by the plant.

Chlorination of various parts of the Colorado River water conveyance system to control quagga mussel growth requires monitoring to ensure the effectiveness of the disinfection process. Staff at the Skinner plant had to overcome the challenge of providing power and water to a chlorine residual analyzer in a remote location with no nearby utilities. Staff devised a solution by installing solar panels, a radio transmitter, and a specialized pump to supply canal water to the chlorine analyzer. The hydraulically powered pump operates solely by centrifugal force created by channeling water flow through the device.

Staff continued to integrate the newly constructed Diemer ozone disinfection facilities into main plant operations, completing all startup activities for a scheduled switch to ozone as the primary disinfectant in

July 2015. At the Weymouth plant, construction continues on ozone disinfection facilities, which are expected to be turned over to operations for start-up and testing in 2018.

During fiscal year 2014/15, Metropolitan invested about \$52.4 million in refurbishing and upgrading its five water treatment plants to adequately meet the treated water requirements of its service area. Another \$49 million was invested on water quality improvement projects, with a major portion of the funds dedicated to construction of the Weymouth ozone facilities.

## *Water Quality*

### ***Regulations***

Despite the ongoing challenges imposed by the current drought, Metropolitan's source and treated water supplies met strict regulatory requirements and no additional capital or operating costs were needed to maintain 100 percent compliance with drinking water regulations.

The fiscal year began with the drinking water regulatory program being transferred from the California Department of Public Health to the State Water Resources Control Board. Now known as the Division of Drinking Water, it remains the regulatory authority for all public water systems. Metropolitan continues to participate on a transition advisory panel.

Also on July 1, California became the first state in the nation to regulate hexavalent chromium. Water utilities are required to comply with the new maximum contaminant level of 10 parts per billion hexavalent chromium by the end of calendar year 2015. The setting of the MCL concludes nearly 15 years of state effort examining the potential human health effects, available treatment technologies, and costs. Metropolitan provided extensive comments to CDPH as part of the standard-setting process. Metropolitan's source and treated water supplies remain below the MCL and will require no additional treatment.

Metropolitan began compliance monitoring with the second round of the Long Term 2 Enhanced Surface Water Treatment Rule in April 2015. The LT2 requires water systems serving over 100,000 people to conduct two years' monitoring of the source waters for their treatment plants, to determine if the pathogen *Cryptosporidium* and indicator

bacteria *Escherichia coli* are present, and to determine if additional treatment is needed. The first round of LT2 monitoring was conducted from 2006 to 2008 with very low *Cryptosporidium* levels, and treatment practices remained the same.

### ***Water Quality Monitoring***

Water quality laboratory staff performed approximately 232,000 analytical tests using 183 methods on nearly 43,000 samples this year. Treatment plant laboratory staff performed an additional 150,000 analytical tests using 13 methods in 2014/15. The number of samples and analyses for Metropolitan's sources, treatment plants and distribution system may change each year depending on regulations, monitoring plan, operations and water quality studies.

The water quality data presented here represents the fiscal year 2014/15 rather than calendar year data that are reported in the annual Water Quality Report. As such, there may be minor differences in reported metrics.

#### ***Chemical/Physical***

Staff analyzed Metropolitan's source and treated waters for inorganic and organic compounds, physical properties and other constituents. Table 4-1 lists the locations sampled for organic chemicals. No herbicides, pesticides, or synthetic organic compounds were detected. Tables 4-2 through 4-4 show locations and results for trace metals, radiologicals, and general minerals and physical analyses, respectively.

**TABLE 4-1  
SAMPLE LOCATIONS FOR ORGANIC COMPOUNDS**

Fiscal Year 2014/15

Source Water	Treated Water
Devil Canyon Afterbay	Diemer Plant Effluent
Diamond Valley Lake	Jensen Plant Effluent
Jensen Plant Influent	Mills Plant Effluent
Lake Havasu Intake	Skinner Reservoir Effluent <sup>1</sup>
Lake Mathews Headworks	Weymouth Plant Effluent
Lake Perris	
Lake Skinner Outlet Conduit	
San Jacinto Tunnel	

<sup>1</sup>Skinner Reservoir Effluent is a combined effluent from three Skinner plants.

**TABLE 4-2**  
**TRACE METALS IN METROPOLITAN'S WATER SUPPLIES**  
 Fiscal Year 2014/2015 (in micrograms per liter [µg/L])

Metal	Maximum Contaminant Level (MCL)	Minimum Reporting Level	SOURCE WATERS											TREATMENT PLANT EFFLUENTS				
			Lake Havasu	San Jacinto Tunnel	Lake Mathews	Castaic Lake at Jensen Inflow	Silverwood Lake	Mills Inflow	Lake Perris	Weymouth Inflow	Diemer Inflow	Diamond Valley Lake	Lake Skinner	Weymouth	Diemer	Jensen	Skinner	Mills
Aluminum	1000 (200 <sup>1</sup> )	10	21	14	86	83	16	31	72	57	56	ND	16	160	140	46	ND	120
Antimony	6	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	10	0.5	2.8	2.8	2.8	4.2	5.7	4.2	2.4	2.8	2.8	2.7	2.8	2.2	2.2	2.6	0.6	2.1
Barium	1000	5	129	128	126	41	39	47	58	131	129	39	112	126	126	38	112	45
Beryllium	4	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron	1000 <sup>3</sup>	20	120	120	120	230	210	210	190	130	120	150	130	130	130	230	130	200
Cadmium	5	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	50	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium 6	10	0.03	ND	ND	ND	0.54	0.51	0.34	0.03	ND	ND	ND	ND	0.05	0.05	0.56	0.06	0.37
Copper	1300 <sup>2</sup> (1000 <sup>1</sup> )	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron	300 <sup>1</sup>	50	ND	ND	120	130	ND	ND	50	55	65	ND	ND	ND	ND	ND	ND	ND
Lead	15 <sup>2</sup>	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lithium	--	10	43	43	42	ND	ND	ND	ND	46	45	ND	38	45	44	ND	38	ND
Manganese	50 <sup>1</sup>	5	ND	ND	6	9	23	18	19	ND	5	70	6	ND	ND	ND	12	ND
Mercury	2	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Molybdenum	--	2	5	5	5	5	7	5	4	5	5	3	5	5	5	5	5	5
Nickel	100	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	50	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	1001	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Strontium	--	20	1100	1120	1090	370	360	330	310	1110	1110	300	990	1110	1110	360	1000	330
Thallium	2	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	503	1	2.6	2.5	3.4	7.3	9.3	7.4	4.4	3.5	3.3	1.8	2.6	3.2	3.1	6.7	ND	6.8
Zinc	5000 <sup>1</sup>	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = Not Detected

<sup>1</sup> Secondary standard based on consumer acceptance rather than health considerations.

<sup>2</sup> Action level. The MCL for lead has been replaced with a treatment technique requiring agencies to optimize corrosion control treatment when the action level is exceeded in more than 10 percent of samples collected at the consumers' tap. Copper has a similar treatment technique requirement in addition to the secondary MCL.

<sup>3</sup> California notification level: a health-based advisory level.

**TABLE 4-3**  
**RADIOLOGICAL COMPLIANCE MONITORING<sup>1</sup>**  
 2014 Four Quarter Ranges (in picoCuries per liter)

LOCATION	COMBINED					
	GROSS ALPHA	GROSS BETA	RADIUM 226 & 228	STRONTIUM 90	TRITIUM	URANIUM
<b>MCL</b>	<b>15</b>	<b>50<sup>2</sup></b>	<b>5</b>	<b>8</b>	<b>20,000</b>	<b>20</b>
<b>DLR</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>1,000</b>	<b>1</b>
Lake Havasu Intake	ND-3	4-6	ND	ND	ND	2-3
San Jacinto Tunnel West Portal	ND-4	5-6	ND	ND	ND	2-3
Lake Mathews	ND-4	5-6	ND	ND	ND	2-3
Silverwood Lake	ND-4	ND	ND	ND	ND	2-4
Lake Perris	ND	ND-4	ND	ND	ND	2
Diamond Valley Lake	ND	ND	ND	ND	ND	1
Lake Skinner	ND-6	ND-5	ND	ND	ND	2-3
Weymouth Plant Effluent	ND-4	4-6	ND	ND	ND	2-3
Diemer Plant Effluent	ND-4	4-6	ND	ND	ND	2-3
Jensen Plant Influent	ND-5	ND-4	ND	ND	ND	2-3
Jensen Plant Effluent	ND-5	ND-5	ND	ND	ND	2-3
Mills Plant Effluent	ND-4	ND	ND	ND	ND	ND-4
Skinner Reservoir Effluent <sup>3</sup>	ND-5	5-6	ND	ND	ND	1-3

<sup>1</sup> Results obtained during Calendar Year 2014 triennial sampling. Data are reported for three years until the next samples are collected.

<sup>2</sup> The gross beta particle activity MCL is 4 millirem/year annual dose equivalent to the total body or any internal organ.  
 The screening level is 50 pCi/L.

<sup>3</sup> This is a combined effluent from three Skinner plants.

DLR = Detection Limits for Purposes of Reporting

MCL = Maximum Contaminant Level

ND = Not Detected. All results less than DLR were reported as ND.

**TABLE 4-4**  
**GENERAL MINERAL AND PHYSICAL ANALYSIS OF METROPOLITAN'S WATER SUPPLIES**  
Fiscal Year 2014/15 Averages

CONSTITUENTS	UNITS	SOURCE WATERS								TREATMENT PLANT EFFLUENTS				
		Lake Havasu	San Jacinto Tunnel	Lake Mathews	Castaic Lake at Jensen Inflow	Silverwood Lake at Devil Canyon	Lake Perris	Diamond Valley Lake	Lake Skinner	Weymouth	Diemer	Jensen	Skinner	Mills
Silica	mg/L	7.8	7.7	8.1	13.9	11.2	8.8	9.6	8.5	8.2	8.2	13.7	8.6	10.1
Calcium	mg/L	76	75	75	35	29	29	30	65	75	76	34	66	29
Magnesium	mg/L	26	26	26	11	8	13	14	24	26	26	11	24	11
Sodium	mg/L	91	91	92	73	73	72	58	84	97	98	81	90	77
Potassium	mg/L	4.6	4.7	4.7	2.6	2.4	3.2	3.5	4.4	4.7	4.7	2.6	4.5	2.8
Carbonate	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicarbonate	mg/L	163	160	160	110	99	111	105	149	156	154	109	148	105
Sulfate	mg/L	235	234	234	76	71	59	66	195	243	246	92	203	71
Chloride	mg/L	88	89	89	86	78	94	74	86	94	94	85	95	90
Nitrate	mg/L	1.3	1.2	1.0	3.3	2.7	0.2	0.4	0.7	1.0	1.1	3.4	1.0	2.3
Fluoride	mg/L	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.3	0.9	0.9	0.8	0.8	0.8
Total Dissolved Solids (TDS)	mg/L	611	609	610	355	325	335	307	542	628	632	378	866	345
Total Hardness as CaCO <sub>3</sub>	mg/L	295	292	292	132	108	128	131	256	294	295	130	261	116
Total Alkalinity as CaCO <sub>3</sub>	mg/L	134	132	132	90	81	91	86	122	128	126	90	121	86
Free Carbon Dioxide	mg/L	1.9	1.3	1.4	4.4	1.1	1.6	3.9	1.7	2.3	2.1	1.3	1.9	1.1
pH	pH	8.18	8.32	8.29	7.64	8.21	8.10	7.79	8.18	8.06	8.09	8.16	8.10	8.23
Specific Conductance	µS/cm	994	992	898	630	575	614	555	897	1020	1020	657	931	616
Color	CU	3	2	2	4	4	4	4	2	1	1	1	1	1
Turbidity	NTU	1.20	0.53	1.70	2.3	0.75	1.6	0.95	1.00	0.05	0.04	0.04	0.05	0.05
Temperature	°C	19	21	21	16	17	20	17	20	21	24	20	23	20
Bromide	mg/L	0.08	0.07	0.08	0.30	0.29	0.32	0.23	0.11	NA	NA	NA	NA	NA
Total Organic Carbon	mg/L	3.10	3.20	3.05	2.02	2.54	3.61	2.64	3.01	NA	NA	NA	NA	NA
Cyanide	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Foaming Agents (MBAS)	mg/L	ND	0.07	0.06	ND	0.06	0.07	ND	ND	ND	ND	ND	ND	ND
Threshold Odor Number (TON)	--	7	6	7	6	6	4	12	7	2	2	2	2	2
Saturation Index	--	NA	NA	NA	NA	NA	NA	NA	NA	0.56	0.62	0.22	0.55	0.21
Aggressiveness Index	--	13	13	13	12	12	12	12	12	12	12	12	12	12
State Project Water	%	0	0	0	100	100	100	100	19	0	0	100	18	100

ND - Not Detected

NA - Not Applicable

mg/L - milligrams per liter

µS/cm - microSiemen per centimeter

NTU - Nephelometric Turbidity Unit

CU - Color Units

### *Total Dissolved Solids*

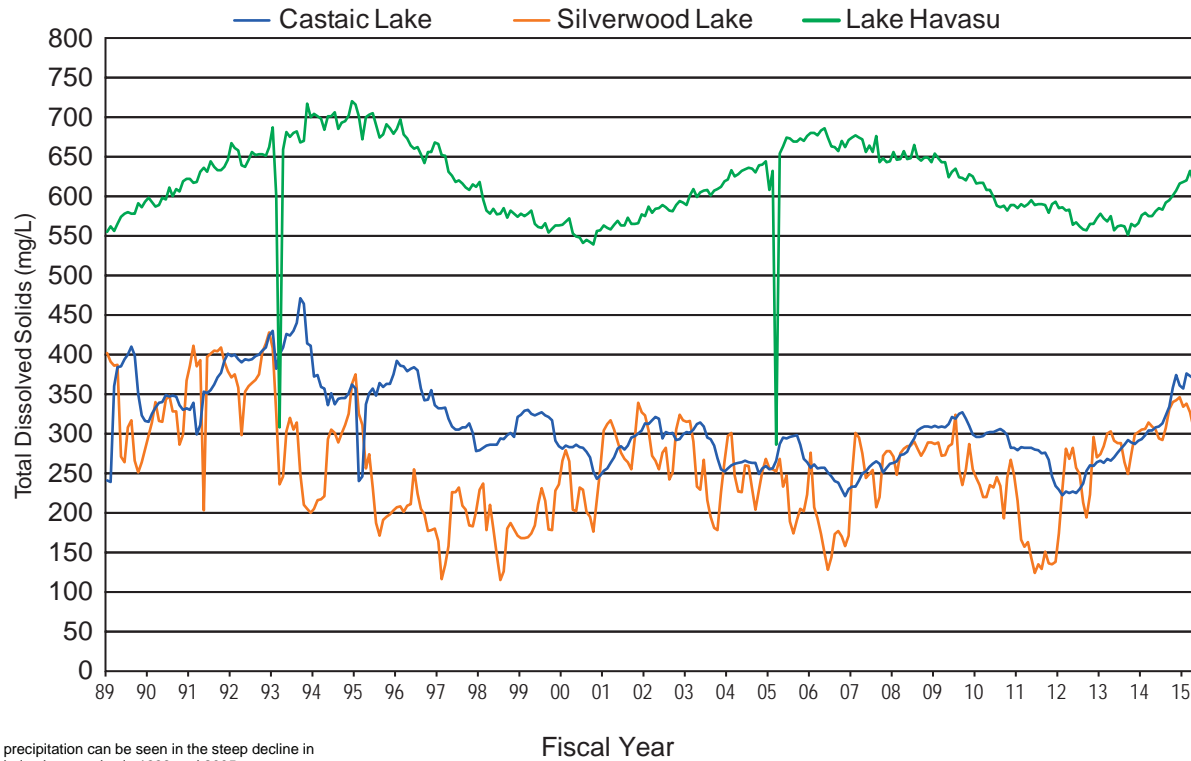
Salinity of the Colorado River Aqueduct is typically higher than the State Water Project, largely due to natural mineral salt deposits within the geology of the Colorado River watershed (Figure 4-1). Changes tend to occur more rapidly in water from the State Water Project as opposed to those in the Colorado River Aqueduct, however, due to the hydrodynamic fluctuations of the system. Figure 4-2 presents salinity as flow-weighted averages of the total dissolved solids levels in the effluents from all five treatment plants. During this reporting period, the Diemer, Skinner and Weymouth plants treated lower blends of SWP supply due to limited availability during the drought. As such, flow-weighted TDS averages were above Metropolitan's water quality goal of 500 milligrams per liter (mg/L).

### *Disinfection Byproducts*

Metropolitan has monitored for byproducts from disinfection in treatment plant effluents since 1979. Table 4-5 summarizes the levels of disinfection byproducts—trihalomethanes, haloacetic acids, and bromate—in plant effluents during the fiscal year. The highest locational running annual averages were below the MCLs of 80 micrograms per liter ( $\mu\text{g/L}$ ) for TTHMs and 60  $\mu\text{g/L}$  for HAA5. Bromate was below 10  $\mu\text{g/L}$ . Compliance under the Stage 2 Disinfectants and Disinfection Byproducts Rule began in 2013, requiring drinking water systems to monitor distribution system locations with the highest total trihalomethanes and haloacetic acids and report results as locational running annual averages. Figures 4-3 and 4-4 summarize the long-term trends for TTHMs and HAA5, respectively.

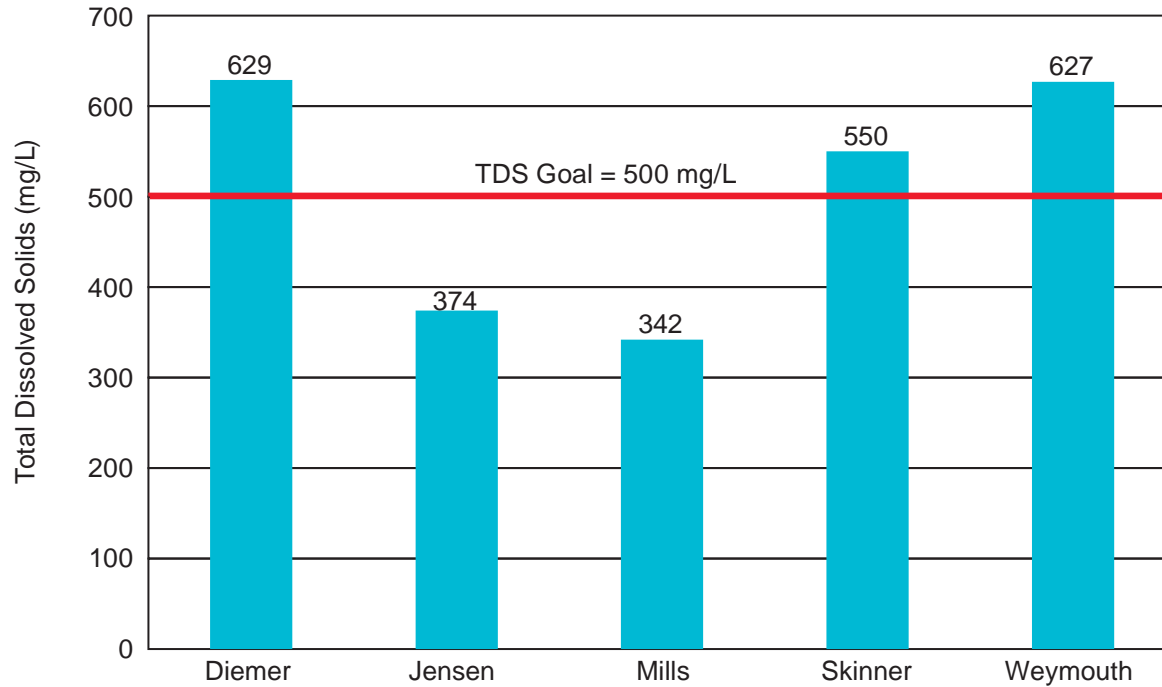
Figure 4-5 exhibits the plant influent levels of the DBP precursors, total organic carbon and bromide. The gap in bromide data at Skinner is due to influent chlorination to control quagga mussels during FY 2009 and 2010. Bromide levels naturally fluctuate every spring and summer due to Sierra snowmelt and increased outflow from the Delta. Bromate, a byproduct of ozone treatment, was monitored after ozone came online at Mills in 2003, Jensen in 2005 and Skinner in 2010. Figure 4-6 shows trends in bromate levels. Application of an ammonia-chlorine bromate control strategy began in October 2010 at the Mills plant. The strategy results in lower bromate levels and operating costs.





The effects of precipitation can be seen in the steep decline in CRA salinity during heavy rains in 1993 and 2005.

Figure 4-1. Total Dissolved Solids in East Branch SWP (Silverwood Lake), West Branch SWP (Castaic Lake), and CRA (Lake Havasu), 1989 to 2015



*Figure 4-2. Total Dissolved Solids in Plant Effluent, Annual (Flow-Weighted) Averages, Fiscal Year 2014/15  
(mg/L = milligrams/liter or parts per million)*

**TABLE 4-5  
DISINFECTION BYPRODUCT LEVELS  
IN PLANT EFFLUENT**

Fiscal Year 2014/15 [in micrograms per liter (µg/L) or parts per billion]

Plant Effluent	TTHMs		HAA5		Bromate	
	Range	Annual Average	Range	Annual Average	Range	Annual Average
<b>MCL</b>		<b>80</b>		<b>60</b>		<b>10</b>
Diemer	22–30	28	7.2–14	11	NA	NA
Jensen	11–14	12	3.3–6.0	4.3	6.1–8.8	7.4
Mills	12–25	20	1.8–8.4	5.3	3.6–4.9	4
Skinner	12–17	15	1.4–8.0	5.2	2.8–6.7	4.4
Weymouth	23–34	29	7.8–17	12	NA	NA
<b>Distribution System</b>	<b>FY Range</b>	<b>LRAA Range</b>	<b>FY Range</b>	<b>LRAA Range</b>		
	16–48	18–38	2.0–23	4.5–17		

Notes:

TTHMs = total trihalomethanes

HAA5 = five regulated haloacetic acids

MCL - Maximum Contaminant Level

NA - Not analyzed

ND - Not detected

LRAA - Locational Running Annual Average

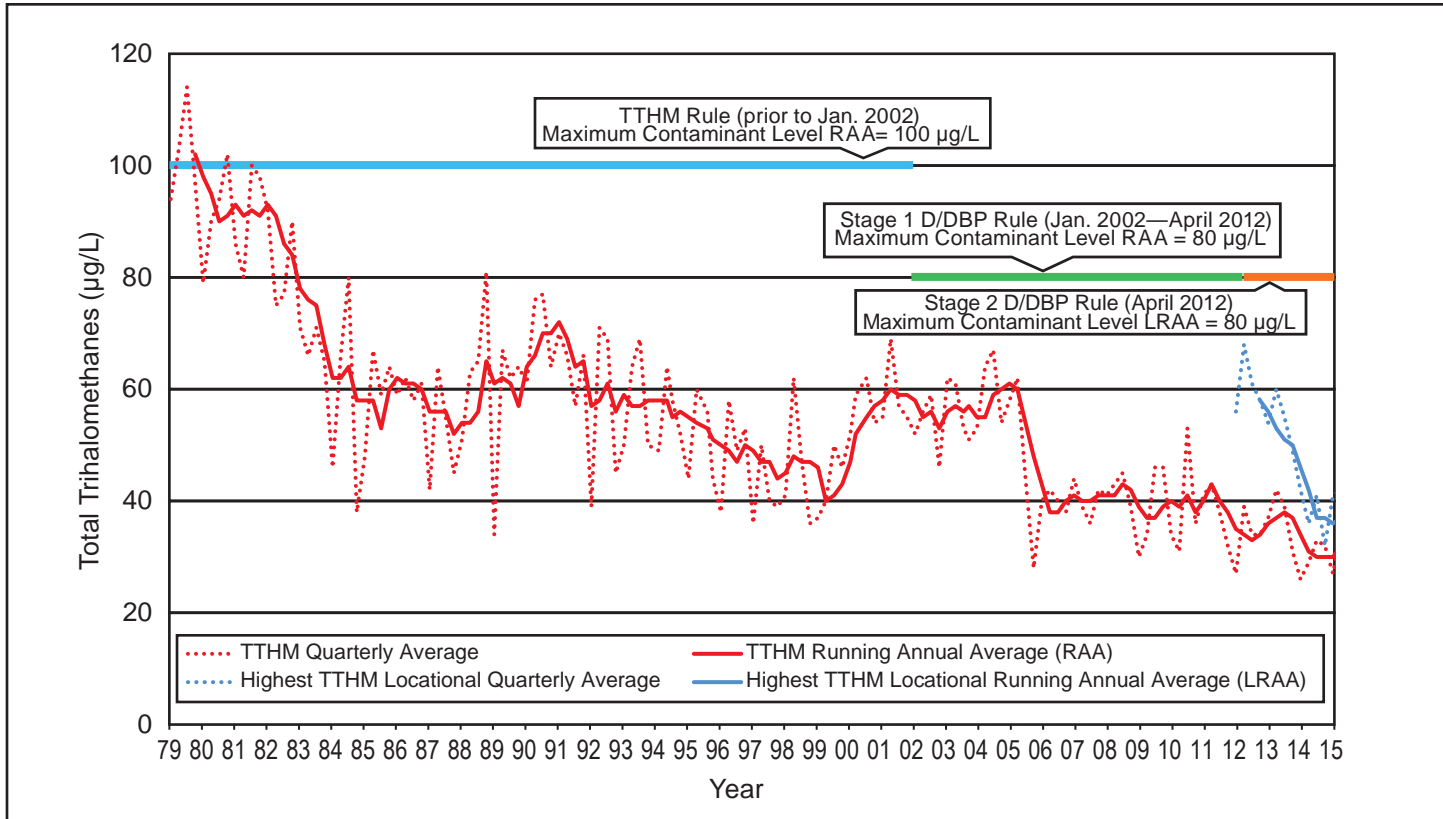


Figure 4-3. Trihalomethane Levels - Distribution Systemwide Quarterly and Running Annual Averages, 1979 to 2015 ( $\mu\text{g/L}$  = micrograms/Liter or parts per billion)

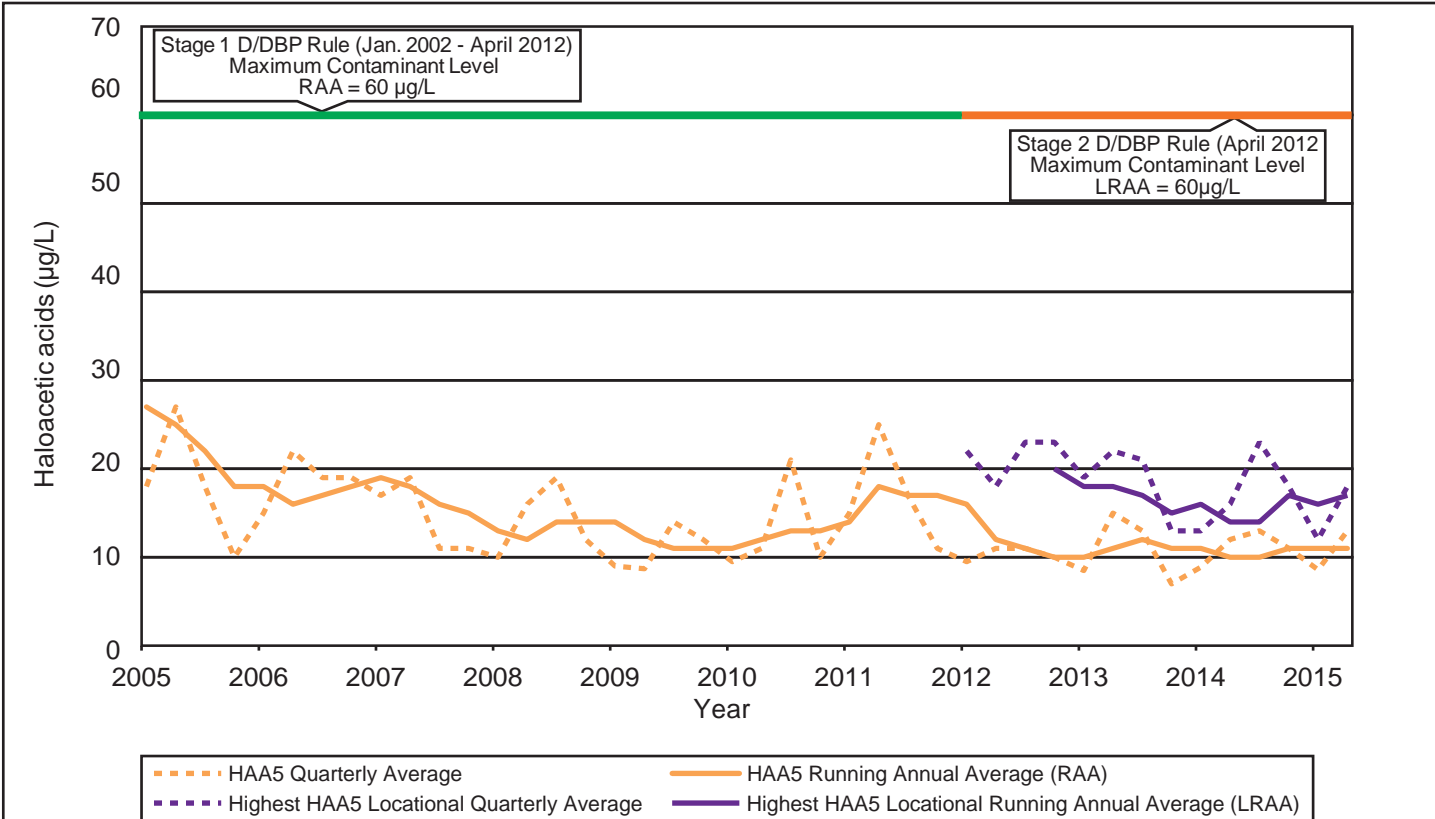


Figure 4-4. Haloacetic Acids - Distribution Systemwide Quarterly and Running Annual Averages, 2005 to 2015  
(µg/L = micrograms per liter or parts per billion; HAA5 = five regulated haloacetic acids)

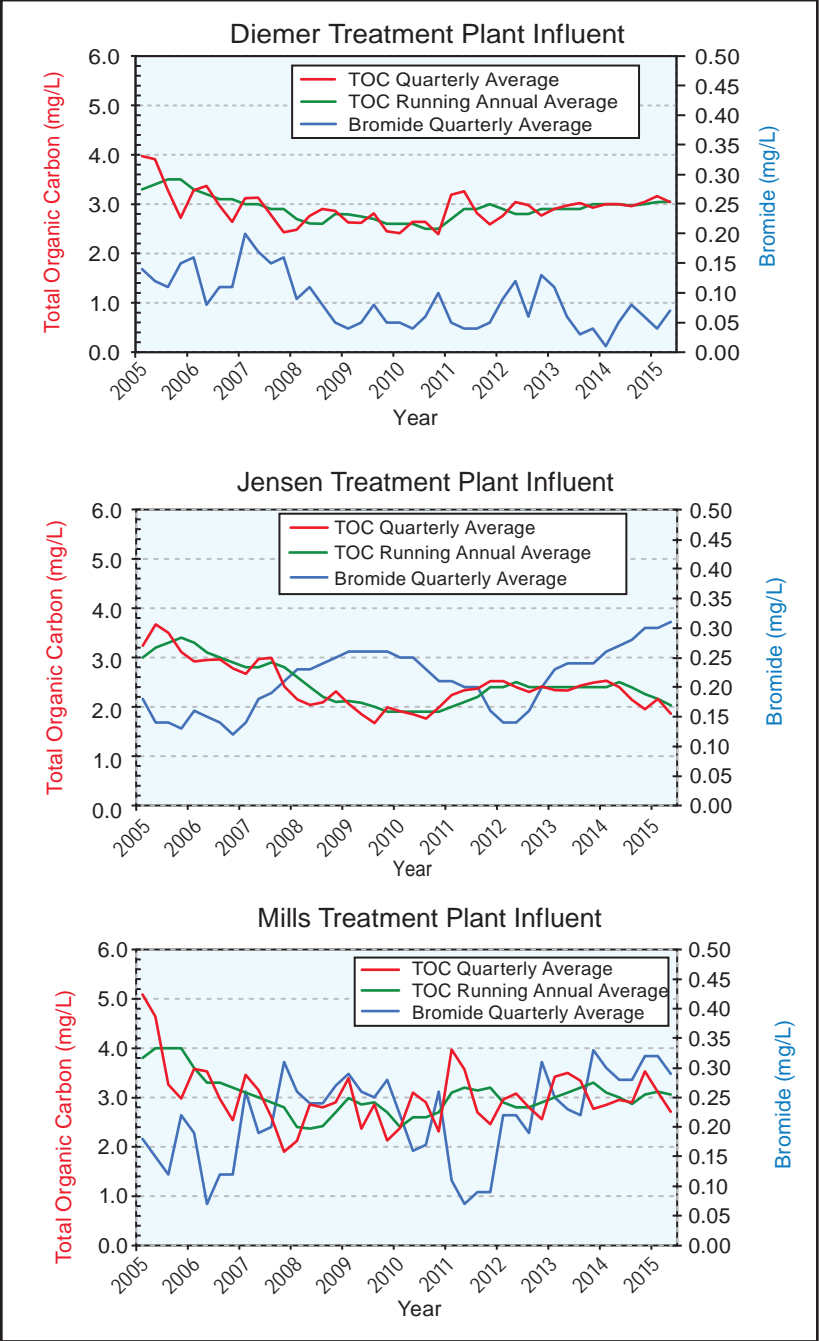


Figure 4-5. Total Organic Carbon (TOC) and Bromide Levels in Treatment Plant Influent, FY 2005-2015

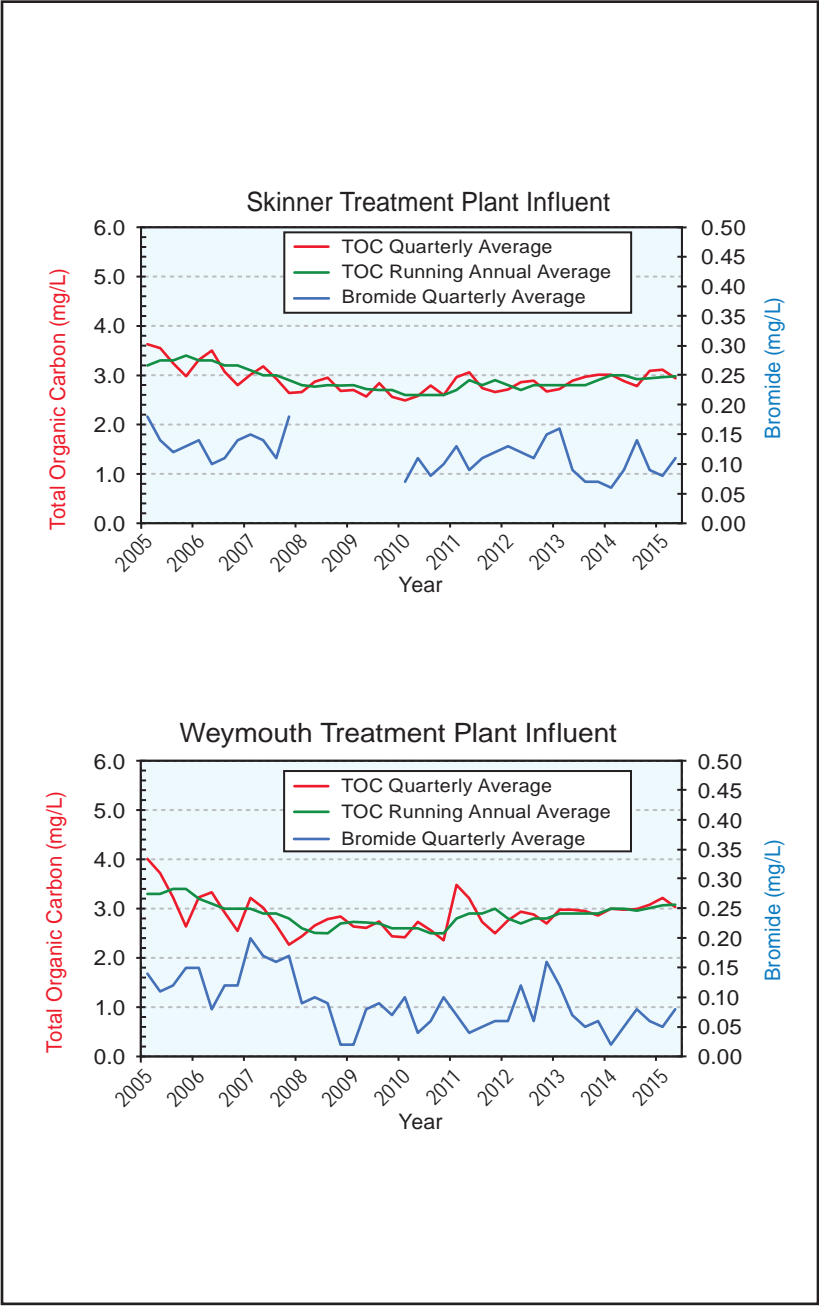


Figure 4-5 (Continued). Total Organic Carbon (TOC) and Bromide Levels in Treatment Plant Influent, FY 2005-2015 (Chlorination to control quagga mussels restricted bromide measurements at Skinner in FY 2009 and 2010.)

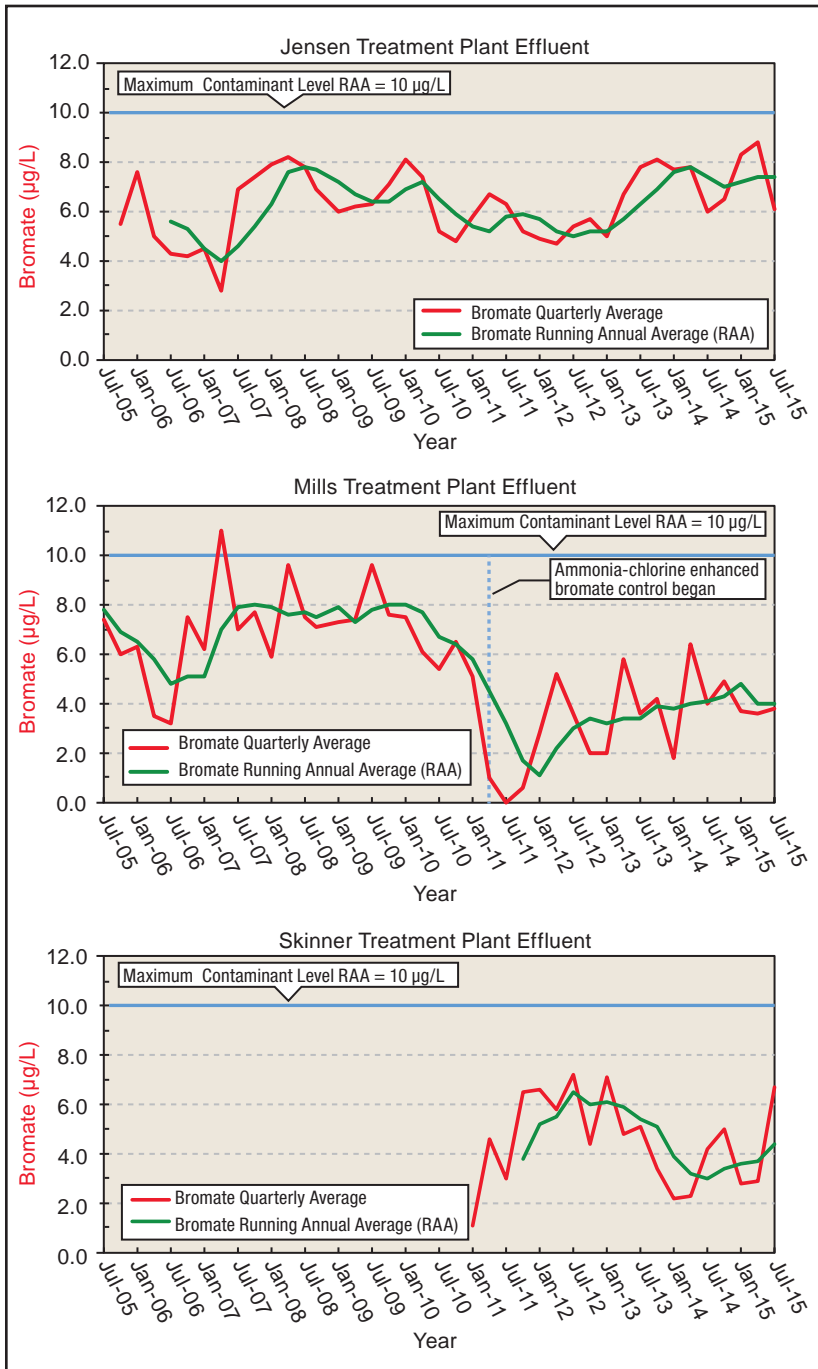


Figure 4-6. Bromate Levels in Treatment Plant Effluent, 2005-2015  
(Jensen and Skinner Ozone came online in 2005 and 2010, respectively)  
(µg/L = micrograms/liter or parts per billion)



*Microbiological*

Metropolitan complied with state and federal drinking water regulations by monitoring treatment plant influent for total coliforms and *E. coli* (Table 4-6). Coliforms are bacteria that naturally occur in the environment while *E. coli*, a coliform that may indicate fecal contamination, is a factor used in measuring the quality of influent water. The different ranges observed at the plants may be influenced by the natural variability of raw water coliforms, changes in source water, storm events or other factors.

Metropolitan also analyzed nearly 8,000 bacteriological compliance samples in the distribution system to monitor the microbial quality downstream of the water treatment plants. The monthly average of 0.08 percent total coliform-positive samples was well below the regulatory standard of 5.0 percent.

**TABLE 4-6**  
**RAW WATER COLIFORM RESULTS**  
Fiscal Year 2014/15

	Treatment Plant Influent <sup>1</sup>				
	Diemer	Jensen	Mills	Skinner	Weymouth
	(CFU/100 mL)				
Total Coliforms					
Range	ND-13,000	140-11,000	58-34,000	98-8,100	ND-5,100
Average <sup>2</sup>	1,400	2,400	5,200	1,900	1,200
<i>E. coli</i>					
Range	ND-1	ND-2	ND-46	ND-7	ND
Average <sup>2</sup>	ND	ND	9	3	ND

Notes:

<sup>1</sup> Samples were collected weekly and analyzed by membrane filtration.

<sup>2</sup> Annual average of monthly averages.

CFU/100 mL = Colony-forming units per 100 milliliters

ND = Not Detected; method detection limit is 1 CFU/100 mL.

## ***System Management and Pathogen Monitoring***

### ***Algae Control Program***

Staff analyzed more than 2,500 samples for the earthy/musty taste-and-odor compounds 2-methylisoborneol and geosmin to monitor and manage T&O events in Metropolitan's source water (Fig. 4-7). Half of the samples were used to evaluate T&O problems caused by blue-green algae in the State Water Project. This reflects the high algae production potential of SWP supplies, which resulted in numerous algae control treatments by the state of California Department of Water Resources. To manage T&O events (Fig. 4-8), Lake Skinner was treated three times during the year with a total of 15 tons of copper sulfate. Treatments were not applied to Lake Mathews or Diamond Valley Lake during the current reporting period.

### ***Quagga Mussel Control Program***

Metropolitan's program for monitoring and controlling invasive quagga mussels has been in effect since their detection in the Lower Colorado River in 2007. Quagga control strategies in the CRA system include chlorination at strategic sites along with desiccation and removal of mussels during shutdowns. Mussel populations in the CRA continue to show seasonal fluctuations but the control measures have successfully limited further population increases. Staff monitored five sites along the CRA and three sites on the SWP. No quagga mussels have been detected at the SWP sites.

### ***Pathogen Monitoring Program***

Metropolitan's Pathogen Monitoring Program has routinely tested for the pathogenic protozoa *Cryptosporidium* and *Giardia*. Monthly monitoring of the plant influent and effluent during FY 2014/15 revealed neither pathogen to be present. In the last 15 years, 1 percent of the monthly plant influent samples tested positive for either microbe, and all plant effluent samples were negative.

***N-Nitrosodimethylamine***

Since 1999, Metropolitan has monitored its distribution system for N-nitrosodimethylamine, a byproduct of the disinfection process that occurs during chloramination. Table 4-7 shows NDMA levels in the distribution system for FY 2014/15. The concentrations were all below the notification level of 10 nanograms per liter (ng/L) established in 2002.

**TABLE 4-7**  
**N-NITROSODIMETHYLAMINE LEVELS (ng/L)**  
**IN THE DISTRIBUTION SYSTEM**

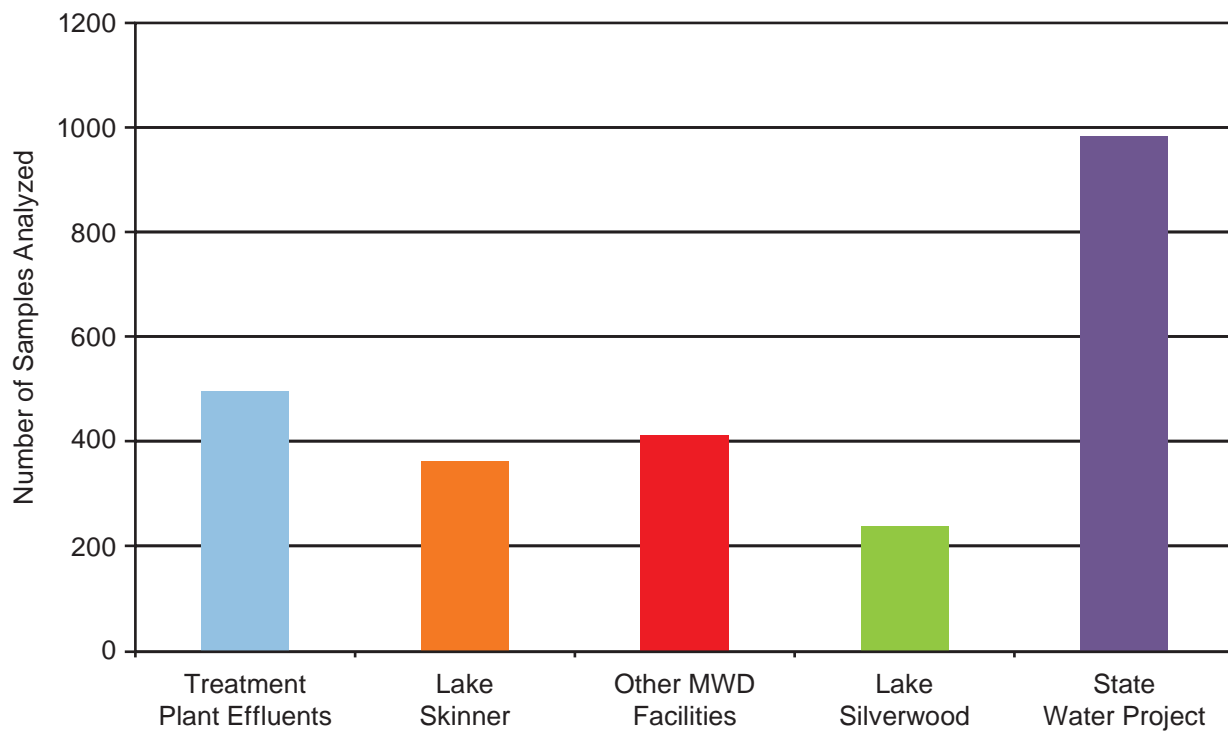
Fiscal Year 2014/15 [in nanograms per liter (ng/L) or parts per trillion]

<b>Sample Location<sup>1</sup></b>	<b>Range (ng/L)<sup>2</sup></b>
Diemer Plant	ND-3
Jensen Plant	ND-3
Mills Plant	ND-5
Skinner Plant	2
Weymouth Plant	ND-3
Central Pool Sites	ND-3

ND - Not Detected; NDMA reporting level is 2 ng/L

<sup>1</sup> Plant locations are distribution system sites associated with each treatment plant.

<sup>2</sup> Nanograms per liter (parts per trillion); SWRCB notification level is 10 ng/L



*Figure 4-7. Number of Samples Analyzed for the Taste and Odor Compounds 2-Methylisoborneol (MIB) and Geosmin in Source and Finished Water, Fiscal Year 2014/15*

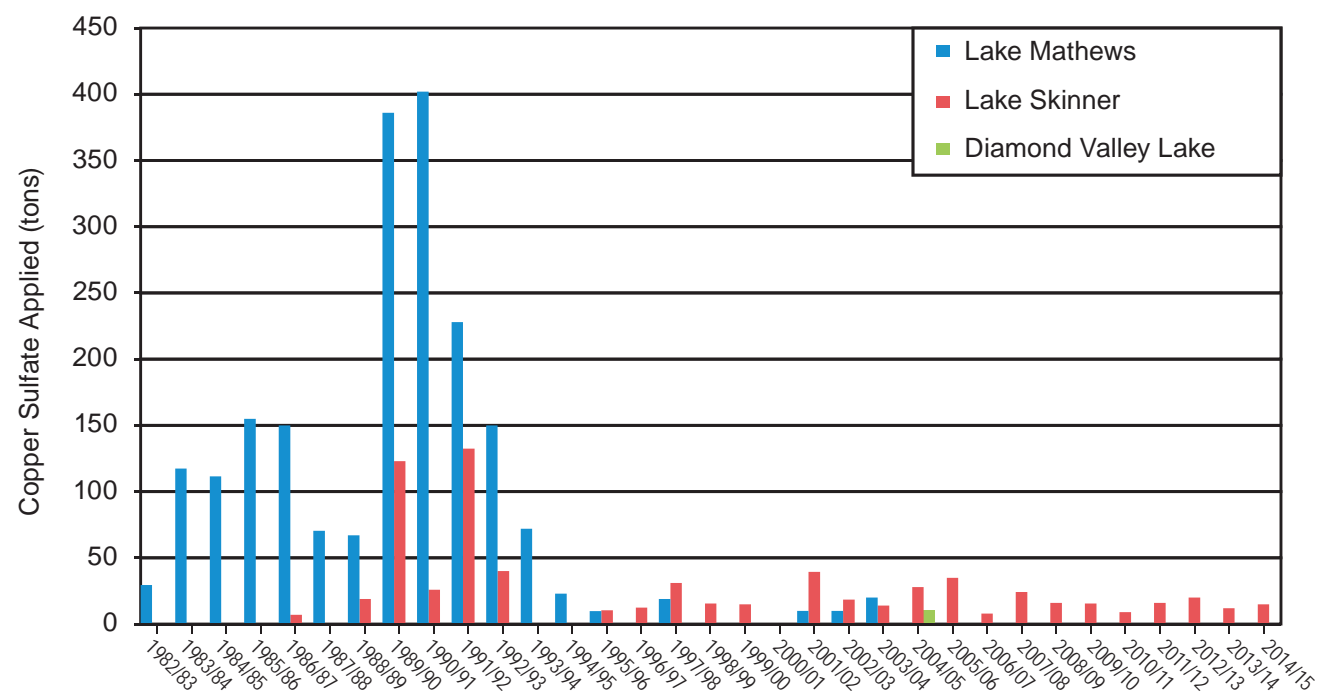


Figure 4-8. Copper Sulfate Usage in Metropolitan's Reservoirs, FY 1982/83 to 2014/15

## *Source Water Protection*

### ***Watershed Protection***

Metropolitan continued its oversight and coordination on water quality issues with key Colorado River stakeholders through active participation in the Lower Colorado River Water Quality Partnership, Lake Mead Water Quality Forum and Clean Colorado River Sustainability Coalition. Staff also collaborated with DWR and SWP municipal contractors on Delta and SWP water quality monitoring and forecasting programs, focusing on the effects of drought on water quality.

Staff reviewed and commented on legislation, policies and external projects affecting source water protection. Metropolitan tracked uranium mining interests in the Grand Canyon area and advocated for necessary actions to ensure protection of the Colorado River. Locally, Metropolitan coordinated with the County of Riverside and Riverside Flood Control and Water Conservation District regarding development proposals in the Lake Mathews watershed to ensure protection of Lake Mathews and compliance with the Drainage Water Quality Management Plan. Metropolitan also initiated facility improvements supporting recreation at Diamond Valley Lake while ensuring water quality protection.

### ***Salinity Control***

Metropolitan continued to engage in salinity control efforts through the Colorado River Basin Salinity Control Forum to mitigate salt loading into the Colorado River. Metropolitan worked with the U.S. Bureau of Reclamation to update an economic impact model and conduct a salinity economic damage assessment for the Forum's 2014 Triennial Review. Metropolitan also continued to work with USBR and Southern California Salinity Coalition on technical studies to update a 1999 Salinity Management Study that estimated economic damages from salinity. Further, Metropolitan conducted modeling studies to assess future operational capability to deliver low salinity water supplies under anticipated water supply conditions, including prolonged drought.

### ***Uranium Mill Tailings***

Metropolitan continued to monitor remedial efforts, and through the Lower Colorado River Water Quality Partnership, continued to advocate for increased funding to expedite removal of the uranium mill tailings along the banks of the Colorado River near Moab, Utah. A rockslide in November 2014 temporarily halted tailings removal for two months and removal resumed at a reduced rate while mitigation measures were installed to ensure safe operations. Through June 2015, the U.S. Department of Energy removed nearly 50 percent of the original 16 million-ton pile of mill tailings and shipped them via rail to an engineered disposal site approximately 30 miles northwest of Moab. USDOE anticipates completion of tailing removal by 2025.

### ***Topock Chromium 6 Remediation Project***

Metropolitan continued working with stakeholders to support Pacific Gas & Electric's chromium 6 groundwater remediation efforts along the Colorado River near Topock, Ariz. The selected groundwater treatment method involves biological treatment within the groundwater basin with fresh water flushing. In April 2015, the state Department of Toxic Substances Control required preparation of a Subsequent Environmental Impact Report to address new design details. The final remedy design and Subsequent EIR will be completed in October 2015 and December 2016, respectively. Construction is expected to be completed in 2019 followed by operation of the treatment system for an estimated 30 years. Interim measures, consisting of groundwater extraction and treatment, have been in place since 2004 to prevent chromium 6 migration to the Colorado River. Levels of chromium-6 in the river remain at typically non-detect levels ( $< 0.03 \mu\text{g/L}$ ).

### ***Perchlorate Remediation***

Perchlorate loading into Las Vegas Wash has dropped more than 90 percent since 1998 as a result of remediation at the former Tronox, Inc. site, now owned by the Nevada Environmental Response Trust, and American Pacific Corp. site in Henderson, Nev. (Figure 4-9). Levels have consistently remained at approximately  $1 \mu\text{g/L}$  at Metropolitan's Lake Havasu intake (Figure 4-10).

In January 2015, a \$1.1 billion settlement between Tronox and its predecessors went into effect and Metropolitan is monitoring the disbursement of funds to the trust for cleanup efforts and protection of the downstream Colorado River. The trust is currently conducting remedial investigation for long-term soil and groundwater cleanup. Metropolitan continued to monitor performance of the current groundwater remediation system and the development of a long-term treatment remedy for the perchlorate plume. The Nevada Division of Environmental Protection is also initiating a regional investigation of downstream perchlorate-contaminated areas to further reduce loading into the Las Vegas Wash. The remedial goal to reduce perchlorate loading into the Las Vegas Wash from current levels (50 to 90 lbs/day) to less than 10 lbs/day predict levels well below 1 µg/L in the Colorado River. This would help ensure compliance with any potential reduction in California's perchlorate MCL of 6 µg/L in light of a new 1 µg/L public health goal adopted in February 2015.

## *Technology Assessment*

### ***Treatment Process Optimization and Development***

Staff completed a pilot study to evaluate various alternative polymers to reduce potential formation of NDMA through the water treatment process. Staff also initiated laboratory studies for the treatment of cyanotoxins using ozone. In addition, studies continued to improve and optimize ozone and biofiltration operations at Metropolitan's water treatment plants. In May 2015, Metropolitan completed a tracer study for the ozone contactors at the Mills plant to optimize ozone disinfection and reduce chemical costs.

Staff also completed extensive water quality and operational assessments of water treatment and distribution systems. In June 2015, Metropolitan received President's awards through the Partnership for Safe Water for the treated water distribution system and the Weymouth plant. These honors demonstrate Metropolitan's continued efforts to optimize its water systems to achieve levels surpassing regulatory requirements.

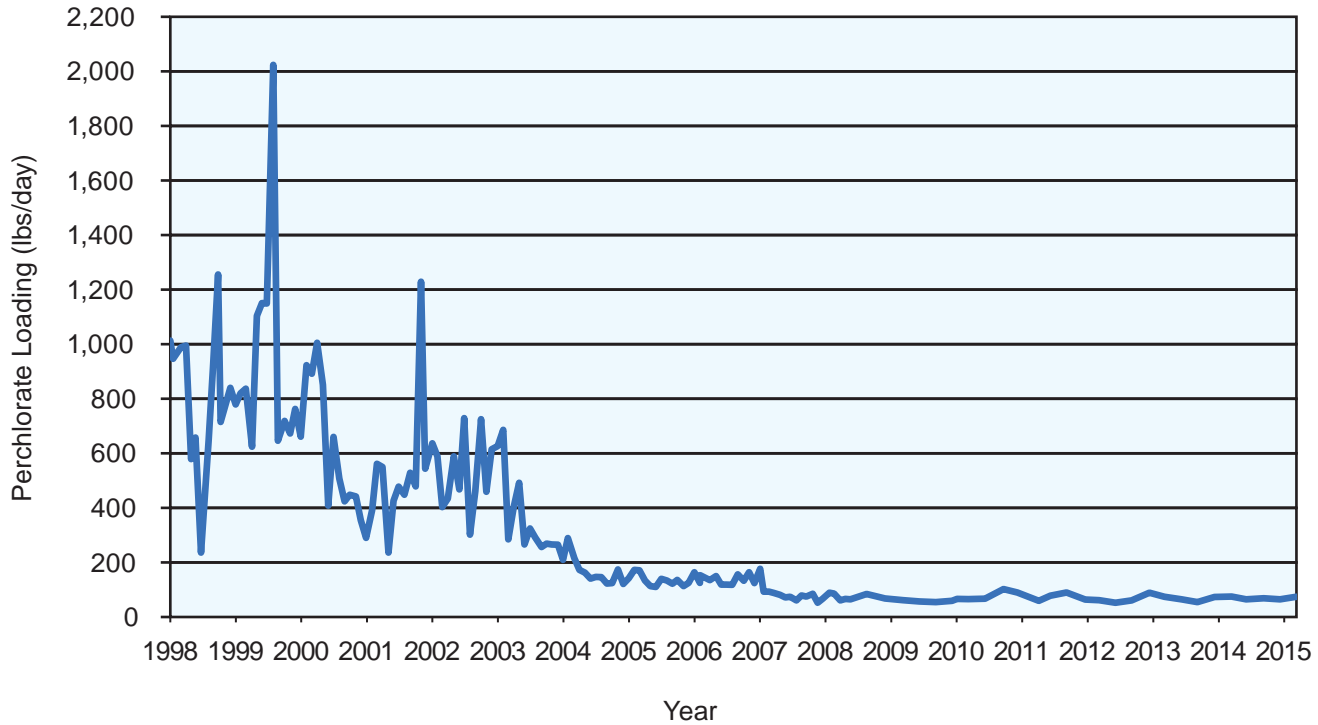


***Funded Projects***

Metropolitan continued progress on three projects funded by the Water Research Foundation to study disinfection byproducts and contaminants that may be regulated in the future, e.g., nitrosamines and alternative water treatment coagulant aids (Table 4-8).

***Service to Member Agencies and Drinking Water Industry***

Reprising its long standing Member Agency Water Quality Manager's meeting forum, Metropolitan conducted four in-person or online webinars updating member agency water quality managers on operational and water quality issues. Key water quality topics included the Safe Drinking Water Act's 40th anniversary, 100<sup>th</sup> anniversary of drinking water standards, compliance with pending regulations, and Metropolitan's innovation and technology program: H2O Tech. Metropolitan provided comments, technical assistance and other related services to the state's drinking water program and its member agencies as well as supporting industry efforts to guide the transfer of the state's drinking water program from the California Department of Public Health to the State Water Resources Control Board. Metropolitan also hosted a special workshop on the new California statewide potable water discharge permit. In addition to providing written comments, Metropolitan hosted a workshop on the Office of Environmental Health Hazard Assessment's CalEnviroScreen 2.0, OEHHA's environmental screening tool.



*Figure 4-9. Perchlorate Loading in Las Vegas Wash at Northshore Road, 1998 to 2015  
(Pounds per day collected ½ mile upstream of Lake Mead)*

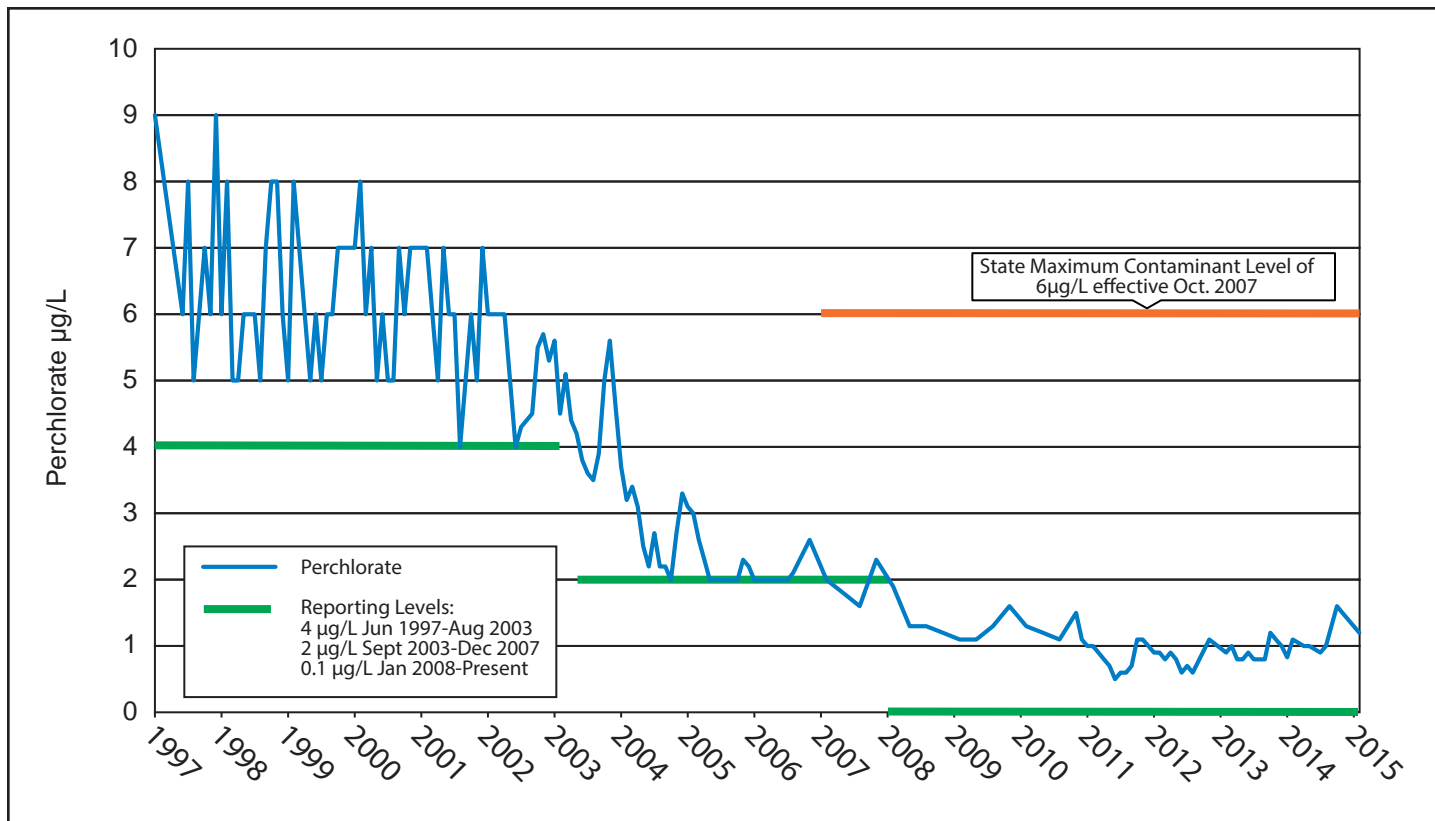


Figure 4-10. Perchlorate Levels at Lake Havasu, 1997 to 2015  
( $\mu\text{g/L}$  = micrograms/liter or parts per billion)

**TABLE 4-8**  
**ACTIVE WATER QUALITY GRANTS<sup>1</sup>**  
 Fiscal Year 2014/15

<b>Prime Funding Agency</b>	<b>Title of Grant Project</b>	<b>Total Project Budget<sup>2</sup></b>	<b>Amount of Award to MWD<sup>3</sup></b>
Water Research Foundation (WaterRF)	Controlling the Formation of Nitrosamines During Water Treatment	648,969	400,000
WaterRF	Investigating Coagulant Aid Alternatives to polyDADMAC <sup>4</sup> Polymers	540,670	50,000
WaterRF	Nitrosamine Occurrence Survey	711,902	400,000
<b>TOTALS</b>		<b>\$ 1,901,541</b>	<b>\$ 850,000</b>

**Notes:**

<sup>1</sup> Externally-funded grant projects managed by Water Quality's principal investigators during the fiscal year.

<sup>2</sup> Reimbursable dollars plus total in-kind commitments from all participating agencies; includes payments to subcontractors as applicable.

<sup>3</sup> Amount managed by Metropolitan; award amounts may occasionally change from prior years due to realigned budgets.

<sup>4</sup> Acronym for polydiallyldimethylammonium chloride, a type of flocculant or coagulant used in water purification/treatment.

## *Conveyance, Distribution and Support*

### *Conveyance and Distribution*

Water System Operations' Conveyance and Distribution Section performs preventive and corrective maintenance activities throughout the year with the objective of ensuring reliable deliveries to member agencies. In addition, the section plans and performs shutdowns to complete pipeline and facility inspections, performs local repairs on pipelines or equipment, and supports capital improvement program projects. A description of FY 2014/15 activities follows:

Crews successfully completed shutdowns on the CRA, the San Diego Canal and pipelines throughout Metropolitan's service area. Three shutdowns on San Diego pipelines lasting 54 days were related to a road improvement project on Highway 76 in San Diego County. Crews partnered with the affected agencies to facilitate the outages and took advantage of the opportunity to perform maintenance and improvement work on Metropolitan's portion of the pipelines. In addition, crews facilitated a 112-day shutdown for repairs on the Second Lower Feeder as part of the second phase of the Prestressed Concrete Cylinder Pipe Rehabilitation Program for the distribution system. This high priority repair work consisted of dewatering and securing two miles of the pipeline so that the steel sleeves could be installed inside the existing pipe to restore its design strength.

The Coatings Program protects Metropolitan's physical assets from corrosion and harsh environment to maximize the useful life of pumps, valves, meters, pipes, buildings and delivery lines. In FY 2014/15, the teams coated 167 pieces of equipment and 561 structures. Structures that are particularly vulnerable to water damage—such as vaults located below road grade—were sealed to prevent water intrusion that accelerates corrosion. Throughout FY 2014/15, WSO maintained an eight-pump flow capability on the Colorado River Aqueduct. To ensure consistent operation and reliability, refurbishment work took place during a 17-day shutdown of the CRA and portions of the San Diego Canal. Work highlights included 83 miles of tunnel cleaning, scraping and removal of scale and debris in the CRA and interconnected San Diego canals, repairs to

the Intake, Gene and Hinds pumping plants, testing of high voltage equipment, and various repairs to cooling water and ancillary systems throughout the five Desert pumping plants. Such work helps ensure reliability and maximum CRA flows for the dry year.

WSO undertook several other supporting CRA reliability projects, including repairs to 10 main pumping units, and refurbishing insulators on the critical 230kV transmission system that powers all five CRA pumping plants and the disconnection of an abandoned SCE communications site connected to the 230kV transmission system at Hinds. Additionally, the interconnection between the Inland Feeder and the Lakeview Pipeline was completed under a capital improvement construction contract. This connection allows for the delivery of Diamond Valley Lake water to the Mills plant by gravity providing an alternate flow path to the Mills plant when the Department of Water Resources shuts down its Santa Ana Valley Pipeline. To accelerate the project during this time of drought, some of the fabrication and construction work was performed by Metropolitan's Operations Support Services crews.

During FY 2014/15, crews performed nearly 235,800 hours of maintenance on conveyance and distribution infrastructure, including shutdowns. See Table 1-5 for a full list of shutdowns that occurred during the year.

### ***Operations Support Services***

Operations Support Services provides manufacturing services, maintenance engineering, rehabilitation, new construction, emergency response, and fleet services. The unit also provides several of these functions on a reimbursable basis to the Department of Water Resources, member agencies and other public entities.

#### ***Manufacturing Services***

Manufacturing services provided by the La Verne shops include fabrication, machining and coating services, repairing and testing of valves and pumps, refurbishing equipment, diving inspections, floating reservoir cover maintenance, and crane maintenance and annual certification.

The La Verne shops supported Metropolitan's drought relief efforts in FY 2014/15 by developing projects to expand the delivery of Colorado River water into areas served by the State Water Project. These drought relief efforts included manufacturing a stainless steel weir gate assembly for the Jensen plant, manufacturing an oil slinger ring for Greg Avenue Power Plant, and manufacturing two 24-inch diameter stainless steel pipe assemblies for the Casa Loma Canal Intertie Project. The La Verne Shop supported the Department of Water Resources by providing services for State Water Project facilities through reimbursable agreements. These services included manufacturing two new oil cooler cover plates for the Devil Canyon Power Plant, and manufacturing a stilling well platform assembly for San Luis Field Division. The La Verne shops were also effectively utilized to maintain infrastructure reliability for Metropolitan by manufacturing multiple spool and flange assemblies for San Diego Pipeline Nos. 3 and 4 Blow-off Valve and Pumping Well Piping Replacement Project, manufacturing 15 pilot valve assemblies for the distribution system, and refurbishing four drop gates for the Mills plant.

#### *Construction Services*

Construction Services staff works to protect Metropolitan infrastructure and optimize its operation and maintenance. In FY 2014/15, staff planned and performed projects as part of Metropolitan's drought relief efforts.

In July, staff modified the Casa Loma Canal Delivery Structure No. 2 by constructing two 24-inch stainless steel pipes through the spillway which is connected to the canal. This project improved operational flexibility by facilitating the delivery of Colorado River water to service connections along the Lakeview Pipeline, which typically only receive deliveries of State Water Project supplies.

The reduction of State Water Project supplies required reducing the minimum design flow from 90 cubic-feet-per-second at the Jensen plant to a special drought management flow limit of 50 cfs. Under these low flow conditions, the Jensen plant would not be able to maintain the effluent chlorine concentration required for water quality compliance without physical modifications to the effluent pipe. In

February, staff installed the stainless steel weir gate assembly in the plant effluent pipe to allow for continuous chlorine residual sampling.

The electrical system at the Jensen plant was initially designed with a single path for electrical power to the filtered water disinfection system, potentially impacting 75 percent of the filters in the event of an electrical fault. A new sub-station was required to improve reliability during the interim period until full scale electrical upgrades could be implemented. From November 2014 to April 2015, staff constructed and energized the new Unit Power Center No. 7.

### *Power Equipment and Reliability*

The Power Equipment and Reliability staff evaluates maintenance and reliability engineering issues, and maintains hydroelectric power plants, high voltage systems, and HVAC (heating, ventilation, and air conditioning) systems throughout Metropolitan's facilities. The unit also performs technical investigations related to water billing meters. In support of drought relief efforts, staff performed extensive repairs and rehabilitation work at the Greg Avenue facility to ensure the pumps operated reliably. At the Etiwanda hydroelectric plant, staff completed the rehabilitation of the first two needle valves. Staff coordinated with the Federal Energy Regulatory Commission triennial inspections for six of Metropolitan's 16 small hydroelectric plants. FERC inspections examine the maintenance, repairs, site security, and overall condition of the facilities. Reports from this year's inspections were favorable with no major findings.

The North American Electric Reliability Corporation sets reliability standards for owners of large electric transmission systems. The CRA's 230 kilovolt electrical transmission system, a key part of Metropolitan system, was maintained by staff in compliance with the applicable reliability standards. Metropolitan supported compliance activities required for Metropolitan's power operations and successfully achieved self-certification for 2014.

Staff performed yearly preventative maintenance of all HVAC systems at critical Metropolitan facilities including ozone facilities, key power distribution centers and generator buildings. Staff completed yearly infrared thermography surveys of electrical systems at all water treatment plants, pressure control structures and



hydroelectric plants. These surveys improve overall reliability and avert in-service failures of Metropolitan's facilities.

Staff continued to implement improvements in the infrastructure reliability of district facilities. This year, staff focused on measuring the reliability of hydroelectric power plants and CRA pumping plants by computing plant availability. Availability is a measurement of how much time a facility is available for operational use and takes maintenance and unexpected outages into account. It can provide insight into the reliability of a facility. Work continued on key procedures for maintaining service connections. A new monthly metrics report provides an overview of corrective and preventive maintenance activities at district facilities.

#### *Fleet Services*

WSO's fleet personnel assess, procure, and maintain more than 1,800 vehicles and pieces of equipment valued at approximately \$41 million. In 2014/15, staff completed 4,860 preventive maintenance work orders and strategically replaced aging vehicles and equipment while meeting air quality regulations. Favorable fuel and replacement part contracts, coupled with the continued use of hybrid and fuel efficient vehicles, resulted in cost-effective fleet operations, while tracking software monitored maintenance vehicles and heavy equipment to ensure effective deployment during emergencies.

## *Security and Emergency Management*

Protecting critical infrastructure is a primary WSO objective. Security professionals provide 24/7 security monitoring and response working with a contracted guard force and a security system that protects 72 facilities with more than 1,000 monitoring points, e.g., card readers, door alarms, and motion detectors and almost 600 closed-circuit cameras.

Security staff, working in collaboration with the Department of Homeland Security, assessed Metropolitan's critical infrastructure and recommended security enhancements. Emergency Management staff participated in numerous drought emergency planning meetings this year with agencies such as the State Department of Water Resources and the Governor's Office of Emergency Services. Staff also assisted on Orange County's Silverado Fire in September 2014 and a series of severe winter storms in December 2014.

Metropolitan's Emergency Response Organization conducted several meetings with member agencies in the eastern portion of the system to develop a functional emergency exercise based on a flooding scenario in November 2014 and a cybersecurity-based tabletop exercise in May 2015. These exercises are part of a current plan to invite all of Metropolitan's member agencies to collaborate and participate in at least one Metropolitan exercise every five years.

Emergency Management staff continues to work with the California Institute of Technology and the United States Geological Survey to test the ShakeAlert earthquake early-warning system. In October 2014, Metropolitan staff testified at an informational hearing for the State Senate's Select Committee on Science, Innovation, and Public Policy on possible ways an earthquake early warning system could benefit Metropolitan in the future.

## *Energy Management*

### ***Hydroelectric Power Recovery Plant Operations***

Metropolitan has 16 small-conduit hydroelectric power recovery plants that generated a total of 118 million kilowatt-hours for FY 2014/15 (Table 4-9), and earned revenues of \$8.5 million. This was about 100 million kilowatt-hours less generation and \$7 million less revenue compared to FY 2013/14. This is the lowest energy production since the early 1980s when the first hydroelectric plants started coming on-line. The lower energy production is due to a low State Water Project allocation, low reservoir elevations and pipeline flows that were either too high or too low for operating the power plants. In addition, the Yorba Linda Power Plant remained off-line to allow facility modifications to accommodate the Diemer ozone facilities. Generation from all 16 power plants was sold under contractual agreements with Pacific Gas & Electric, Energy America LLC, Southern California Public Power Authority, Los Angeles Department of Water and Power and DWR.

### ***Solar Power Energy Production***

Metropolitan has two solar photovoltaic energy facilities. The facility at the Skinner plant is rated at one megawatt and the Diamond Valley Lake Visitor Center facility is rated at 0.52 megawatts. During FY 2014/15, the Skinner plant produced 2,257 megawatt-hours (MWh) of energy and the visitor center produced 332 MWh, all of which offsets retail energy purchases at the two locations.

**TABLE 4-9**  
**HYDROELECTRIC POWER RECOVERY PLANTS –**  
**PRODUCTION FOR THE PAST TWO FISCAL YEARS**

<b>Power Plant</b>	<b>Nameplate Capacity (Megawatts)</b>	<b>2014/15 Production (kWh)</b>	<b>2013/14 Production (kWh)</b>
Greg Ave.	1	0	0
Lake Mathews	5	16,480,021	31,269,066
Foothill Feeder	9	0	54,484,345
San Dimas	10	16,490,995	17,322,039
Yorba Linda	5	0	0
Sepulveda Canyon	9	0	0
Venice	10	0	0
Temescal	3	19,918,798	17,142,953
Corona	3	14,754,001	16,351,921
Perris	8	0	903
Rio Hondo	2	0	1,946,949
Coyote Creek	3	6,400,246	13,182,538
Red Mountain	6	7,568,184	22,664,551
Valley View	4	15,861,589	14,434,686
Etiwanda	24	0	6,864,114
Wadsworth (DVL)	30	20,534,991	20,536,569
<b>TOTAL</b>	<b>131</b>	<b>118,008,825</b>	<b>216,200,634</b>

Annual Power generation varies significantly, depending on: Member Agency demands, mix of water sources (Colorado vs. State Water Project), what shutdowns/outages are taking place and generator's operational constraints. Power Plants are listed in the order they became operational. Greg Avenue was first and Wadsworth last

***Colorado River Aqueduct Power***

In FY 2014/15, Metropolitan pumped nearly 1.2 MAF through the Colorado River Aqueduct, requiring about 2.4 billion kilowatt-hours of electricity. Energy costs for pumping Colorado River water are shown in Table 4-10. The current and historical energy resources used to meet CRA water delivery energy requirements are shown in Table 4-11 and Figures 4-11 and 4-12.

During FY 2014/15, the CRA was operated at near peak capacity for the entire year. This required significant energy purchases above what is available from existing contractual energy resources. Metropolitan purchased over 700,000 megawatt-hours of supplemental energy to support CRA pumping. These purchases were made over different time periods (day-ahead, month-ahead), from different suppliers, and at different locations to help mitigate price and supply risk. High levels of energy purchases are expected to continue into FY 2015/16.

**TABLE 4-10**  
**ENERGY COST FOR PUMPING**  
**COLORADO RIVER WATER**  
 Fiscal Year 2014/15

<b>Energy Source</b>	<b>Cost (\$)</b>
Hoover Power Plant	16,218,506
Parker Power Plant	2,900,692
Energy Purchases/Sales <sup>1</sup>	19,959,676
Exchange (Edison & DWR) <sup>2</sup>	0
Colorado River Water Pumping Revenue <sup>3</sup>	(1,019,525)
Benefit Energy and Exchange Surcharge <sup>4</sup>	204,402
Reduction in Energy Surcharge <sup>5</sup>	(33,784)
<b>TOTAL</b>	<b>38,229,967</b>

Notes:

<sup>1</sup> Energy Purchases/Sales. A negative number indicates net revenue to Metropolitan.

<sup>2</sup> Cost of exchanging energy with another utility.

<sup>3</sup> Payments received for energy costs associated with moving non-Metropolitan water on the CRA.

<sup>4</sup> Tax paid to State of California for Edison Benefit and Exchange energy.

<sup>5</sup> Reduction in tax due to transmission losses and small hydro generation

**TABLE 4-11**  
**METROPOLITAN'S HISTORICAL CRA ELECTRIC ENERGY USE**  
 Kilowatt Hours

	Hoover	Parker	Edison Benefit <sup>1</sup>	Edison Exchange <sup>2</sup>	DWR Exchange <sup>2</sup>	Edison & DWR Exchange & Edison Benefit	Energy Purchases/Sales <sup>3</sup>	Total
1987/88 <sup>4</sup>	1,432,001,000	290,400,000	216,981,190	1,764,000	0	218,745,190	832,498,639	2,773,644,829
1988/89	1,231,206,000	237,142,000	215,485,363	(27,764,000)	0	187,721,363	735,276,330	2,391,345,693
1989/90	1,205,476,000	230,545,000	219,139,828	24,777,000	0	243,916,828	754,629,485	2,434,567,313
1990/91	1,130,155,000	223,831,000	221,837,010	13,298,000	0	235,135,010	871,799,953	2,460,920,963
1991/92	1,086,888,000	206,513,000	210,490,214	16,145,000	0	226,635,214	891,296,400	2,411,332,614
1992/93	966,614,000	182,606,000	208,800,738	(28,220,000)	0	180,580,738	1,035,586,974	2,365,387,712
1993/94	1,256,009,000	214,961,000	199,304,945	(16,175,000)	0	183,129,945	914,591,730	2,568,691,675
1994/95	1,166,517,000	217,365,000	186,648,325	(88,977,000)	0	97,671,325	680,010,352	2,161,563,677
1995/96	1,357,937,000	237,627,000	286,971,075	(32,150,000)	0	254,821,075	401,318,041	2,251,703,116
1996/97	1,292,375,000	243,993,000	253,134,785	47,302,000	0	300,436,785	595,050,513	2,431,855,298
1997/98	1,370,317,000	302,069,000	200,076,045	90,000,000	(123,316,955)	166,759,090	327,992,313	2,167,137,403
1998/99	1,411,403,000	297,219,000	212,312,000	13,490,000	108,417,736	334,219,736	329,691,494	2,372,533,230
1999/00	1,392,515,000	262,383,000	263,326,907	(26,405,000)	3,967,942	240,889,849	646,961,000	2,542,748,849
2000/01	1,311,068,000	243,647,000	173,785,599	21,586,000	0	195,371,599	788,937,000	2,539,023,599
2001/02	1,322,037,000	241,048,000	199,205,189	(54,931,000)	0	144,274,189	804,044,166	2,511,403,355
2002/03	1,193,682,000	230,871,000	284,085,067	50,371,800	(162,807,504)	171,649,363	232,051,017	1,828,253,380
2003/04	1,179,118,000	229,886,000	164,721,756	(61,823,800)	105,280,095	208,178,051	(141,923,768)	1,475,258,283
2004/05	931,893,000	198,606,000	381,481,989	18,022,000	5,059,196	404,563,185	(39,632,380)	1,495,429,805
2005/06	1,158,901,000	212,687,000	405,612,265	(116,265,000)	37,054,891	326,402,156	74,465,049	1,772,455,205
2006/07	1,143,870,000	229,881,000	387,630,441	(38,400,000)	68,876	349,299,317	(421,365,512)	1,301,684,805
2007/08	1,117,068,000	217,106,000	431,283,980	70,272,000	0	501,555,980	(250,140,000)	1,585,589,980
2008/09	1,075,217,000	223,056,000	260,209,614	90,363,000	0	350,572,614	371,765,025	2,020,610,639
2009/10	994,222,000	195,063,000	233,871,837	21,870,000	0	255,741,837	595,894,000	2,040,920,837
2010/11	1,094,130,000	225,236,000	227,018,084	(160,574,000)	0	66,444,084	583,958,000	1,969,768,084
2011/12	1,165,206,000	214,680,000	35,860,567	(33,725,000)	0	2,135,567	33,603,000	1,415,624,567
2012/13	1,075,958,000	236,045,000	234,852,498	53,437,000	0	288,289,498	(100,968,000)	1,499,324,498
2013/14	1,099,377,000	224,957,000	574,836,315	90,393,000	0	665,229,315	203,715,000	2,193,278,315
2014/15	1,023,690,000	214,130,000	401,355,532	44,943,000	0	446,298,532	709,652,000	2,393,770,532

Notes:

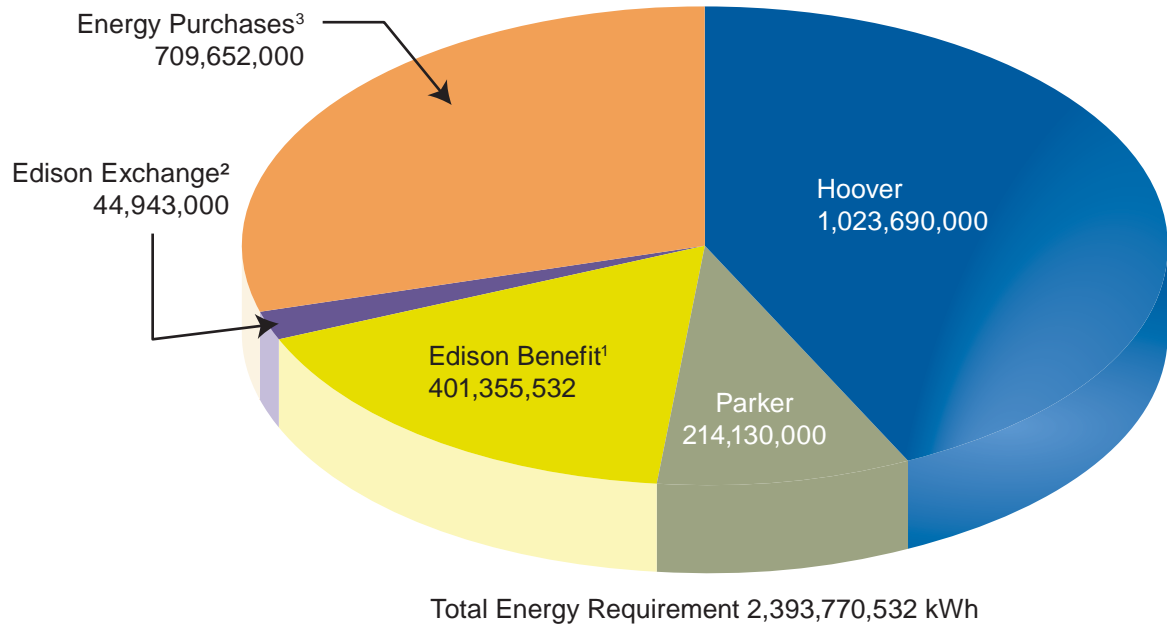
<sup>1</sup> Energy provided by Southern California Edison (Edison) at no cost pursuant to 1987 Service and Interchange Agreement.

<sup>2</sup> Energy exchanged with Edison. These numbers represent what is in the Exchange Balance as of June 30.

Positive number indicates net energy received from Edison. Negative number indicates net energy banked with Edison.

<sup>3</sup> Energy Purchases/Sales. A negative number indicates net energy sold to others.

<sup>4</sup> Includes June 1987 data



Notes:

<sup>1</sup> Energy provided by Edison at no cost pursuant to 1987 Service and Interchange Agreement.

<sup>2</sup> Energy exchanged with Edison. Negative number indicates net energy banked with Edison. Positive number indicates net energy received from Edison.

<sup>3</sup> Energy Purchases/Sales. A negative number indicates net energy sold to others.

*Figure 4-11. Metropolitan's CRA Electric Energy Use (kWh)  
Fiscal Year 2014/15*

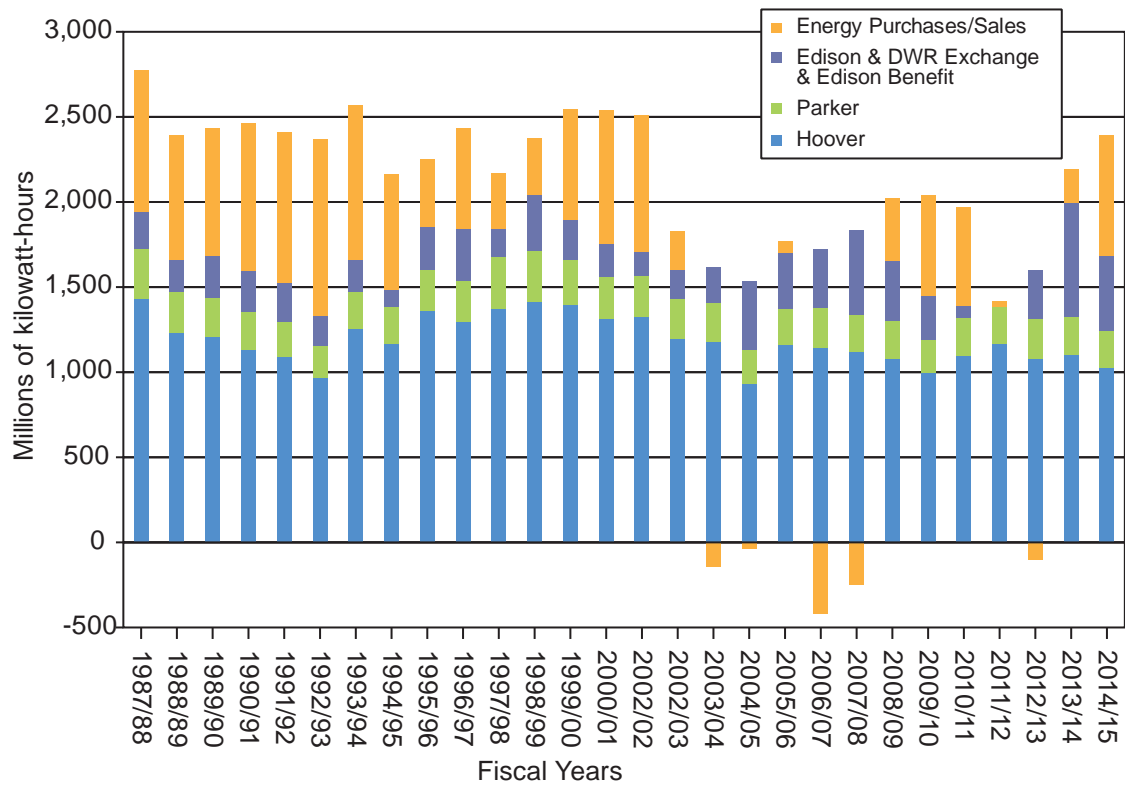


Figure 4-12. CRA Energy Mix 1987 to 2015



### ***Edison Agreement***

The Service and Interchange Agreement establishes the relationship between Southern California Edison and Metropolitan in regards to the CRA electrical system and its integration into Edison's system. Metropolitan and Edison implemented the fifth amendment to the agreement allowing Metropolitan to buy energy needed for pumping on the CRA directly from Edison. Purchasing energy from Edison instead of from the out-of-state energy marketplace allows Metropolitan to avoid the AB32 cap-and-trade program requirements to offset the greenhouse gases associated with energy imported into California. The cap and trade requirements are satisfied through the acquisition of allowances. One allowance is required for each metric ton of associated greenhouse gasses. Allowances may be purchased through a state-run auction or directly from a third party. Metropolitan started buying energy from Edison in March 2015 and estimates that through June it has saved approximately \$1.6 million over out-of-state energy purchases when the cost of allowances is included.

### ***Greenhouse Gas Impacts***

Metropolitan continued its efforts to mitigate the impacts of California's greenhouse gas regulations that require Metropolitan to buy allowances and offsets and other compliance instruments for the greenhouse gases associated with the supplemental, non-hydroelectric power Metropolitan imports into California to help meet CRA pumping demands. During the fiscal year, Metropolitan spent approximately \$1.6 million to acquire these so-called compliance instruments.

After four years' worth of meetings with the California Air Resources Board, CARB agreed to provide Metropolitan with a total of approximately 500,000 free allowances. This is similar to the provision of free allowances to California's electric utilities. The decision to allocate allowances to Metropolitan was in recognition of the fiscal impacts of greenhouse gas regulations on Metropolitan's CRA power operations. Metropolitan received its initial allocation of 182,499 allowances for 2015 and will continue receiving additional allowances for another five years. The number of free allowances is weighted more heavily in the initial two years of allocation.

### ***Energy Usage Calculations***

The emphasis on water and energy conservation has focused attention on the amount of energy used in the water sector. This has resulted in proposed regulations and legislation for water utilities to report the amount of energy, specifically electricity, they use in various water functions. In response to this growing interest, Metropolitan developed a process to determine the average (or aggregate) amount of electricity associated with an acre-foot of water in Metropolitan's conveyance (State Water Project and CRA), treatment, and distribution functions. Metropolitan's energy intensity values will be reported in the next Urban Water Management Plan update.

## ***Safety and Environmental Services***

Operational Safety and Environmental Services Section staff continued to oversee compliance with environmental and safety regulations and procedures. Staff conducted numerous site inspections to proactively address environmental and safety issues. In addition, there were 72 routine regulatory inspections in the areas of air quality, wastewater, hazardous materials, hazardous waste, stormwater, underground and aboveground petroleum storage tanks, and safety. Staff coordinated and tracked all identified corrective actions.

### ***Environmental***

Staff provided all required compliance reporting for air quality, wastewater, stormwater, underground storage tanks, and hazardous materials/hazardous waste. Staff negotiated with and secured dewatering permits from regulatory agencies in support of Metropolitan's shutdown projects. Staff also managed 350 air quality permits for portable and stationary equipment.

Staff prepared and submitted more than 90 wastewater, storm water and air quality reports, plans, and permits to comply with regulatory requirements. Staff continued to update and implement 21 plans for oil spill prevention control and countermeasures to comply with regulations for aboveground fuel tanks. Staff submitted nearly 40

annual disclosures and business plans dealing with hazardous materials for required Metropolitan sites.

SES staff took the lead in several important regulatory compliance-related activities involving Metropolitan's chlorine systems. Despite its public health benefit, cost-effectiveness and superior disinfection properties, chlorine is a highly regulated chemical. Staff prepared for and managed very successful regulatory inspections of three treatment plant chlorine systems. Regulatory authorities found that Metropolitan was 100 percent compliant with the federal Risk Management Program and California Accidental Release Program regulations. The regulators praised the treatment plants' operations, appearance, housekeeping, and high degree of compliance.

### ***Health & Safety***

Staff provided safety coverage during the 2014/15 shutdown season to successfully minimize accidents and injuries. This included safe work practices and ventilation monitoring for all underground operations. Staff proactively addressed safety performance through site inspections, safety toolbox talks, safety committee communications, and revision of safety procedures. Staff reinforced requirements of the Injury and Illness Prevention Program by improving communication between safety committees and management, and encouraging the safety committees to collaborate and share ideas on how to address safety challenges and find solutions.

Table 4-12 shows the injuries, illnesses and incidents that required time off from work during FY 2014/15 for each Metropolitan facility. The Occupational Health and Safety Administration defines Total Incident Rate (also known as injury/illness rate), as the number of recordable incidents in a year per 100 employees. Overall, Metropolitan's Total Incident Rate is below the average federal and state Total Incident Rate for water utilities. A recordable incident is generally defined as a new work-related injury or illness that results in death, lost time from work, work restriction, or medical treatment beyond first aid.

Safety and Environmental Services staff investigated each incident and worked with WSO managers to implement proactive measures to protect employees. In addition, SES staff provided training courses to ensure employee safety and compliance with regulations. Course curriculum was updated in accordance with regulatory changes and was provided through a combination of classroom and online eLearning opportunities. Approximately 700 classes covering more than 90 individual topics were presented. Online courses account for over 30 percent of training provided.

### ***Apprenticeship Program Training***

The Apprenticeship Program trained industrial mechanics and electricians to ensure skilled trades persons were available to repair and maintain Metropolitan's water treatment and conveyance and distribution system. The state Department of Apprenticeship Standards continues to recognize Metropolitan's curriculum as meeting the breadth and level commensurate with journey-level mechanical and electrical trades.

Metropolitan's Apprenticeship Program has several classes in progress to graduate journey-level electricians and mechanics. Over a four-year period, apprentices attend over 700 hours of classroom instruction, must pass more than 90 tests, and complete over 7,200 hours of on-the-job training. The Apprenticeship Program has supplied Metropolitan with a total of 74 journey and electrical craft persons which comprises nearly one-third of the current apprenticeable trades workforce.

Thirteen apprentices completed courses and on-the-job training to qualify for journey-level status in June 2015. Pre-apprentices recruited in 2014 are fully indentured into the program and began coursework in January 2015. A new class of pre-apprentices is expected to begin the program in early January 2016.

**TABLE 4-12**  
**ACCIDENT INCIDENTS**  
 Fiscal Year 2014/15

<b>Location</b>	<b>Total Incident Rate</b>	<b>DART* Incident Rate</b>
Diemer	6.0	1.5
Diamond Valley Lake	0	0
Eagle Mountain	0	0
Eagle Rock	0	0
Gene Camp	8.3	7.3
Hinds	22.7	22.7
Iron Mountain	4.9	4.9
Jensen Plant	7.6	6.1
La Verne	3.9	3.0
Lake Mathews	8.7	7.3
Lake Skinner	6.1	3.0
Mills Plant	4.1	4.1
Sacramento	0	0
Soto Street	10.3	6.8
Sunset	0	0
Union Station	0.6	0.4
Washington, D.C.	0	0
<b>AVERAGE RATE</b>	<b>3.2</b>	<b>2.4</b>
<b>Federal Utility Average</b>	<b>6.3</b>	<b>4.0</b>
<b>State Utility Average</b>	<b>5.4</b>	<b>2.8</b>

\* Days Away, Restricted and Transferred Rate.



*Construction of Lakeview Pipeline/Inland Feeder Intertie.*

# Engineering Services

The Engineering Services Group is a full-service engineering organization that provides technical resources and delivers projects so that Metropolitan can treat and distribute water reliably to its member agencies. Engineering Services provides a wide range of technical services with a focus on cost-effectiveness and customer service. Its key functions include program management, engineering design, environmental planning, construction management, facility planning, geodetics and field survey, dam surveillance and corrosion control. In addition to performing its core operation and maintenance activities, Engineering Services provides oversight of Metropolitan's Capital Investment Plan, which represents Metropolitan's commitment to construct and rehabilitate facilities that enable long-term, reliable water deliveries.

Below are highlights of Engineering Services' major activities for fiscal year 2014/15:

### *Capital Investment Plan*

Each year, Engineering Services manages and executes capital projects that range in cost from less than \$100,000 to more than \$100 million. Projects under Metropolitan's CIP are prioritized and scheduled to reflect the strategic goals of providing a reliable supply of high-quality water at the lowest cost possible. For fiscal year 2014/15, to better manage work and report on progress, the CIP was structured into 11 major capital programs based on project type, business driver, and location. Figure 5-1 depicts the actual fiscal year 2014/15 expenditures by program.

During fiscal year 2014/15, capital expenditures totaled approximately \$211 million. The largest components were the \$52 million Water Quality/Oxidation Retrofit Program and the six infrastructure reliability

programs and the minor capital program, which totaled approximately \$122 million, and which are further explained below. The three other programs cover Cost Efficiency and Productivity, Supply Reliability and System Flexibility, and Regulatory Compliance.

The infrastructure reliability programs include Treatment Plant Reliability, Distribution System Reliability, Colorado River Aqueduct Reliability, Prestressed Concrete Cylinder Pipe Rehabilitation, Right-of-Way and Infrastructure Protection, and System Reliability. The infrastructure projects with the most significant expenditures were rehabilitation of PCCP on the Second Lower Feeder; upgrades to the coating, fabrication and machine shops at the F. E. Weymouth Water Treatment Plant; electrical and seismic upgrades at the Weymouth plant and at the Joseph Jensen and Robert B. Diemer water treatment plants; upgrades to the filter buildings at the Diemer plant, and the first phase of relining of the Etiwanda Pipeline. For a list of projects that completed construction during the year or were under design, see Tables 5-1 through 5-3. Figure 5-2 shows long-term expenditures of the CIP by each of the programs.

Additional capital work underway during the year included the following:

### ***Yorba Linda Power Plant Modifications***

Improvements to the Yorba Linda Power Plant included delivery of a new turbine/generator and substantial completion of construction to modify the hydroelectric plant structure. This project is needed to continue generating power under the modified hydraulic conditions resulting from the Diemer plant's new ozonation facilities.

### ***La Verne Machine Shop Upgrades***

Upgrades have been completed for the coating, fabrication, and machine shops at the Weymouth plant. Procurement of machining equipment will continue during the next fiscal year. This key facility provides Metropolitan with the capability to refurbish a variety of equipment, such as large pumps and gates, and to fabricate pipe for emergency repairs.



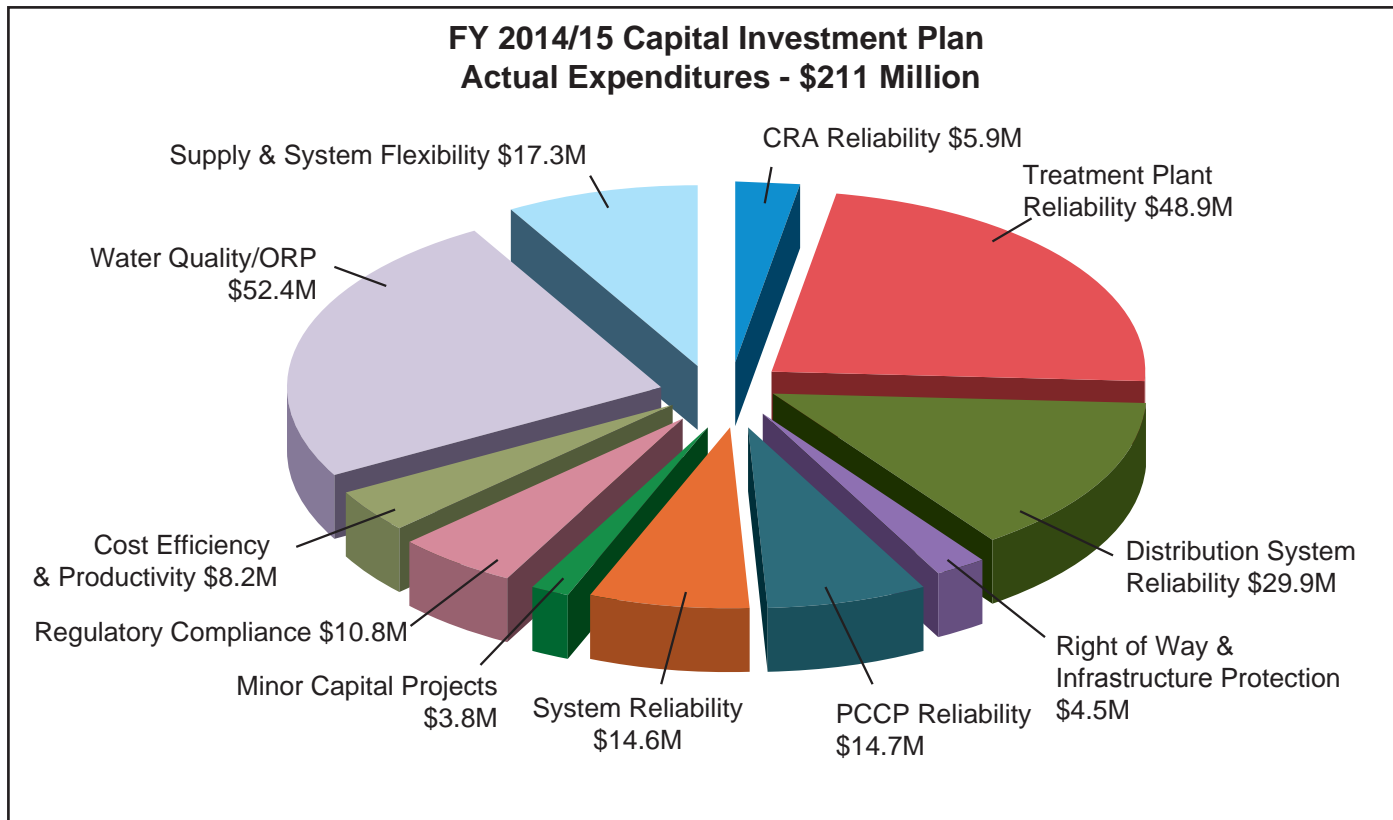
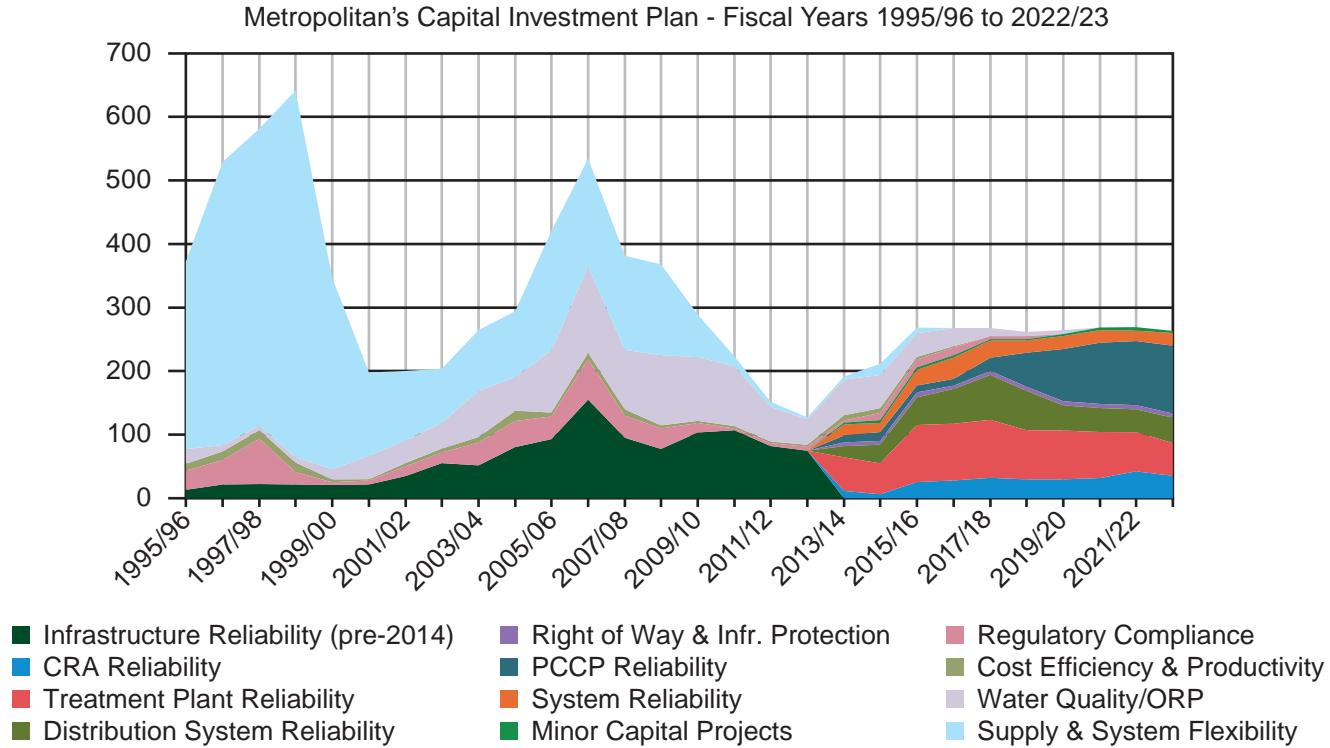


Figure 5-1. Fiscal Year 2014/15 Capital Investment Plan Expenditures



*Figure 5-2. Metropolitan's Capital Investment Plan - Fiscal Years 1995/96 to 2022/23*

**TABLE 5-1  
CONSTRUCTION CONTRACTS COMPLETED AS OF JUNE 30, 2015 (Unaudited)**

<b>Completion Date</b>	<b>Contract / Spec. No.</b>	<b>Project</b>	<b>Base Bid Amount (\$)</b>	<b>Final Amount (\$)</b>
7/14/14	1779/1769	Second Lower Feeder PCCP Repairs, Phase 1	2,292,000	2,323,000
7/30/14	1782/1772	Second Lower Feeder Stray Current Mitigation	894,600	894,600
8/29/14	1777/1746	Weymouth Water Treatment Plant Backup Domestic Water Pipeline Replacement	368,480	408,466
10/23/14	1784/1761	Sepulveda Feeder South Reach Stray Current Mitigation	671,853	671,853
11/17/14	1789/1764	Perris Pressure Control Structure Roof Replacement	71,194	71,194
12/2/14	1780/1752	Etiwanda Pipeline North Lining Repairs, Phase 1	3,725,000	4,285,176
12/29/14	1795/1767	Coyote Creek Pressure Control Structure Roof Replacement	57,100	57,100
1/20/15	1794/1766	Coastal Junction Pressure Control Structure Roof Replacement	37,772	37,772
1/22/15	1738/1641	La Verne Shops Upgrades, Stage 4	16,300,127	16,970,320
1/29/15	1798/1765A	Santiago Creek Pressure Control Structure Roof Replacement	56,500	56,500
2/2/15	1762/1718A	Headquarters Building Data Center Uninterruptible Power Supply Upgrades	490,292	505,255
2/13/15	1774/1713	Weymouth Water Treatment Plant Filter Building Seismic Upgrades	3,801,758	4,140,239
5/4/15	1791/1762	Glendale-01 Service Connection Rehabilitation	858,000	858,000
5/15/15	1761/1688	Jensen Water Treatment Plant Module No. 1 Filter Surface Wash System Upgrades	9,983,091	10,554,653
5/19/15	1793/1802	Lakeview Pipeline Bernasconi Tunnel No. 2 Lining Installation	4,082,555	4,009,319
5/26/15	1786/1775	Second Lower Feeder PCCP Repairs, Phase 2	5,946,507	6,808,519

**TABLE 5-2**  
**MAJOR CONSTRUCTION CONTRACTS IN PROGRESS**  
**AS OF JUNE 30, 2015 (UNAUDITED)**  
 Accrual Basis

<b>Contract No.</b>	<b>Project</b>	<b>Percent Contract Complete through 6/30/2015</b>	<b>Estimated Contract Completion Date</b>	<b>Contract Earnings (\$) through 6/30/2015<sup>1</sup></b>	<b>Base Bid Amount (\$)</b>
1741	F.E. Weymouth Water Treatment Plant Oxidation Retrofit Program, Main Ozonation Facilities	88%	Oct 2016	93,341,656	95,497,513
1773	Robert B. Diemer Water Treatment Plant Electrical Upgrades, Stage 2	70%	Mar 2016	7,778,441	11,110,000
1776	Yorba Linda Power Plant Turbine Replacement	94%	Mar 2016	4,719,554	4,901,567
1781	Joseph Jensen Water Treatment Plant Washwater Tank Seismic Upgrades	84%	Sep 2015	2,612,290	3,053,634
1785	Chemical Unloading Facility Chlorine Containment and Handling Facilities	33%	Jan 2017	7,530,683	22,888,888
1787	Inland Feeder and Lakeview Pipeline Intertie	98%	Feb 2016	19,714,588	20,365,430
1788	Joseph Jensen Water Treatment Plant Solids Transfer System	84%	Sep 2015	1,668,350	1,977,700
1790	Robert A. Skinner Water Treatment Plant Solids Handling Area Improvements	73%	Aug 2015	312,065	428,280
1799	Gene Pumping Plant Storage Building Replacement	96%	Aug 2015	750,318	783,333
1800	Henry J. Mills Water Treatment Plant Industrial Wastewater Handling Improvements	7%	Mar 2016	180,413	2,565,063
1801	F. E. Weymouth Water Treatment Plant East Washwater Tank Seismic Upgrades	84%	Oct 2015	1,223,900	1,465,000
1802	Joseph Jensen Water Treatment Plant Module 1 Filter Valve Replacement	15%	Mar 2016	558,812	3,637,083

**TABLE 5-2 (Continued)**  
**MAJOR CONSTRUCTION CONTRACTS IN PROGRESS**  
**AS OF JUNE 30, 2015 (UNAUDITED)**  
Accrual Basis

Contract No.	Project	Percent Contract Complete through 6/30/2015	Estimated Contract Completion Date	Contract Earnings (\$) through 6/30/2015 <sup>1</sup>	Base Bid Amount (\$)
1803	LADWP Aqueduct Filtration Plant Lagoon Refurbishment	6%	Apr 2016	186,692	3,067,900
1804	Robert B. Diemer Water Treatment Plant East Filter Upgrades	8%	Aug 2016	768,798	9,310,000
1805	Iron Mountain Pumping Plant Vehicle Service Center Upgrades	25%	Nov 2015	95,358	374,867
1806	Upper Feeder Railroad Crossing Encasement from Sta. 869+09 to Sta. 869+26.74	6%	Aug 2016	31,250	481,600
1807	Julian Hinds and Eagle Mountain Pumping Plants, Wastewater System Replacement	8%	Apr 2016	175,382	2,090,000
1808	Robert B. Diemer Water Treatment Plant South Slope Revegetation	14%	Aug 2016	138,515	996,600
1809	F. E. Weymouth Water Treatment Plant Filter Rehabilitation	3%	Apr 2017	1,004,490	31,762,914
1810	Emergency Radio Communication System Replacement	10%	Aug 2016	110,160	1,120,810
1811	La Verne Water Quality Lab HVAC Chiller Replacement	4%	Mar 2016	43,000	989,215
1812	F. E. Weymouth Water Treatment Plant Solar Power Plant	0%	Aug 2016	-	10,534,920

<sup>1</sup>Earnings reflected represent the value of work performed by the contractor as of the date indicated and include contract retention and other similar deductions from amounts earned by the contractor but otherwise required to be withheld by Metropolitan by law or contract.

**TABLE 5-3  
MAJOR PROJECTS UNDER DESIGN**

<b>Appropriation Number</b>	<b>Appropriation Title</b>	<b>Appropriation Estimate</b>	<b>Project Description</b>	<b>Estimated Or Actual Completion Date For Final Design</b>
15320	Cabazon Radial Gate Facility Improvements	\$4,600,000	Improvements to Cabazon Radial Gate Facility	April 2017
15377	Conveyance and Distribution System Rehabilitation FY 2000/2001 Through FY 2005/06	\$121,000,000	Orange County Feeder Lining Repairs Upper Newport Bay Blow-Off Structure Rehabilitation West Valley Feeder No. 1 Access Road and Structure Improvements, Stage 3	November 2015 November 2015 November 2016
15441	Conveyance and Distribution System Rehabilitation, FY2006/07 Through FY2011/12	\$121,000,000	Orange County Feeder Cathodic Protection Santiago Lateral Sectionalizing Valve Replacement Skinner Area Pavement Repairs Lake Mathews Forebay Repairs Lake Mathews Hydroelectric Plant Repairs Collis Street Valve Replacement DVL Inlet/Outlet Fish Screen Rehabilitation Etiwanda Pipeline Lining Replacement	October 2016 June 2016 June 2016 December 2016 December 2015 January 2016 December 2015 Phase 2 August 2015 Phase 3 December 2015 June 2015 December 2015 December 2017 July 2015
15480	Conveyance and Distribution System Rehabilitation, FY2012/13 Through FY2017/18	\$255,000,000	Lakeview Pipeline Repairs Orange County Region Service Center DVL East Dam Electrical Upgrades	August 2016 June 2016 January 2016

Note: for further information see board letter archives at [www.mwdh2o.com](http://www.mwdh2o.com)

**TABLE 5-3 (Continued)**  
**MAJOR PROJECTS UNDER DESIGN**

Appropriation Number	Appropriation Title	Appropriation Estimate	Project Description	Estimated Or Actual Completion Date For Final Design
15373	CRA Conveyance Reliability	\$128,400,000	Copper Basin & Gene Wash Dam Discharge Valve Replacement CRA Discharge Line Isolation Gates CRA Sand Trap Upgrades	April 2016 June 2016 July 2015
15385	CRA Discharge Containment	\$17,200,000	Gene & Iron Mountain Pumping Plants, Wastewater System Replacement	June 2016
15384	CRA Electrical Reliability	\$44,500,000	CRA Power Cable Replacement	December 2016
15374	CRA Pumping Plant Reliability	\$45,100,000	CRA Main Pump Expansion Joint Repairs CRA Pumping Plant Discharge Line Coupling Installation	December 2016 December 2017
15438	CRA Reliability, FY2006/07 Through FY2011/12	\$73,300,000	CRA Canal Improvements CRA Pumping Plant Sump System Rehabilitation CRA Radial Gate Replacement CRA Seismic Retrofit of 6.9kV Switch Houses Intake Power and Communications Line Relocation Intake Pumping Plant Standby Generator Replacement Iron Mountain Service Center Rehabilitation Iron Mountain Pumping Plant Standby Generator Replacement CRA Mile 12 Flow Monitoring Station Upgrades	August 2015 June 2016 March 2016 June 2017 December 2015 December 2016 January 2015 June 2016 December 2015
15483	CRA Reliability, FY2012/13 Through FY2017/18	\$49,100,000	CRA Delivery Line Supports	June 2016
15419	Dam Rehabilitation & Safety Improvements	\$5,700,000	DVL Dam Monitoring System Upgrades	November 2016

**TABLE 5-3 (Continued)**  
**MAJOR PROJECTS UNDER DESIGN**

<b>Appropriation Number</b>	<b>Appropriation Title</b>	<b>Appropriation Estimate</b>	<b>Project Description</b>	<b>Estimated Or Actual Completion Date For Final Design</b>
15380	Diemer Plant Improvements, FY2000/01 Through FY2005/06	\$255,800,000	Diemer Basin Rehabilitation	East - April 2015 West -September 2016
			Diemer Main Washwater Reclamation Plant	December 2016
			Diemer Filter Outlet Conduit Seismic Upgrades, North East Slope	September 2016
15436	Diemer Plant Improvements, FY2006/07 Through FY2011/12	\$67,900,000	Diemer Administration Building Seismic Upgrades	June 2016
			Diemer West Filter Building Seismic Upgrades	June 2017
			Diemer West Filter Valve Refurbishment	June 2017
			Diemer Sample Line and Analyzer Improvements	May 2016
15478	Diemer Plant Improvements, FY2012/13 Through FY2017/18	\$7,400,000	Diemer Chemical Tank Farm Improvements	March 2017
15472	Enhanced Bromate Control	\$9,600,000	Mills Enhanced Bromate Control	December 2015
			Weymouth Enhanced Bromate Control	April 2015
15473	Headquarters Building Improvement	\$14,100,000	Headquarters Building Seismic Upgrades	March 2016
15458	Hydroelectric Power Plant Improvements	\$26,500,000	Foothill Hydroelectric Plant Rehabilitation	February 2016
			San Dimas Hydroelectric Plant Rehabilitation	June 2017
			Sepulveda Canyon Hydroelectric Plant Rehabilitation	December 2017
			Venice Hydroelectric Plant Rehabilitation	August 2017
15371	Jensen Plant Improvements, FY 2000/01 Through FY 2005/06	\$58,100,000	Jensen Tank Farm Chemical Containment Repair	July 2016
			Jensen Washwater Return Pump Mod.(Phase 2)	December 2015

Note: for further information see board letter archives at [www.mwdh2o.com](http://www.mwdh2o.com)



**TABLE 5-3 (Continued)**  
**MAJOR PROJECTS UNDER DESIGN**

<b>Appropriation Number</b>	<b>Appropriation Title</b>	<b>Appropriation Estimate</b>	<b>Project Description</b>	<b>Estimated Or Actual Completion Date For Final Design</b>
15442	Jensen Plant Improvements, FY2006/07 Through FY2011/12	\$84,700,000	Jensen Electrical Upgrades, Stage 1 Jensen Modules Nos. 2 & 3 Flocculator Refurbishment	December 2015 June 2018
15486	Jensen Plant Improvements, FY2012/13 Through FY2017/18	\$6,800,000	Jensen Chemical Unloading Facilities, Containment Upgrades Jensen Finished Water Reservoir No. 1 Cover Rehabilitation	July 2016 September 2016
15395	La Verne Shops Upgrades	\$45,100,000	La Verne Machine and Fabrication Shops, Equipment Procurement	December 2015
15434	Mills Ozone System Reliability	\$6,200,000	Mills Ozone System Reliability Upgrades	June 2015
15452	Mills Plant Improvements, FY2006/07 Through FY2011/12	\$26,000,000	Mills Electrical Upgrades, Stage 1	July 2016
15479	Mills Plant Improvements, FY2012/13 Through FY2017/18	\$46,700,000	Mills Solids Handling Facility, Stage 1	November 2014
15471	PCCP Rehabilitation and Replacement	\$2,600,000,000	Second Lower Feeder PCCP Rehabilitation	December 2016
15490	Project Controls & Reporting System	\$4,335,000	Project Controls & Reporting System	October 2015
15417	Reservoir Cover and Replacement	\$32,100,000	Palos Verdes Reservoir Rehabilitation	August 2015
15474	Right of Way and Infrastructure Protection	\$50,300,000	Distribution System Infrastructure Protection Improvements For Orange County Distribution System Assessments for San Bernardino County	December 2015 December 2015
15369	Weymouth Plant Improvements, FY 2000/01 Through FY 2005/06	\$241,000,000	Weymouth West Washwater Tank Seismic Upgrades Basin Drop Gate Replacement Weymouth Structural Upgrades Weymouth Filter Valve Replacement	June 2017 May 2015 September 2017 Phase 1 - June 2016; Phase 2-May 2017

**TABLE 5-3 (Continued)**  
**MAJOR PROJECTS UNDER DESIGN**

<b>Appropriation Number</b>	<b>Appropriation Title</b>	<b>Appropriation Estimate</b>	<b>Project Description</b>	<b>Estimated Or Actual Completion Date For Final Design</b>
15440	Weymouth Plant Improvements, FY2006/07	\$73,100,000	Weymouth Chlorine System Upgrades Weymouth Dry Polymer System Replacement	June 2017 March 2017
15477	Weymouth Plant Improvements, FY2012/13 Through FY2017/18	\$81,100,000	Weymouth Domestic and Fire Water System Improvements Weymouth Basin Inlet Channel Seismic Upgrades Weymouth Stormwater Management Improvements East Washwater Tank Pump Replacement Weymouth Seismic Assessment for Buildings Nos. 30, 40, & 50	December 2015 September 2017 July 2016 November 2015 August 2016
15392	Weymouth Plant Oxidation Retrofit	\$270,000,000	Weymouth Hypochlorite & Sulfuric Acid Feed Facilities	May 2015
15341	Whitewater Siphon Protection	\$19,600,000	Whitewater Siphon Protection Improvements	November 2015
15488	Water Delivery System Improvements	\$23,040,000	Greg Avenue Pump Station Rehabilitation	April 2016

Note: for further information see board letter archives at [www.mwdh2o.com](http://www.mwdh2o.com)

### ***Chlorine Containment and Handling Facilities***

Construction continues at the Chemical Unloading Facility, which represents the final phase of Metropolitan's chlorine containment upgrades. Containment facilities have already been completed at Metropolitan's five treatment plants. These upgrades enhance safety by reducing the potential for accidental release of chlorine.

### ***Seismic Assessments and Retrofits***

This ongoing initiative conducts proactive seismic assessments and performs upgrades to Metropolitan facilities to maintain reliable water deliveries and meet up-to-date seismic codes and practices. Specific accomplishments included: Completion of seismic upgrades to the filter buildings at the Weymouth plant, and to two washwater tanks at the Jensen plant; award of a construction contract for seismic upgrade of the Weymouth plant's east washwater tank; and continuation of design for seismic upgrades to the Upper Feeder's Santa Ana River Bridge and to Metropolitan's Headquarters Building at Union Station.

## ***Oxidation Retrofit Program***

The Oxidation Retrofit Program was established to add ozonation facilities that reduce the level of disinfection byproducts and improve the water quality at Metropolitan's five treatment plants. Ozone has been employed as the primary disinfectant at the Jensen plant and at the Henry J. Mills and Robert A. Skinner water treatment plants for several years, while the Diemer plant began using ozone for regulatory compliance at the end of fiscal year 2014/15. Construction of ozonation facilities continues at the Weymouth plant, and will be completed in early 2017.

## *Refurbishment and Replacement*

Following are highlights of key accomplishments in the refurbishment and replacement of Metropolitan's aging infrastructure:

### ***Treatment Plant Reliability Program***

Projects under this program maintain reliability and improve the operating efficiency of Metropolitan's water treatment plants. Specific accomplishments included: Replacement of the surface wash system for Module No. 1 at the Jensen plant; completion of the new sodium hydroxide tank farm at the Mills plant; award of a construction contract for the replacement of filter valves and seismic upgrades to the east filter building at the Diemer plant; and award of a construction contract to rehabilitate the filters at the Weymouth plant, and 50 percent completion of the second phase of electrical upgrades at the Diemer plant.

### ***Distribution System Reliability Program***

These projects maintain delivery reliability within Metropolitan's distribution system. Specific accomplishments included: Completion of installation of stray current drain stations along a 14-mile portion of the Second Lower Feeder and an 8-mile portion of the Sepulveda Feeder; completion of modifications to convert 19 blow-off structures on San Diego Pipeline No. 3 into pumping wells; completion of the first phase of lining repairs on the Etiwanda Pipeline; completion of the rehabilitation of deteriorated components of the Etiwanda Hydroelectric Plant; and completion of design to rehabilitate Palos Verdes Reservoir.

### ***Colorado River Aqueduct Reliability Program***

Projects within this program maintain the reliability of the CRA. Specific accomplishments included: Replacement of deteriorated storage buildings at Gene Pumping Plant; completion of design to replace deteriorated sand trap equipment upstream of the Iron Mountain, Eagle Mountain and Hinds pumping plants; replacement of over-current protection relays at Intake and Gene pumping plants; and initiation of construction to replace wastewater collection systems and community septic tanks at the Hinds and Eagle Mountain pumping plants.

***PCCP Rehabilitation Program***

This long-term, comprehensive program will line or replace 100 miles of Metropolitan's 163 miles of prestressed concrete cylinder pipe. Specific accomplishments included: Completion of lining repairs at three locations on the Second Lower Feeder; completion of electromagnetic testing of eight PCCP lines totaling 25 miles within the fiscal year; and completion of a system-wide hydraulic model that will be used to minimize hydraulic impacts on member agencies and reduce overall program costs.

***Right of Way and Infrastructure Protection Program***

This comprehensive program will protect access rights, minimize erosion, and secure programmatic environmental permits along all of Metropolitan's feeders throughout the distribution system. This effort will enable rehabilitation work and operational activities to proceed with a minimum of delays over a 10- to 15-year period, and will provide relief from escalating permitting costs. During the year, staff continued with design activities, preparation of programmatic environmental impact reports, and identification of right-of-way issues throughout the distribution system.

## ***Drought Response***

In response to the historic low allocation of State Water Project supplies to Metropolitan, staff evaluated and initiated a series of urgent projects to expand the reach of CRA and DVL water into portions of Metropolitan's distribution system that previously could only receive State Water Project supplies. Specific accomplishments included: Completion of an intertie from the Inland Feeder to the Lakeview Pipeline, and installation of a steel liner pipe within the Lakeview Pipeline's Bernasconi Tunnel, to enable water stored in Diamond Valley Lake to serve the Mills plant; and initiation of design to rehabilitate the Greg Avenue Pump Station, which will enhance supply reliability to the Jensen service area.

## *Infrastructure Protection*

Engineering Services regularly monitors critical facilities including dams, reservoirs, pipelines and chemical tanks to assess their condition and identify needed repairs to maintain reliable operation. Staff also reviews third-party requests for crossings or use of Metropolitan's right of way. During the fiscal year, staff continued external corrosion monitoring of 450 miles of electrically continuous pipelines within the distribution system. Rigorous dam monitoring and inspection continued for all of Metropolitan's dams permitted by the California Division of Safety of Dams, and staff continued to perform surveys and respond to mapping requests regarding location of facilities, including the prevention of unauthorized encroachments onto Metropolitan property.

## *Environmental Planning*

Engineering Services provides specialized support for Metropolitan's planning, construction, and operational activities to comply with state and federal environmental regulations. Staff provided clearances under the California Environmental Quality Act for over 100 O&M activities by Water System Operations, and for projects within the CIP. This effort included the preparation of two EIRs, four Negative Declarations, five EIR addenda, and 38 environmental notices.

## *Energy Management*

Metropolitan awarded a contract to construct a 3-megawatt solar power plant on the grounds of the Weymouth plant, and initiated a solar facility for the Jensen plant. Staff also reported on Metropolitan's complete greenhouse gas emission inventory to The Climate Registry, and reported a portion of these GHG emissions to the California Air Resources Board under mandatory reporting regulations.

## *Bay-Delta*

Engineering Services provided direct support for the Delta Habitat Conservation and Conveyance Program and the Bay Delta Conservation Plan, in collaboration with Metropolitan's Bay-Delta Initiatives office. Key activities during the fiscal year:

- Completed the Conceptual Engineering Report to reflect project revisions in response to public comments received during the initial circulation of the EIR/environmental impact statement.
- Performed hydraulic analyses that resulted in cost savings due to relocation of the river intake pump stations to a combined pump plant located at Clifton Court Forebay.
- Continued to provide support to the State Water Contractors for review of the BDCP project planning documents.
- Continued to provide environmental planning support on the EIR/EIS, project mitigation, and environmental permits.

## *Cooperative Education Program*

Engineering Services continued to offer summer and year-round student intern positions for the 13th consecutive year. This program is designed to provide engineering students with an opportunity to augment their studies with practical work experience in the water industry. Fifteen students participated during fiscal year 2014/15.

## *Technical Leadership*

Engineering Services staff expanded participation in technical and professional organizations by authoring and presenting nine technical papers at professional conferences. Additionally, staff continued active participation on committees of professional organizations, including the United States Society on Dams, American Water Works Association, Association of Environmental Professionals, American Society of Civil Engineers, American Society of Mechanical Engineers, Society of American Value Engineers International, and the California Land Surveyors Association.



*The effects of the drought: Diamond Valley Lake  
October 2008 vs. June 2015*



## CHAPTER 6

# Legal

The Legal Department represents Metropolitan, its directors, officers and, on occasion, employees in litigation and administrative proceedings; renders legal advice; prepares or reviews contracts; and monitors litigation, administrative proceedings, and state and federal legislative and regulatory proposals that could affect Metropolitan.

## *Major Events*

### ***Bay-Delta***

Metropolitan attorneys provided legal advice regarding the development of the Bay Delta Conservation Plan/California WaterFix and associated environmental documentation. Staff drafted legal memoranda and agreements and provided assistance on topics involving the state and federal Endangered Species acts, National Environmental Policy Act, Natural Communities Conservation Planning Act, and the California Environmental Quality Act. Legal staff provided assistance in reviewing and analyzing the Delta conveyance option, regulatory compliance options and options for implementation and financing of new facilities. Staff provided legal advice and support in negotiations between State Water Contractors and the Department of Water Resources regarding amendments to the long-term water supply contract that will be needed to implement California WaterFix and ancillary Delta projects. Staff worked with counsel for the State and Federal Contractors Water Agency to prepare pleadings in litigation that challenges the validity of certain policies in the Delta Plan and associated regulations, and also challenges the adequacy of the Delta Plan's program Environmental Impact Report.

Legal staff supported efforts to develop early turbidity monitoring and species sampling in an effort to predict and manage State Water Project operations to avoid fish capture. Evidence suggests that early

voluntary pumping restrictions avoided a significant fish capture this water year. Litigation over operating criteria reached the Ninth Circuit Court of Appeals, which upheld the Delta smelt and salmonid/sturgeon biological opinions that restrict operations under the federal Endangered Species Act. The parties are pursuing a post-litigation joint science process through the Collaborative Science and Adaptive Management Process/Collaborative Adaptive Management Team. This process resulted in more flexibility relating to operation of SWP to accommodate turbidity. Factors other than SWP operations also affect the Bay-Delta ecosystem. Staff attorneys continued to monitor third-party stressor lawsuits brought by water contractors and other parties, including lawsuits involving fish predators, contaminants, and dredging activities in the Delta.

### ***State Water Project***

Legal staff participated with the state and other contractors in defending lawsuits brought in 2010 that challenge the Monterey Amendments to the SWP contracts as having been adopted in violation of CEQA. In 2014, the trial court ruled that the Environmental Impact Report complied with CEQA except for the evaluation of future effects from the Kern Water Bank component of the project. The CEQA petitioners have appealed the trial court's decision. Metropolitan attorneys also provided legal advice and support in connection with the proposed extension and amendment of Metropolitan's long-term SWP contract with DWR and preparation of supporting environmental documents. Staff attorneys assisted in negotiating and drafting an amendment to an agreement with DWR for purchase of surface and groundwater supplies from the Yuba County Water Agency through 2020. Legal staff assisted in negotiating various other water transfers, exchanges, and storage agreements, including agreements with Arvin-Edison Water Storage District and Semitropic Water Storage District.

### ***Colorado River***

Staff attorneys continued to defend, enforce and represent Metropolitan's interests in state trial and appeals court litigation, challenging the validity of the Quantification Settlement Agreement and related agreements. Legal staff assisted in preparation of comments to Reclamation regarding the decree accounting for California's Colorado River water deliveries in 2014. Staff attorneys also defended

Metropolitan's water rights as a defendant-intervenor in litigation filed by the Navajo Nation challenging the Secretary of the Interior's Colorado River operations and lack of specific allocation of Colorado River water to the Navajo Nation. Staff filed briefs that resulted in a successful district court decision and filed briefs in a subsequent appeal to the Ninth Circuit.

Legal staff drafted an agreement and provided legal advice related to Coachella Valley Water District's request to deliver Colorado River water at the Whitewater River near Palm Springs pursuant to a 2003 agreement for the exchange of Coachella's SWP water for Metropolitan's Colorado River water. Legal staff drafted agreement amendments, assignments, and easement transfers to ensure the continued compliance with fallowing obligations related to lands enrolled in the Palo Verde Fallowing and Land Management Program. Staff attorneys also provided legal support to monitor the implementation of the storage and shortage agreement with Mexico, referred to as Minute 319. Staff provided legal support for the development of a successor to Minute 319 which seeks to develop a long-range plan for Lake Mead storage by Mexico and sharing of any shortage impacts with Mexico. Legal staff participated in the negotiation and drafting of an agreement to provide water deliveries to Tijuana, Mexico, through the Colorado River Aqueduct.

### ***Drought Response***

Extended drought conditions continued to affect Metropolitan's water supplies from both the Colorado River and SWP. Legal staff provided assistance in various efforts to address the impacts of the drought. Metropolitan attorneys assisted in negotiating an agreement with Reclamation and other Lower Colorado River basin entities for voluntary proactive measures in response to drought conditions and assisted in negotiating with Reclamation, the Central Arizona Water Conservation District, Denver Water and the Southern Nevada Water Authority for a pilot program for funding the reduction of demands on the Colorado River System water through voluntary water conservation and other reductions in use.

### ***Water Quality***

Metropolitan attorneys provided legal assistance reviewing and commenting on renewal terms of the National Pollutant Discharge Elimination System permits for the Clark County Water Reclamation

District and the cities of North Las Vegas, Las Vegas and Henderson to discharge treated wastewater to the Las Vegas Wash. Legal staff continued to monitor and communicate with the trustee responsible for managing the proceeds from Tronox's action against Kerr-McGee arising from the fraudulent transfer of legacy environmental obligations from Kerr-McGee to Tronox. As of May 2015, the trust established to clean up the contamination at the Tronox site in Henderson, Nev., had received approximately \$1.1 billion of the settlement funds from the action. Staff continued to review the trustee's use of funds and technical submittals for remedial investigations and cleanup strategies.

Metropolitan attorneys participated in settlement discussions that fully resolved litigation concerning Sacramento Regional County Sanitation District's wastewater treatment plant, which discharges to the Bay-Delta. Prior litigation and settlement of that litigation resulted in requirements for Sacramento Regional to implement significant upgrades to its treatment plant. Staff participated in settlement of the sole remaining issue, which concerned attorney fees. The settlement requires the sanitation district to advance implementation of certain treatment plant upgrades earlier than originally required.

Staff attorneys continued to represent Metropolitan in *Orange County Water District v. Northrop* in which Metropolitan is a cross-defendant alleged to have contributed to perchlorate found in local groundwater. Legal staff continued to monitor resolution of the case through entry of final judgment at the trial court level, motions to tax/strike defendants' costs, and the commencement of appeals. Staff attorneys also represented Metropolitan in numerous "copper pipe cases," which allege that Metropolitan and other water districts are providing "aggressive and/or corrosive" water to consumers, resulting in the occurrence of pinhole leaks in residential copper plumbing. These cases are primarily being handled in-house and as a cooperative effort with co-defendants Santa Margarita Water District, Moulton Niguel Water District and Irvine Ranch Water District.

### ***Corporate Resources/District Infrastructure***

Legal staff provided advice and assistance to various groups and departments in connection with projects to protect and maintain Metropolitan's facilities, including projects that are part of the Capital Investment Plan. Staff provided advice to the Environmental Planning

Team on appropriate environmental review, documentation, and permitting for projects; reviewed and approved documents such as contracts, specifications, and bid solicitations, helped the Construction Management Team respond to bid protests; and, assisted the Real Property Development and Management Group in acquiring rights-of-way for projects. Staff attorneys also provided assistance regarding the Colorado River Aqueduct reliability program, seismic retrofit projects, the pre-stressed concrete cylinder pipe rehabilitation program, and upgrade and rehabilitation projects at the water treatment plants.

### ***Finance***

Legal staff assisted and advised the Finance Department on issues related to rates and charges as well as investment and taxation issues. Staff attorneys prepared bond and disclosure documents and worked with outside bond counsel on the issuance and remarketing of several series of water revenue bonds and refunding bonds. Staff attorneys, with outside counsel, continued to represent Metropolitan in litigation seeking to invalidate Metropolitan's rates adopted in April 2010, 2012, and 2014, among other claims. In these cases, San Diego County Water Authority challenged the legality of Metropolitan's allocation of certain costs to the rates it applies for conveyance of water rather than to water supply rates, and alleged that Metropolitan's rates do not adequately collect "dry-year peaking" costs. SDCWA also alleged that the challenged conveyance rates are a breach of a water exchange agreement between Metropolitan and SDCWA, and that Metropolitan fails to properly account for payments under the exchange agreement when calculating SDCWA's statutory preferential rights to Metropolitan water supplies. Other claims by SDCWA were dismissed in 2012 and 2013. The 2014 case has been stayed. A bench trial on the challenges to Metropolitan's rates adopted in 2010 and 2012 was held in December 2013. The trial court ruled that the conveyance rates are unlawful, and dismissed SDCWA's "dry-year peaking" claim. A second bench trial on the breach of contract and preferential rights claims was held in March and April 2015. The court's decisions are subject to appellate review.

### ***Operations***

In *Foli v. Metropolitan*, legal staff successfully obtained dismissal of a federal lawsuit challenging Metropolitan's use of hydrofluosilicic

acid to fluoridate public drinking water. An appeal was filed in the Ninth Circuit Court of Appeals and the court affirmed the district court's dismissal. Legal staff also monitored activities of Regional Water Quality Control boards considering adoption of municipal stormwater discharge permits having the potential to impact Metropolitan's operations. Staff attorneys provided legal advice in connection with the Emerging Constituents Task Force established by the Santa Ana Regional Water Quality Control Board to study approaches for potential new regulation of trace chemicals in surface and groundwater supplies.

### ***Real Estate Matters***

Legal staff provided counsel to Real Property Development and Management on third-party property rights requests and inquiries on such matters as leases, licenses, entry permits and road easements. Staff provided legal advice regarding the acquisition of property interests necessary for Metropolitan operations, including access permits, pipeline easements, and fee simple acquisitions for the construction, operation, and maintenance of public water facilities. Metropolitan attorneys also protected real property rights to use and operate pipelines and patrol roads in highly regulated and multi-use areas, such as municipal airports and state parks. Legal staff negotiated and drafted a joint use agreement ensuring the protection of the Rialto Feeder while allowing for the extension and construction of Wilson Avenue, a major thoroughfare in the city of Rancho Cucamonga. Staff provided legal advice regarding annexation matters, including research regarding applicability of voter-approval requirements and LAFCO (Local Agency Formation Commission) procedures, water deliveries outside the service area, and water service to remote and disadvantaged communities.

### ***Managing Energy Costs***

Staff attorneys assisted in the negotiation and filing of the Fifth Amendment to Metropolitan's Service and Interchange Agreement with Southern California Edison, which will permit Metropolitan to purchase supplemental energy from Southern California Edison. Legal staff participated in ongoing negotiations of contracts related to Metropolitan's entitlement to power generated at Hoover Dam Powerplant. In-house attorneys assisted outside counsel in the negotiation of a settlement in the Pacific Gas & Electric Co.

transmission revenue requirement docket, which entailed a \$32 million reduction in PG&E's transmission revenue requirement and a substantial reduction in SWP transmission costs. Staff attorneys also provided legal support for Metropolitan's input to California's climate change regulation, including analyses, drafting of comments on cap-and-trade regulations, participating in meetings with California Air Resources Board staff, providing white papers to senior managers, and drafting proposed legislation to ensure equitable treatment of Metropolitan and other water agencies.

### ***Workforce***

Staff attorneys represented Metropolitan in three employment lawsuits. In one, an early exchange of information resulted in a settlement which included a dismissal of the lawsuit, a general release, no admission of wrongdoing, and no reemployment rights for plaintiff. In the second, the parties are engaged in discovery and Metropolitan will file a motion for summary judgment. Trial has been set for January 20, 2016. In the third, Metropolitan demurred to the first amended complaint and obtained the dismissal of certain claims. Metropolitan demurred to the second amended complaint, seeking dismissal of additional claims. The parties are engaged in discovery and Metropolitan will file a motion for summary adjudication/judgment. A trial date has been set for May 4, 2016.

Legal staff defended Metropolitan in several matters before the Public Employment Relations Board. Metropolitan prevailed on one charge after a three-day hearing. Two charges were withdrawn based on settlement agreements, one charge was withdrawn by the bargaining unit, one charge was dismissed by PERB, and one charge resulted in a complaint that has been set for hearing in September 2015. Legal staff also defended Metropolitan's interests in hearing officer appeal requests lodged by the bargaining units involving 20 grievances and one disciplinary action. Three grievances settled, three were withdrawn, and 11 are pending. Four matters resulted in hearing officer decisions. One grievance seeking to expand the good-driver incentive payment program was rejected. Two grievances challenging the recruitment process were sustained prompting Metropolitan to file a petition for writ of administrative mandamus seeking to overturn one of the decisions, and a third recruitment grievance was overruled.



*The biennial budget funds (clockwise from top left) Metropolitan's share of the State Water Project, regional water recycling programs, Colorado River Aqueduct operations and conservation rebates.*



# Finance

The Office of the Chief Financial Officer is responsible for providing innovative, proactive and strategic financial direction in support of the mission of Metropolitan's Board of Directors, management and employees; maintaining Metropolitan's strong financial position and high credit ratings; developing water rates and charges that are fair and equitable and generate sufficient revenues; assisting in the efficient management of Metropolitan's financial resources; and ensuring that adequate financial controls are in place to accurately record financial transactions, communicate financial results and protect Metropolitan assets.

### *Chief Financial Officer*

The roles and responsibilities of the Office of the CFO include:

- Providing comprehensive financial analyses and development of the biennial revenue requirement, supporting cost-of-service studies, the recommended water rates and charges, and long-range financial forecasts.
- Developing a biennial budget that supports Metropolitan's mission and business planning and performance measurement programs.
- Maintaining Metropolitan's official accounting records, cash control and accounting services related to vendor, payroll, and other payments.
- Collecting, investing, safekeeping, and disbursing Metropolitan's funds.
- Maintaining effective financial controls to safeguard assets.

- Issuing debt to efficiently fund Metropolitan's Capital Investment Plan at the lowest possible cost, and managing the debt program by taking advantage of appropriate opportunities to refund debt, asset management, and judicious use of interest rate swaps.
- Continuing and improving relations with Metropolitan's bond investors, including investors supporting Metropolitan's diversified variable rate bond portfolio.
- Developing and maintaining accounting guidelines and policies for accurate and timely financial reporting and control.
- Accounting for all assets, liabilities, revenues and expenditures, and determining the availability of funds for investment.
- Providing timely financial reporting, preparing the annual tax levy and annexation fee calculations, and administering rates and charges.
- Managing Metropolitan's Business Continuity Program to ensure critical business processes can be restored in the event of a disaster.

### ***FY 2014/15 Major Financial Activities and Accomplishments***

#### *Security Sales/Debt Administration*

Metropolitan maintained Standard & Poor's highest long-term water revenue bond rating of AAA, and the second highest credit rating for Moody's and Fitch of Aa1 and AA+.

In August 2014, Metropolitan issued \$86.06 million of Water Revenue Refunding Bonds, 2014 Series E; \$7.86 million of Water Revenue Refunding Bonds 2014 Series F (Federally Taxable); and \$57.84 million of Water Revenue Refunding Bonds, 2014 Series G-1, G-2, G-3, G-4 and G-5 (Term Mode). The 2014 Series E, F, and G1- G5 bonds were issued at a combined true interest cost of 3.16 percent. Bond proceeds refunded \$167 million of outstanding variable rate revenue bonds and terminated a like amount of interest rate swaps. Bond proceeds also funded a \$16.95 million

swap termination payment. The transaction reduced Metropolitan's exposure to interest rate swaps and resulted in present value debt service savings of approximately \$1 million.

In December 2014, Metropolitan issued \$49.645 million of Waterworks General Obligation Refunding Bonds, 2014 Series A, at a true interest cost 1.05 percent. The bond proceeds refunded \$54.435 million of outstanding general obligation bonds. The transaction resulted in present value debt service savings of approximately \$5.7 million.

At various times throughout the fiscal year, Metropolitan successfully re-priced the 2009 Series A-2, the 2011 Series A-1 through 2011 Series A-4, SIFMA Index Notes, the 2012 Series B1- B2 SIFMA Index Notes, and the 2013 Series E Flexible Index Notes. The SIFMA Index and Flexible Index Notes re-priced at rates that ranged from the SIFMA index plus two to plus 38 basis points, depending on the terms and conditions of each note series. SIFMA stands for Securities Industry and Financial Markets Association.

#### *Treasury Operations*

- Successfully managed Short Term and Bond Reserve portfolios averaging \$1.4 billion in compliance with the California Government Code and Metropolitan's investment policy.
- Earned effective yields of 0.61, 2.04, and 1.81 percent respectively, for the Core, Bond Reserve, and Long-Term portfolios during FY 2014/15.
- Monitored performance by the external managers of the \$337 million long term portfolio, to ensure compliance with Metropolitan's Statement of Investment Policy.
- Provided the necessary liquidity to fund approximately \$1.7 billion in expenditures during fiscal year 2014/15.

- Managed debt service, which includes the calculation and coordination of approximately \$302 million in debt service and swap payments.
- Managed net interest exposure within board-approved parameters.

### *Accounting Operations*

- Provided accurate, timely and transparent financial reports to the board and member agencies.
- Recorded and reported Metropolitan's financial activities in a timely manner, ensuring sufficient financial controls to protect Metropolitan's assets.
- Completed the FY 2013/14 external audit with an unqualified (i.e. "clean") opinion.
- Achieved internal financial audit reviews with ratings of generally satisfactory or higher and no major findings.
- Maintained the 90-day past-due amounts on non-DWR accounts receivable to below \$600,000.
- Continued the documentation and testing of internal controls over financial reporting, concluding that the controls were effective for the fiscal year ending June 30, 2014.
- Received the Award of Excellence from the Government Finance Officers Association for FY 2013/14 for financial reporting.

### *Budget and Financial Planning*

- Negotiated and executed 10-year member agency Purchase Orders.
- Provided continued administration of water rates and charges, including determining the Calendar Year Readiness-to-Serve Charge and Capacity Charge by member agency, and administering the Standby Charge.
- Prepared analyses of the cost impacts of the Bay Delta Conservation Plan.

- Provided financial analyses to support use of reserves to address extraordinary conservation activities and water supply programs.
- Worked with the Legal Department to maintain Metropolitan's ad valorem property tax assessment at the FY 2014 rate to offset a portion of State Water Contract costs; prepared the analysis to support the updated annexation fee.
- Provided training opportunities to Finance staff to support succession planning.
- Received the GFOA Distinguished Budget Presentation Award for the FY 2014/15 and 2015/16 biennial budget, with special performance measures recognition.

#### *Business Continuity*

- Conducted the annual Business Recovery Exercise with Information Technology, activating the Disaster Recovery Facility and successfully testing Metropolitan's ability to recover critical business systems in the event of a major regional disaster.
- Completed Metropolitan's Business Impact Analysis project, with the Emergency Management Working Group as the steering committee, to identify the Mission Essential Functions that if disrupted could adversely impact Metropolitan's ability to fulfill its mission; documented the resources required to perform those processes; and identified how soon those resources would be needed after a disruption.
- Initiated the development and implementation of an automated Business Continuity Program Management System to update and maintain Business Continuity Plans for each of Metropolitan's Mission Essential Functions and provide the foundation for a robust and sustainable Business Continuity Program.

## *Financial Information*

Metropolitan operates as a utility enterprise and maintains its accounting records in accordance with generally accepted accounting principles for proprietary funds as prescribed by the Governmental Accounting Standards Board.

### ***Revenues***

Metropolitan's principal revenue source is water sales and exchange transactions, which include all revenues received by Metropolitan from charges for the sale and availability of water, including Metropolitan's water rates, readiness-to-serve charge and capacity charge. Other sources of revenue include property taxes, interest income and power revenues. Water rates and charges are established by the board of directors on a biennial basis and are not subject to regulation by the California Public Utilities Commission or any other governing body.

The rate structure implemented on January 1, 2003 unbundled Metropolitan's previous water rate into separate rates and charges (a power rate, a treatment surcharge, a system access rate, a water stewardship rate and a capacity charge) to reflect the different services provided by Metropolitan. This rate structure also includes a two-tiered block pricing structure for water supply. Effective January 1, 2015, the full service Tier 1 rate (including all rate elements), which is based on recovering the cost of maintaining a reliable amount of supply, was \$582 per acre-foot for untreated water. Likewise, the full service Tier 2 rate of \$714 per acre-foot is set at Metropolitan's cost of purchasing water transfers north of the Delta and encourages member agencies to maintain existing local supplies and develop cost-effective local supply resources and conservation. A complete list of current water rates and charges is available in Table 7-1. Overall, Metropolitan increased rates and charges 1.5 percent effective January 1, 2015.

**TABLE 7-1**  
**WATER SALES RATE STRUCTURE-CURRENT**

(Dollars per acre-foot-unless otherwise specified)

	Calendar Year <sup>1</sup>									
	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Tier 1 Supply Rate	\$ 158	\$ 148	\$ 140	\$ 106	\$ 104	\$ 101	\$ 109	\$ 73	\$ 73	\$ 73
Delta Supply Surcharge <sup>2</sup>	n/a	n/a	n/a	58	51	69	--	--	--	--
Tier 2 Supply Rate	290	290	290	290	280	280	250	171	169	169
Water Supply Surcharge	--	--	--	--	--	--	25	--	--	--
System Access Rate	257	243	223	217	204	154	143	143	143	152
Water Stewardship Rate	41	41	41	43	41	41	25	25	25	25
System Power Rate	126	161	189	136	127	119	110	110	90	81
Full Service Untreated:										
Tier 1	582	593	593	560	527	484	412	351	331	331
Tier 2	714	735	743	686	652	594	528	449	427	427
Replenishment Water Rate <sup>3</sup> :										
Untreated	n/a	n/a	n/a	422	409	366	294	258	238	238
Treated	n/a	n/a	n/a	651	601	558	436	390	360	335
Interim Agricultural Water Program <sup>4</sup> :										
Untreated	n/a	n/a	n/a	537	482	416	322	261	241	241
Treated	n/a	n/a	n/a	765	687	615	465	394	364	339
Treatment Surcharge	341	297	254	234	217	217	167	157	147	122
Full Service Treated:										
Tier 1	923	890	847	794	744	701	579	508	478	453
Tier 2	1,055	1,032	997	920	869	811	695	606	574	549
Capacity Charge (\$ per cubic foot second)	11,100	8,600	6,400	7,400	7,200	7,200	6,800	6,800	6,800	6,800
Readiness-to-Serve Charge (\$Millions)	158	166	142	146	125	114	92	82	80	80

<sup>1</sup> Rates are set on a calendar year basis.

<sup>2</sup> The Delta Supply Surcharge was suspended after 2012.

<sup>3</sup> The Replenishment Program was discontinued after 2012.

<sup>4</sup> The Interim Agricultural Water Program was discontinued after 2012.

Metropolitan is empowered under the Metropolitan Water District Act to levy and collect taxes on all taxable property within its boundaries for the purpose of carrying on its operations and paying obligations. Property taxes are levied annually by the board to pay Metropolitan's general obligation bond debt service and part of its State Water Contract costs.

Metropolitan's revenues in fiscal year 2014/15 totaled \$1.688 billion. Sources of revenues include water sales, exchange transactions, readiness-to-serve charges, capacity charges, power recoveries, property taxes, investment income and other income, such as rents. Total revenues were \$87 million lower than the prior fiscal year, almost entirely due to lower water sales.

Table 7-2 lists revenues by source and the change in revenues from the prior year.

**TABLE 7-2**  
**REVENUES**  
(Dollars in Millions)

	Year Ended June 30,		
	2015	2014	Change
Water sales	\$ 1,421	\$ 1,513	\$ (92)
Readiness-To-Serve Charge	162	154	8
Power Sales <sup>1</sup>	8	15	(7)
Taxes (Net)	102	95	7
Investment Income (loss)	(4)	5	(9)
Other	6	-	6
<b>Total</b>	<b>\$ 1,695</b>	<b>\$ 1,782</b>	<b>\$ (87)</b>

<sup>1</sup> Previously referred to as power recoveries or hydroelectric power sales.



### *Expenses*

Metropolitan continued its efforts to manage finances, control costs, enhance productivity, pay for conservation and local resource programs, and procure additional supplies during the fiscal year. Major components of Metropolitan operations and maintenance costs include labor, chemicals, utilities, outside services, materials and operating equipment. Table 7-3 lists expenses by function and the changes from the prior year, while Table 7-4 summarizes changes in net position (revenues and expenses). During FY 2014/15, Metropolitan undertook extraordinary actions to support drought response activities. Finance supported these activities by ensuring that funds were available for media campaigns to educate the public about the drought, financial support for historic levels of conservation incentives, and for supply procurement.

Metropolitan is one of 29 contractors to the State Water Project. Under the contract, Metropolitan is obligated to pay the state Department of Water Resources its portion of the costs for construction of the system as well as the minimum operations, maintenance, power and replacement costs of the project regardless of the amount of water actually delivered. Variable power charges are based on actual deliveries of supplies from the State Water Project.

In addition, Metropolitan has an obligation to pay its share of the capital and operating costs of certain off-aqueduct power facilities regardless of the amount of water delivered; adjustments to such charges are made in subsequent periods based on actual water deliveries.

Metropolitan also buys power to pump Colorado River water into its service area. The power is secured by Metropolitan under federal energy contracts and from purchases of supplemental energy from a variety of sources as available. In addition, Metropolitan has entered into, and is negotiating, a number of agreements with entities along the Colorado River that have higher priority rights to water on the Colorado River. These agreements give Metropolitan firm rights to water that it otherwise would not have.

Construction requirements to rehabilitate and repair facilities, and provide enhanced water treatment capability are being funded primarily from operating revenues. General obligation bond debt service is funded from ad valorem property taxes. Tables 7-5 and 7-6 show assessed valuations and property tax rates for FY 2015 and the preceding nine years, while Table 7-7 shows property tax levies and collections. Revenue bond debt service is funded from water sales revenues. Table 7-8 is a 10-year summary of net operating income and revenue bond service coverage, while Table 7-9 is a listing of Metropolitan's 10 largest water customers.

Fiscal year expenses totaled \$1.526 billion. Expenses include power and water costs, operations and maintenance costs, depreciation and amortization, and interest on debt obligations. Total expenses were \$49 million more than the prior year, mainly due to \$36 million in lower power and water costs, \$114 million more in depreciation and amortization, and \$103 million more in operations and maintenance costs associated with funding conservation incentives.

**TABLE 7-3**  
**EXPENSES**  
(Dollars in Millions)

	Year Ended June 30,		
	2015	2014	Change
Power and Water Costs	\$ 474	\$ 510	\$ (36)
Operations and Maintenance	543	440	103
Depreciation and Amortization	375	261	114
Bond Interest	133	147	(14)
Other	1	25	(24)
<b>Total</b>	<b>\$ 1,526</b>	<b>\$ 1,383</b>	<b>\$ 143</b>

***Budget Process***

Metropolitan combines elements of program budgeting and performance reporting in its budget system. These elements provide for funding, analysis, review and control. The biennial budget for fiscal years 2014/15 and 2015/16 was presented to and discussed by the board during February and March 2014, and approved in April 2014.

The biennial budget process begins in July of odd-numbered years (e.g., July 2015 for the FY 2017 & FY 2018 biennial budget) when each group identifies major maintenance and capital projects. Project requests are submitted to the Engineering Services Group beginning in July, giving staff adequate time to plan project design and construction schedules, and to allow the Water System Operations Group to plan for system shutdowns. Each department and group prepares operating budgets from August to November. Each program is analyzed and reviewed as to resources required and the extent to which the program is consistent with the priorities and strategies of the General Manager's Business Plan. All recommended programs are then incorporated into the overall budget. The proposed biennial budget includes a 10-year forecast of revenues, expenditures, unrestricted reserve balances and projected rates and charges. These forecasts incorporate projected costs associated with the repair and replacement of existing infrastructure, and also the projected costs of a Bay Delta Conservation Plan, to help member agencies and the general public understand long-term cost trends and potential future water rate impacts.

Budgetary control is maintained through monthly variance reports, which compare budget estimates with actual revenues and expenses for board and management information and form the basis for corrective actions. All major expense categories are controlled via the board-approved biennial budget and authorized appropriations. Since adopting a biennial budget, a mid-cycle update is provided to the Metropolitan Board of Directors at the midpoint of the two-year period.

### ***Treasury Operations and Cash Management***

Annually, Metropolitan's board approves the Statement of Investment policy and delegates to the Treasurer the authority to invest Metropolitan funds.

Investments by the Treasurer are limited to those instruments specified in the board-approved investment policy, which sets out, in order of priority, three fundamental criteria to be followed: safety, liquidity and return.

Metropolitan is permitted by state law and board policy to invest in a variety of instruments including U.S. Treasury securities, federal agencies, repurchase agreements, negotiable certificates of deposit, bankers' acceptances, prime commercial paper, asset and mortgage-backed securities, and California local agency securities, including securities issued by Metropolitan. Investments can also be made in corporate notes, time deposits, investment contracts, shares of beneficial interest, and the Local Agency Investment Fund.

Treasury activities during the year included the management of the short-term and bond reserve portfolios and oversight of the firms managing the long-term investment portfolios. Metropolitan's total portfolio averaged approximately \$1.464 billion during fiscal year 2014/15, with cash basis investment earnings of approximately \$21.4 million. As of June 30, 2015, the market value of Metropolitan's investment portfolio was approximately \$1.6 billion.

**TABLE 7-4**  
**TEN-YEAR SUMMARY OF CHANGES IN NET POSITION (UNAUDITED) - ACCRUAL BASIS<sup>1</sup>**  
(Dollars in Millions)

	Fiscal Year Ended June 30,									
	2015	2014	2013	2012 <sup>3</sup>	2011 <sup>3</sup>	2010	2009 <sup>4</sup>	2008	2007	2006
				As Adjusted	As Adjusted		Restated			
Water sales	\$ 1,382.9	\$ 1,484.7	\$ 1,282.5	\$ 1,123.3	\$ 1,001.0	\$ 1,010.9	\$ 999.5	\$ 958.7	\$ 930.9	\$ 832.4
Readiness-to-serve charges	162.0	154.0	144.0	135.5	119.5	103.0	87.0	82.1	80.0	80.0
Capacity charge <sup>2</sup>	37.5	28.4	28.7	33.0	34.4	33.4	32.6	32.6	32.3	31.8
Power recoveries	8.4	14.6	24.5	31.5	22.9	18.3	17.4	23.1	26.1	26.8
<b>Operating revenues</b>	<b>1,590.8</b>	<b>1,681.7</b>	<b>1,479.7</b>	<b>1,323.3</b>	<b>1,177.8</b>	<b>1,165.6</b>	<b>1,136.5</b>	<b>1,096.5</b>	<b>1,069.3</b>	<b>971.0</b>
Taxes, net	102.3	94.5	94.8	79.2	79.3	98.1	105.6	98.7	96.4	102.7
Investment income	(3.6)	5.7	(0.4)	4.1	2.0	40.6	27.3	65.9	55.3	32.5
Other, net	5.4	-	6.1	0.6	22.0	6.4	6.0	2.9	10.1	4.6
<b>Nonoperating revenues</b>	<b>104.1</b>	<b>100.2</b>	<b>100.5</b>	<b>83.9</b>	<b>103.3</b>	<b>145.1</b>	<b>138.9</b>	<b>167.5</b>	<b>161.8</b>	<b>139.8</b>
<b>Total revenues</b>	<b>1,694.9</b>	<b>1,781.9</b>	<b>1,580.2</b>	<b>1,407.2</b>	<b>1,281.1</b>	<b>1,310.7</b>	<b>1,275.4</b>	<b>1,264.0</b>	<b>1,231.1</b>	<b>1,110.8</b>
Power and water costs	(473.6)	(510.1)	(371.3)	(384.0)	(364.8)	(433.7)	(402.1)	(350.3)	(335.4)	(366.2)
Operations and maintenance	(543.4)	(439.7)	(419.8)	(433.5)	(394.9)	(395.6)	(440.0)	(405.0)	(368.4)	(370.4)
Depreciation and amortization	(374.8)	(261.5)	(265.4)	(290.1)	(286.4)	(246.4)	(226.1)	(228.9)	(214.4)	(205.3)
<b>Operating expenses</b>	<b>(1,391.8)</b>	<b>(1,211.3)</b>	<b>(1,056.5)</b>	<b>(1,107.6)</b>	<b>(1,046.1)</b>	<b>(1,075.7)</b>	<b>(1,068.2)</b>	<b>(984.2)</b>	<b>(918.2)</b>	<b>(941.9)</b>
Bond interest	(132.5)	(146.7)	(150.2)	(135.8)	(135.7)	(133.3)	(103.4)	(120.0)	(118.9)	(110.0)
Interest and adjustments on OAPF <sup>5</sup>	(1.2)	(1.6)	(2.1)	(2.6)	(3.0)	(3.4)	(3.8)	(4.1)	(4.5)	(4.9)
Other, net	-	(23.7)								
<b>Nonoperating expenses</b>	<b>(133.7)</b>	<b>(172.0)</b>	<b>(152.3)</b>	<b>(138.4)</b>	<b>(138.7)</b>	<b>(136.7)</b>	<b>(107.2)</b>	<b>(124.1)</b>	<b>(123.4)</b>	<b>(114.9)</b>
<b>Total expenses</b>	<b>(1,525.5)</b>	<b>(1,383.3)</b>	<b>(1,208.8)</b>	<b>(1,246.0)</b>	<b>(1,184.8)</b>	<b>(1,212.4)</b>	<b>(1,175.4)</b>	<b>(1,108.3)</b>	<b>(1,041.6)</b>	<b>(1,056.8)</b>
Contributed capital	2.3	2.2	1.7	13.6	17.7	4.6	66.1	15.6	14.5	15.2
Cumulative effect of change in accounting principle					(8.2)		0.5			
<b>Change in net position</b>	<b>\$ 171.7</b>	<b>\$ 400.8</b>	<b>\$ 373.1</b>	<b>\$ 174.8</b>	<b>\$ 105.8</b>	<b>\$ 102.9</b>	<b>\$ 166.6</b>	<b>\$ 171.3</b>	<b>\$ 204.0</b>	<b>\$ 69.2</b>

<sup>1</sup> Metropolitan implemented GASB Statement No. 63, *Financial Reporting of Deferred Outflows of Resources, Deferred Inflows of Resources and Net Position*, in fiscal 2012.

This pronouncement requires that the difference between assets and liabilities be reported as net position, therefore, net assets are now referred to as net position.

<sup>2</sup> Capacity charge revenue has been segregated from Water sales revenue starting with fiscal year 2014.

<sup>3</sup> Adjustment relates to the adoption of GASB No. 65, *Items Previously Reported as Assets and Liabilities*. This pronouncement requires debt issuance costs (except prepaid insurance costs) to be recognized as expense in the period incurred.

<sup>4</sup> Restatement relates to implementation of Governmental Accounting Standards Board (GASB) Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments*.

This pronouncement requires derivative instruments to be reported at their fair value on the statements of net position along with a related deferred outflow to be recorded for effective hedges.

<sup>5</sup> Off-Aqueduct Power Facilities.

**CORRECTED VERSION<sup>1</sup>**  
**TABLE 7-5**  
**TEN MEMBER AGENCIES WITH**  
**LARGEST ASSESSED VALUATIONS**  
**YEAR ENDED JUNE 30, 2015**  
(Dollars in Billions)

<b>Member Agency</b>	<b>Assessed Valuation</b>	<b>*Percent of Total</b>
Los Angeles	\$ 459.5	19.85
San Diego County Water Authority	405.0	17.50
MWD of Orange County	393.8	17.01
West Basin MWD	156.7	6.77
Central Basin MWD	121.6	5.25
Inland Empire Utilities Agency	89.1	3.85
Calleguas MWD	86.5	3.74
Western MWD	84.5	3.65
Upper San Gabriel Valley MWD	84.3	3.64
Eastern MWD	61.8	2.67
	<b>\$1,942.8</b>	<b>83.93</b>
<b>Total Gross Assessed Valuation (All 26 Member Agencies)</b>	<b>\$2,314.9</b>	

\* Total may not foot due to rounding.

<sup>1</sup> This replaces a previous version of Table 7-5, and corrects the Total Gross Assessed Valuation and the Percent of Total figures.

**TABLE 7-6**  
**TEN-YEAR SUMMARY OF ASSESSED VALUATIONS**  
**AND PROPERTY TAX RATES**  
(Dollars in Billions)

<b>Fiscal Year Ended June 30,</b>	<b>Gross Assessed Valuation <sup>1</sup></b>	<b>Homeowner's Exemption</b>	<b>Net Assessed Valuation <sup>2</sup></b>	<b>Secured Property Percentage Tax Rate</b>
2015	\$ 2,314.9	\$ 16.2	\$ 2,298.8	0.0035
2014	2,183.4	16.3	2,167.0	0.0035
2013	2,097.4	16.7	2,080.7	0.0035
2012	2,067.5	16.9	2,050.5	0.0037
2011	2,049.1	17.1	2,031.9	0.0037
2010	2,081.9	17.2	2,064.7	0.0043
2009	2,120.9	17.2	2,103.7	0.0043
2008	2,015.4	17.1	1,998.3	0.0045
2007	1,839.5	16.9	1,822.6	0.0047
2006	1,642.2	17.0	1,625.2	0.0052

<sup>1</sup> Gross assessed valuations (before deduction of Homeowner's and Business Inventory Exemptions), as of August each year, of all secured and unsecured property within Metropolitan's service area, as certified by the County Auditor-Controllers for the respective counties.

<sup>2</sup> May not foot due to rounding.

**TABLE 7-7**  
**TEN-YEAR SUMMARY OF PROPERTY TAX LEVIES**  
**AND COLLECTIONS (UNAUDITED)**  
**CASH BASIS**  
(Dollars in Thousands)

Fiscal Year Ended June 30,	Total Tax Levy	Tax Collections			Outstanding Delinquent Taxes <sup>1</sup>	Percent of Current Taxes Collected to Total Tax Levy	Percent of Total Tax Collections to Total Tax Levy	Percent of Delinquent Taxes to Total Tax Levy
		Current	Delinquent	Total				
2015	\$ 104,829	\$ 103,314	\$ -	\$ 103,314	\$ -	98.6	98.6	0.0
2014	100,066	96,036	2,671	98,707	-	96.0	98.6	0.0
2013	94,963	92,578	4,076	96,654	2,671	97.5	101.8	2.8
2012	92,247	80,775	9,478	90,253	4,076	87.6	97.8	4.4
2011	95,385	71,069	16,987	88,056	9,478	74.5	92.3	9.9
2010	107,892	82,164	15,083	97,247	16,987	76.2	90.1	15.7
2009	109,776	91,632	12,951	104,583	15,083	83.5	95.3	13.7
2008	107,059	87,670	11,224	98,894	12,951	81.9	92.4	12.1
2007	103,913	81,315	13,647	94,962	11,224	78.3	91.4	10.8
2006	104,531	91,042	4,988	96,030	13,647	87.1	91.9	13.1

<sup>1</sup> Delinquent taxes shown are net of the "Allowance for Uncollectibles" - determined by historical trends of collections and payments.

**TABLE 7-8**  
**TEN-YEAR SUMMARY OF NET OPERATING INCOME AND**  
**REVENUE BOND DEBT SERVICE COVERAGE<sup>1</sup> UNAUDITED**  
(Dollars in Millions)

	Fiscal Year Ended June 30,									
	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Water Sales <sup>2</sup>	\$ 1,383	\$ 1,485	\$ 1,283	\$ 1,062	\$ 996	\$ 1,011	\$ 988	\$ 968	\$ 892	\$ 827
Additional Revenues <sup>2</sup>	199	182	173	168	153	135	120	114	113	111
Total Revenues	1,582	1,667	1,456	1,230	1,149	1,146	1,108	1,082	1,005	938
Operating Expenses	(1,005)	(854)	(793)	(792)	(853)	(825)	(782)	(792)	(648)	(693)
Net Operating Revenues	577	813	663	438	296	321	326	290	357	245
Hydroelectric Power Revenue & Other	29	34	48	87	96	52	43	48	51	54
Transfer from Reserve Funds	142	-	-	-	-	-	-	-	-	-
Interest on Investments <sup>3</sup>	13	19	(2)	11	17	19	32	46	33	26
Adjusted Net Operating Revenues	761	866	709	536	409	392	401	384	441	325
Bonds and Additional Bonds Debt Service	(280)	(343)	(298)	(297)	(277)	(244)	(223)	(219)	(200)	(176)
Subordinate Revenue Obligations	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Funds Available from Operations	\$ 480	\$ 522	\$ 410	\$ 238	\$ 131	\$ 147	\$ 177	\$ 164	\$ 240	\$ 148
<b>Ratios</b>										
Bonds and Additional Bonds Debt Service Coverage	2.72	2.52	2.38	1.81	1.48	1.61	1.80	1.76	2.21	1.85
Debt Service Coverage on all Obligations	2.71	2.51	2.37	1.80	1.47	1.60	1.79	1.75	2.19	1.84

<sup>1</sup> Prepared on a modified accrual basis for fiscal years 2013-2015 and on a cash basis for fiscal years 2006-2012.

<sup>2</sup> Fiscal years 2006-2013 restated to include exchange sales in Water Sales. They were previously reported under Additional Revenue.

<sup>3</sup> Excludes interest applicable to Bond Construction accounts, Excess Earning account(s), Other Trust accounts, and the Deferred Compensation Trust account.

Minor differences are due to rounding.



**TABLE 7-9**  
**TEN LARGEST WATER CUSTOMERS**  
**Year Ended June 30, 2015**  
 Accrual Basis (Dollars In Millions)

<b>Agency</b>	<b>Water Sales and Exchanges</b>	<b>* Percent of Total</b>	<b>Water Sales and Exchanges in Acre-Feet</b>	<b>* Percent of Total</b>
San Diego CWA	\$ 323.5	23.4%	540,141	28.3%
City of Los Angeles	236.9	17.1%	355,369	18.6%
MWD of Orange County	182.9	13.2%	228,482	12.0%
West Basin MWD	102.2	7.4%	112,893	5.9%
Calleguas MWD	87.9	6.4%	97,103	5.1%
Eastern MWD	71.9	5.2%	89,737	4.7%
Western MWD of Riverside	55.6	4.0%	68,386	3.6%
Three Valleys MWD	46.7	3.4%	58,053	3.0%
City of Long Beach	41.7	3.0%	46,045	2.4%
Central Basin MWD	36.2	2.6%	45,360	2.4%
<b>Total</b>	<b>\$ 1,185.5</b>	<b>85.7%</b>	<b>1,641,569</b>	<b>86.1%</b>
<b>Total Revenue</b>	<b>\$ 1,382.9</b>	<b>Total Acre-Feet</b>	<b>1,905,542</b>	

\* Total may not foot due to rounding.

# Colonel John V. "Jack" Foley Courtyard

Colonel Foley served as Chairman of the Board of Directors of The Metropolitan Water District of Southern California from 1993 through 1998, and again from 2011 through 2014, the second longest tenure of any Metropolitan Chairman. He served on the Board representing the Municipal Water District of Orange County from August 1989 until his death on March 21, 2014. Colonel Foley spearheaded the construction of Diamond Valley Lake, the largest reservoir in Southern California, and was at the helm for the adoption of the Integrated Water Resources Plan. This groundbreaking plan embraced a diversified water portfolio that included conservation, local storage and groundwater recovery. He was the General Manager of the Aliso Water Management Agency and the Moulton Niguel Water District, and served on the San Diego Regional Water Quality Control Board and the Colorado River Board.

Colonel Foley was a U.S. Army veteran of two wars, taught at West Point, and served as a district engineer for the U.S. Army Corps of Engineers.

On November 17, 2014, the Board of Directors of The Metropolitan Water District of Southern California dedicated this courtyard to the memory of **Colonel John V. "Jack" Foley** with profound gratitude for the enduring contributions he made to provide Southern California with a safe and reliable supply of water.



*In addition to several refurbishment projects, Business Technology installed a courtyard plaque honoring Col. John V. "Jack" Foley at Metropolitan's Headquarters Building at Union Station.*

# Business Technology

**T**he Business Technology Group provides technical and general services that support Metropolitan in securing, conveying, treating, and distributing water for its service area. BTG is responsible for Metropolitan initiatives related to information technology, administrative services, business outreach, sustainability efforts, and annexation administration.

## *Information Technology*

Business Technology delivers information technology options, services and solutions in the areas of enterprise and business applications, control systems, mobile/wireless computing, telecommunications, network services and information security.

### *IT Strategic Plan Update*

Metropolitan's IT Strategic Plan continues to guide investment and deployment of information technology to help optimize water system operations, improve asset management, streamline business operations and manage costs. Throughout the year, staff performed a comprehensive assessment, developed alternative strategies, and laid out the details of a preferred approach. The result is a list of initiatives and investment to guide Metropolitan over the next three to five years. The updated plan called for deployment of cloud-based solutions for cost reduction and efficiencies, and used mobile technology to improve productivity, while simplifying access to business information. The plan aims to foster a culture of innovation and allow Business Technology to become trusted advisers to its customers.

***Highlights for Fiscal Year 2014/15***

- Monitored cybersecurity legislation; implemented tools to enhance cybersecurity and assess vulnerability within Metropolitan's networks; developed standards for operating iOS devices; and evaluated IT security infrastructure to allow secure remote access to Metropolitan's networks including the SCADA (Supervisory Control and Data Acquisition) system.
- Finished pilot phase testing of the emergency radio communications system.
- Replaced end-of-life network communications infrastructure, including core network switches, routers and enterprise UNIX servers.
- Planned the final design for rehabilitation and upgrades of control and electrical protection systems at the Hiram Wadsworth Pumping Plant.
- Continued developing the project plan for the design and implementation of the VoIP (Voice over Internet Protocol) system.
- Continued to evaluate technological advancements such as cloud computing, mobile/Web-enabled applications and wireless device data retrieval.
- Deployed the new Accounts Payable Imaging System to enhance process efficiency, and substantially completed the upgrades of the Oracle 12 eBusiness Suite and PeopleSoft HR system for enhanced functionality.
- Partnered with External Affairs to support Metropolitan's Web redesign and to create an active Twitter account that adheres to current cybersecurity regulations and governing laws.
- Provided board-requested tours of the IT data center located at Metropolitan's Headquarters Building.

## *Administrative Services*

Business Technology focuses on business process sustainability and achieving cost reductions and efficiencies in a broad range of services. These include contracting services, procurement of goods and nonprofessional services, inventory management, warehousing, building services, and Metropolitan's Rideshare Program. In addition, Business Technology aims to provide these services in a sustainable manner that reduces Metropolitan's impact on natural and non-renewable resources.

### *Spring Green Expo*

Metropolitan hosted the 8th Annual Spring Green Expo and ECO Innovators Showcase college competition for staff, member agencies and the surrounding community. The event highlighted the businesses and students who are working to solve environmental challenges, focusing on the actions individuals can take to live and work sustainably. High participation rates were a highlight of this year's event. Staff received twice as many vendor exhibit requests compared to last year's event, and also received 36 student projects for consideration from 15 colleges and universities. Other highlights included a water-themed photography exhibit in celebration of Water Awareness Month in California, and various workshops on ways to conserve water.

### *Energy Conservation Initiatives*

Staff completed a comprehensive energy audit of Metropolitan's Headquarters building that focused on achieving the lowest life-cycle operating costs in concert with the principles of effective and sustainable facility management. The energy audit report confirmed that the facility is operated efficiently and is performing better than the national average.

### ***Highlights for Fiscal Year 2014/15***

- Completed refurbishment projects and installed a memorial plaque in honor of Col. John V. “Jack” Foley in the courtyard of Metropolitan’s Headquarters Building at Union Station.
- Performed numerous preventive maintenance procedures to building equipment and systems at Metropolitan’s headquarters and the DVL Visitor Center.
- Earned high scores for the Metropolitan’s Headquarters during the annual Energy Star certification process for the year ending August 31, 2014.
- Successfully completed the DocuSign digital signature application pilot program, which will significantly reduce the turnaround time to contract execution as it is pushed out to other organizations within Metropolitan.

## ***Business Outreach***

Metropolitan’s Business Outreach Program promotes cost-effective, inclusive business and economic development in Southern California through increased outreach and support for member agencies, regional and small business and the disabled veteran business communities.

Metropolitan sponsored the annual California Construction Expo in partnership with other California government agencies to present the increasing opportunities available in public works programs for contractors, designers and construction professionals. This is the ninth year that Metropolitan has been participating in the event, and staff had the opportunity to speak at the various workshops presented that day on topics ranging from water infrastructure reliability to contracting opportunities.

### ***Highlights for Fiscal Year 2014/15***

- Surpassed the board’s Small Business Program goal of 25 percent by achieving an average of 28 percent small business participation in business contracting.

- Presented TechTalk Lunch and Learn workshops for staff on various topics such as 3D printing, social media, mobile applications, and water-related emerging technology.
- Partnered with public agencies to continue developing a uniform online Small Business Certification System to increase access to government contracts for regional and small businesses.
- Partnered with member agencies, water agencies and Isle Utilities on a U.S. Water Technology Approval Group to identify, develop and commercialize emerging water technologies.
- Facilitated early access to emerging technologies from the innovation community for Metropolitan internal group programs.

## *Annexations*

Business Technology processes member agency requests involving annexation into Metropolitan's service area, including the ability to levy standby charges. This year saw the revision of Metropolitan's Administrative Code to facilitate a streamlined one-step board approval option for annexation requests.

Two annexations totaling 317 acres were completed this year, while the remaining two annexation requests are pending LAFCO completion. The pending annexations have a potential to increase Metropolitan's service area by an additional 309 acres.





*WSO Management Academy participants study cutting-edge water recycling technologies at the Groundwater Replenishment System in Orange County.*



# Human Resources

**T**he Human Resources Group continued its long-term strategy to foster high performance aligned with business goals, promote excellent leadership and management practices that engage employees, and also ensure a diverse and talented workforce that is able to support current and future business needs. Staff updated HR systems and processes to maintain legal, regulatory and fiduciary compliance, and provided improved Human Resources support for programs from pre-hire through retirement.

### *Major Activities and Accomplishments*

Human Resources used the foundations of the Strategic HR Plan as a framework for HR excellence at Metropolitan. This year, HR emphasized effective leadership that engages and motivates the workforce, provides effective customer service and consistently delivers cost-effective HR practices. It expanded recruitment outreach to fill job openings with diverse and capable talent, and increased talent development opportunities throughout the organization. HR met monthly with group managers to identify HR issues and support needs, and worked closely with management on the effective deployment of HR initiatives and early resolution of HR issues.

### *Strategic HR Plan Deployment*

Human Resources met key board objectives, while partnering with management on such issues as performance and talent management, effective workforce management, negotiation planning, and preparing for a more diverse workforce.

Managers from across Metropolitan attended the Management Forum 2014, where topics included key business challenges, feedback from the Voices 2014 Employee Survey and the importance of effective leadership and preparing for a multi-generational workforce.

### ***Ensuring High Performance***

This year, 67 percent of employees, 4 percent more than in 2009, provided feedback on the Voices 2014 Employee Survey, which assesses how effectively Metropolitan fosters a high-performance environment. The overall score this year was 62 percent favorable—a one point change from the 2009 survey—which compares favorably to scores of many other public and private sector organizations. Eighty-four percent of participants indicated that to a great or very great extent, “Metropolitan is a good place to work.” All employees obtained an online summary and detailed report of the organization-wide results. Management groups received survey feedback for their organizations, and guidance on best practices for improving employee feedback in the future.

The MyPerformance Evaluation process entered its fourth year. This year-round performance planning process sets performance expectations for work products, goals and performance factors for both employees and managers. It guides how work is performed and fosters continuing conversations about performance throughout the year, taking place on a common date to align it with Metropolitan business planning cycles. HR and group managers also discussed ways to improve process effectiveness.

HR also facilitated the Department Head Performance Evaluations of executive officers who report directly to the board. In July 2014, 83 percent of the board participated by providing direct feedback about strategic, operational, personal and team leadership, board relationships and business results over the previous fiscal year. In September, executive officers presented to the board on follow-up action plans to address the board’s evaluation feedback. Home committees for each department head were tasked to follow up, as needed. In April, the board streamlined the process to encourage greater participation, more focused feedback and greater home committee involvement in the process. This year, a member agency board used this process to evaluate its general manager.

### ***Succession Planning***

All groups are addressing the loss of talent, primarily due to retirements. During the past five years, approximately 27 percent of staff have left Metropolitan. As a result, HR staff continued efforts with management to ensure talent is available to fill needed positions. HR expanded internal staff development and training opportunities, worked with local management to identify and assess skill gaps, facilitated

leadership and management development workshops, and supported internship and mentoring programs, along with organizational transitions and realignments. Human Resources partnered with the Water System Operations group to create a management academy with 30 employees who aspire to become team managers.

Human Resources provided the board and management with workforce analytics to help plan for pending workforce retirements and expand diversity outreach efforts. This year saw a 3 percent increase in the hiring of minorities. Staff also participated in regional workforce development committees and universities and colleges to align technical educational curriculum with Metropolitan business needs.

### ***Management Excellence***

Human Resources continues to foster management excellence. An expanded online course curriculum was aligned with 16 core My-Performance management competency expectations, and workshops by leading management experts through the Institute of Management Studies program provided access to state-of-the-art management approaches. Internally, HR provided more than 240 managers opportunities to attend presentations on management topics including leadership development, persuasive communication, executive decision making, business-case writing, collaboration and leading technical staff. HR also arranged for workshops on legal aspects of managing people and performance. Preparations began for a third Management Forum in July 2015 focused on the topics of preparing for the challenges of managing tomorrow's workforce.

HR administered coaching sessions using 11 external experts, and provided internal coaching interventions and consultation for managers on issues ranging from transition management and personal development to succession planning. Metropolitan's tuition reimbursement program had 168 participants and also provided on-site certificate programs in strategic leadership, water leadership and management by partnering with the University of California, San Diego and the California State University campuses at Los Angeles and San Luis Obispo.

## ***Recruitment***

There were 20,000-plus applicants for over 190 openings. Staff attended 10 job fairs to enhance outreach to veterans, people with disabilities, and diverse populations including a Disabled Veterans Career Fair at Camp Pendleton, an Employment Development Department job fair at Dodger Stadium, a California State Polytechnic University, Pomona job fair and a city of Los Angeles Veterans Business and Career Expo. Metropolitan was also a platinum sponsor with HireAPatriot.org to increase veteran outreach for future job opportunities, and hired 10 youths from the HireLAYouth program for summer internships.

HR optimized recruitment, leveraging the use of technology to improve efficiency and reduce recruitment related costs, while updating and automating the recruitment applicant email process to improve updates to candidates. Staff began a Request for Proposal process for a new Automated Tracking System to improve communication coordination with candidates and hiring managers in order to speed the recruitment process. HR implemented changes in advertising that reduced costs while expanding media reach to a diverse candidate pool, and researched options for improving test-bank questions for the interview portion of recruitments.

## ***Total Compensation***

Classification staff completed four job audits, two job analyses and 87 management-requested promotions. In addition, staff reviewed and modified or created job descriptions, as needed, to keep them current with business needs. Staff also completed a market salary survey on department heads as well as four other salary survey requests.

## ***Benefits***

Metropolitan staff updated PeopleSoft to maintain compliance of benefits programs and completed the 2015 Benefits Open Enrollment process for all employees. Staff launched a new CalPERS database designed to assist in managing Preferred Provider Organization healthcare costs. HR also audited eligibility of temporary employees under the Affordable Care Act and drafted a Safe Harbor policy to comply with ACA requirements. Staff also researched and finalized sick leave plans for temporary employees per new regulations and, in conjunction with CalPERS and Health Management Systems, verified compliance with CalPERS eligibility requirements for dependents. HR completed an RFP

and selected a third-party vendor for record keeping and investment services, further reducing costs in Metropolitan's 401(k) and 457 deferred compensation programs. Staff also distributed 2014 Total Compensation Statements to all employees to convey the value of benefits and salary provided by Metropolitan.

To meet fiduciary responsibilities, HR hosted instructor-led and webcast workshops on financial planning, budgeting, the new fund lineup, investment basics, pre-retirement and retirement issues at various Metropolitan locations available to all employees. More than 250 employees participated in the workshops to help transition into retirement or simply seek more value from the benefits Metropolitan provides.

Staff also developed and conducted financial education online webinars to 87 employees and Stepping Into Retirement and Pre-Retirement workshops for employees.

### ***Employee Relations/Equal Employment Opportunity Program***

The Employee Relations Section responded to all grievances within the prescribed timeframes and collaboratively worked with the bargaining units, whenever possible, to resolve grievances. Staff were involved in a number of single item negotiations, primarily about new or revised job descriptions, and conducted salary negotiations with three of the bargaining units. The Employee Relations Section also continued to partner with Legal on unfair labor practice charges, hearing officer appeals and employment litigation.

Equal Employment Opportunity investigations staff conducted nine investigations and 13 informal investigations of unlawful discrimination allegations within timeframes prescribed by Metropolitan procedures.

EEO staff updated Metropolitan's annual Affirmative Action program, implementing the revised regulations for protected veterans and individuals with disabilities which included a new workforce survey. The nondiscrimination program and required analytic reports were also updated to ensure that barriers do not exist for women and minorities. Outreach efforts were expanded and included the development of new partnerships.

Staff maintained a 99 percent completion rate on mandatory online EEO workforce training and developed and implemented a Disability Awareness Program. Staff also presented the annual report on EEO and

Affirmative Action to the Organization, Personnel and Technology Committee, including an assessment of organizational diversity.

### ***Organizational Development and Training***

Staff delivered 65 unique courses reaching 1,552 employees, and providing more than 4,400 training opportunities. Curriculum focused on management development, teamwork and collaboration, writing and communication, effective performance management and meeting mandatory training requirements. HR updated and expanded offerings of SkillSoft and Fred Pryor online courses, providing all employees 24/7 access to videos, readings and courses on topics relevant to their work or career needs.

Ninety-three percent of managers completed mandatory reasonable-suspicion training, while 93 percent of Metropolitan's more than 1,550 non-management employees completed Drug and Alcohol Awareness training.

Staff conducted 20 education fairs at 10 Metropolitan facilities featuring 20 colleges and universities. HR promoted Metropolitan's tuition reimbursement program and established partnering agreements with six local universities to provide tuition discounts, grants and other additional educational benefits for employees who use the tuition reimbursement program.

Staff implemented the Administrative Services Development program to enhance administrative staff skills available throughout the organization. HR also offered a wide array of business impact courses on business writing, business software, Office 2010, budgeting, presentation and communication skills, project management, effective performance conversations, and 5 Choices to Extraordinary Productivity, among others.

As part of Organizational Development support, staff facilitated group leadership forums and management workshops, and also supported team-building, conflict resolution, organizational planning, Career Launch and mentoring for new associate engineers in Engineering Services. HR also supported student intern recruitments for the Real Property, Business Technology, and Water Resource Management groups and coordinated two employee inspection tours of the California Aqueduct system.

Metropolitan also hosted two semi-annual Service Awards program recognition luncheons honoring more than 175 employees for 20 to 45 years of service.

### ***Risk Management***

Risk Management completed incident reports involving Metropolitan property damage, liability issues, workplace injuries, regulatory visits, criminal activity and spills. Staff also completed risk assessments of professional service agreements, purchase orders, construction contracts, entry permits, easements, special events and film permits within required timeframes.

Risk Management continued to improve claims communication and coordination with Legal and Human Resources, resulting in more accurate liability reserves, and also provided feedback into the claims settlement and litigation process. Risk Management supported the planning and execution of the Spring Green Expo. This year, Metropolitan was able to increase its coverage from \$50 million to statutory limits for excess workers' compensation while keeping costs below what was expected for the entire insurance renewal.

### ***Workers' Compensation and Medical Screening***

Staff transitioned the workers' compensation claims program to a new third-party claim administrator, effective July 1, 2015. The resulting review of claims reduced the open claim count by 25 percent and provided a 30 percent decrease in outstanding reserves during fiscal year 2014/15.

### ***Human Resources Information Systems***

HRIS continued the upgrade to PeopleSoft 9.2 and updated HR systems to comply with changes required from new tax laws, MOU agreements, ACA and other new requirements. HRIS staff processed all Metropolitan employee job actions and organizational changes keeping MyHR, the employee data system of record, up-to-date and provided reports and analyses for effective people management. In addition, staff partnered with Payroll and Information Technology to modify benefits set-up to reduce workload for staff.



*The U.S. Navy and Army conducted military training exercises at Diamond Valley Lake.*



## Real Property

The Real Property Development and Management Group oversees Metropolitan's real estate holdings, and seeks to improve the value realized from these assets, while protecting Metropolitan's core infrastructure. RPDM operates under the leadership of the Office of the Chief Administrative Officer, in accordance with policy principles adopted by the board in August 2011 for managing Metropolitan's real property assets. During fiscal year 2014/15, the group worked to achieve sound financial results and key organizational objectives.

### *Revenue and Property Management*

Revenue generation continued to be a major focus in the CAO's office, with slightly more than \$6 million in revenue generated for FY 2014/15. Revenue enhancing activities included headquarters leasing, the sale of surplus lands, and collection of fees from permits, licenses, leases and easements for various uses of Metropolitan's properties. Staff from the Revenue and Property Management Unit also sought to ensure compliance with the terms and conditions of all agreements by performing annual site inspections to verify current usage and condition of the property, collection of rent, and maintenance of current insurance coverage. Staff continues evaluating changes in right-of-way conditions as it develops strategic right-of-way protection policies, and assesses Metropolitan's responses that reduce or remediate existing and potential future risks.

RPDM worked cooperatively with private individuals and entities as well as cities and other public utilities to acquire rights to use the property of others as necessary for essential operational purposes and to allow others to use Metropolitan's property when such requests could be accommodated. Metropolitan executed 70 agreements for compatible third-party use of MWD-owned land, involving surplus

property sales, telecommunication leases, office leases, construction-related projects, encroachment and access permits. Metropolitan also received revenue from the granting of easements, parking permits and filming permits, all of which ameliorates water rate increases.

#### *Highlights for Fiscal Year 2014/15*

- Issued nine filming permits and six parking permits, resulting in \$127,385 and \$18,480 in gross revenue, respectively.
- Collected over \$2.09 million in revenue from agricultural leases at Palo Verde Irrigation District.

#### *Headquarters Leasing Highlights*

- Granted an 8-month office lease to Parsons Brinckerhoff, Inc. on the third-floor low rise.
- Amended a lease with the San Diego County Water Authority providing a month-to-month term.
- Amended a lease with the MWD Federal Credit Union to allow relocation of an ATM machine at the F. E. Weymouth Water Treatment Plant.
- Concluded negotiations with the California Department of General Services and executed extensions of the two current Headquarters building leases for the Division of the State Architect and the California Office of Statewide Health Planning and Development at market rents through May 31, 2017.

#### ***Planning and Acquisition***

The Planning and Acquisition Unit plans, researches and acquires properties needed for future water conveyance and operations. Staff duties include analyzing real property needs for new facilities and rights of way, detailed property negotiations, relocation services, valuation studies and appraisals.

Metropolitan acquired 15 consents, permits, leases, easements and other agreements in support of Metropolitan's infrastructure construction, repair, relocation, service connection and maintenance projects.

***Highlights for Fiscal Year 2014/15***

- Provided property research, valuation, and planning support to Bay Delta Initiatives related to potential near- and long-term projects in the Delta.
- Continued to work with Legal and Engineering Services to ensure that Metropolitan has appropriate access for repair projects and appropriate rights for existing and proposed facilities within the Right of Way and Infrastructure Protection Program.
- Continued to obtain and amend telecommunication agreements at various sites in support of Metropolitan's two-way radio upgrade project.
- Worked with Engineering Services and Legal to resolve over 40 inquiries regarding right-of-way issues that included preparation of various costs studies, inspections, rental surveys and appraisal reviews, along with work in support of the Right of Way and Infrastructure Protection Program.

***Diamond Valley Lake Recreation Area***

The Diamond Valley Lake Recreation Area contains public recreation and education facilities, including the DVL Marina, Lakeview and North Hills trails, and Valley-Wide Recreation District's DVL Community Park and DVL Aquatic Center. These provide community recreational opportunities such as boating, fishing, hiking, biking, horse-riding, and aquatics. Diamond Valley Lake has hosted approximately 670,000 visitors at its marina facilities and approximately 156,000 private boats have launched since the 2003 public opening. The DVL Visitor Center houses key functions of the External Affairs Education program, and is also partially leased to the Western Science Center. The DVL Visitor Center and Western Science Center continue to attract year-round visitors for a variety of educational/community events and uses.

Private boat launching was temporarily suspended at the DVL Marina at the close of business on April 15 due to drought conditions and low water levels. Boat rentals, kayak and canoe launching, shoreline fishing, hiking, and biking activities remained available as

Metropolitan's board approved a ramp extension slated for completion in FY 2016.

Metropolitan's Water System Operations and Engineering groups, together with Urban Park Concessionaires, successfully relocated the DVL marina 800-foot wave attenuator, which was at risk of grounding due to the declining water elevation. This temporary relocation eliminates damage to the attenuator and provides continued protection of the marina.

The United States military was issued two entry permits allowing the Navy and Army to conduct a joint military training exercise at Diamond Valley Lake. The three-day boat-lift exercise consisted of Navy personnel launching boats onto the lake with Army helicopters working in the airspace above. The exercises involved deployment and extraction of swift-water military craft with the use of a helicopter and specialized rigging cables. Two sets of teams performed these exercises at the east and west ends of the lake.

The seasonal Flower Trail, located in the Multi-Species Reserve and accessed through the DVL Marina, opened February 7 to impressive displays of California wildflowers due to the spring rains. Three new picnic tables were added courtesy of a local Hemet Eagle Scout project.

### ***Other Highlights for Fiscal Year 2014/15***

- Presented a DVL recreation overview to the State Water Project Recreation Coordinating Committee during a 3-day Colorado River Aqueduct tour where participants included Department of Water Resources representatives and directors from the Los Angeles County Department of Parks and Recreation.
- Received \$24,624 as Metropolitan's percentage of revenues under a lease with Urban Park Concessionaires for the operation, management and maintenance of the DVL marina, North Hills Trail and the Lakeview Trail.

- Continued to assist with DVL Marina and DVL area improvement projects, including the DVL boat ramp extension, marina restrooms, East Dam electrical upgrade, and the completion of Visitor Center Building No. 4.

### ***Staff Training and Development***

RPDM staff attended numerous Metropolitan-sponsored training classes and seminars, webinars and courses offered by the Appraisal Institute, International Right of Way Association, the law firm of Liebert Cassidy Whitmore, the Institute of Management Studies, and The Appraisal School.



# Los Angeles Times



## A painful reckoning with drought

Southland water supplier is set to cut deliveries to cities and districts by 20% to save dwindling reserves.

By Kimo Longenecker, a Los Angeles Times reporter who has covered water issues for decades. The article discusses the severe drought in Southern California and the impact on water supplies. It mentions that the Metropolitan Water District of Southern California is facing a significant shortage of water and is considering cutting deliveries to its member agencies by 20% to conserve the remaining reserves.

## Near groundwater zero

With his well all but gone, Adam Toledo continues to draw a reservoir of resolve as his alfalfa farm withers away

The article continues to describe the plight of farmers like Adam Toledo, whose alfalfa crops are struggling due to the lack of water. It highlights the long-term impact of the drought on the region's agriculture and the resilience of the farming community.

## Mexico raids squalid labor camps

Some see the crackdown as progress on immigration

The article discusses the Mexican government's efforts to shut down informal labor camps near the U.S. border. It mentions that some observers view this as a positive step towards addressing the issue of undocumented workers.

## External Affairs

The External Affairs Group is responsible for Metropolitan's communication, customer support, outreach and legislative activities. During a year when water issues and an historic drought dominated the attention of the public, news media, elected officials and other stakeholders, the External Affairs office expanded its services to meet growing needs for information, advocacy and education.

### *Major Activities and Accomplishments*

#### *Advertising and Outreach Campaign*

Through an award-winning, research based water conservation advertising campaign and other outreach programs and activities, Metropolitan continues to educate and inform Southern Californians on the drought, water-saving rebate programs and tips to conserve at home, at work, and in the community. These multi-lingual, multi-cultural and multi-generational efforts directed by the External Affairs office used television, radio, billboards, digital, other social and earned media tools to reach all audiences. Over the past year, these projects and activities have resulted in significant improvements in the public's awareness on water issues, water-savings activities, and sustainability.

#### *Media Activities*

Over the past fiscal year, Metropolitan conducted a series of editorial board meetings, held press conferences and briefings, issued 45 press releases and statements from the General Manager and Chairman. The Press Office responded to more than 1,000 media

requests for information and interviews on drought conditions, conservation rebate program, along with queries about local water supply projects, the Colorado River, the Delta and other key issues. External Affairs regularly prepared informational materials, videos, talking points and other tools to communicate Metropolitan's operations, policies, news and programs to increase public awareness among stakeholders, including member agencies, elected officials, the media, business groups, environmental and community organizations.

### ***Web and Social Media Activities***

To reach a broader audience with important messages about the Southland's water situation, Metropolitan unveiled a revamped website that is better organized, mobile friendly, and easier to navigate. External Affairs also added a Web-based General Manager's blog, a video blog, and an expanded social media presence with Facebook and Twitter that has accrued thousands of likes and followers who receive updates about a wide range of water supply issues and conditions.

### ***Legislative and Policy Activities***

External Affairs met key board objectives for legislative and policy activities, including securing legislative support and informational presentations for Proposition 1, the largest and most comprehensive water investment bond in state history, which was approved by voters in November 2014. Early in 2015, Metropolitan helped shape the state's \$1 billion drought emergency relief package, which expedited funding for shovel-ready projects and made policy changes in response to extraordinary dry conditions. Staff also made 30 briefings to legislative offices and community groups. Through legislation, Metropolitan supported science-based solutions to address ongoing conflicts with the State Water Project and the Bay-Delta ecosystem and supported federal efforts on drought relief, infrastructure and water quality.



### ***Partnerships with Communities***

This year, External Affairs coordinated with and helped sponsor more than 60 water-related education and outreach programs for member agencies, community groups and non-profit organizations. Projects included cultural and community events, conservation and garden projects, publications in multiple languages and educational materials on watersheds, conservation and water recycling.

Staff also made more than 375 presentations to community events, chambers of commerce and other organizations and coordinated with member agencies to provide information about drought and water supply conditions, Metropolitan water systems, conservation programs, and other issues of interest.

### ***Water Stewardship Education***

External Affairs staff led the redesign of Metropolitan's museum-quality exhibit at the Vista del Lago visitor's center at Pyramid Lake. During FY 2015, more than 10,000 public visitors and 2,300 students toured the Diamond Valley Lake Visitor Center to learn more about Metropolitan's water systems and operations, programs and water stewardship.

External Affairs 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. This year, staff worked with member agencies to hold events at 280 schools and directly interact with more than 100,000 students and teachers through activities and curriculum materials.

### ***Support for Metropolitan Projects***

Outreach efforts included community support for Metropolitan infrastructure and system projects for the Second Lower Feeder, Palos Verdes Feeder, Palos Verdes Reservoir, Santa Ana River Crossing, Orange County Feeder, Etiwanda Pipeline, Garvey Reservoir, the Weymouth Solar Panel project and a Glendale service connection. Following is a summary of key responsibilities and program activities of the sections within External Affairs.

## *Legislative Services*

The Legislative Services Section promotes and protects the interests of Metropolitan and its member agencies before executive, legislative and regulatory agencies of the state and federal government. The section assists in identifying and defining policy objectives with key legislators and other water policymakers in support of Metropolitan's board-approved objectives. The section directs an extensive outreach program among member agencies and other stakeholders to mobilize support for these objectives.

The continuing drought dominated legislative debate throughout the year and prompted Metropolitan's support for a handful of legislative measures to promote and incentivize water use efficiency outdoors, including state income tax credits, and mandating landscape efficiencies on state-owned properties. The state also adopted a stricter Model Water Efficient Landscape Ordinance for new home, business and school construction.

In Washington, Metropolitan supported many significant legislative initiatives including major drought relief legislation for California and other western states, efforts to expand opportunities in WRRDA (the Water Resources Reform and Development Act) and WIFIA (the Water Infrastructure Financing and Innovation Act). Metropolitan worked with its member agencies and stakeholders to preserve flexibility and autonomy in connection with a proposed U.S. Environmental Protection Agency rule defining the waters of the United States. Metropolitan also supported legislative efforts to develop guidance and an action plan to prevent cyanotoxins from impacting drinking water systems.

## *Conservation and Community Services*

The Conservation and Community Services Section focuses on conservation education and general public outreach. Staff also meets regularly with member agency education coordinators. The Community Partnering Program provides sponsorship to non-profit groups and local agencies for projects and programs that promote greater understanding of water issues and conservation.

The Education Unit provides programs that serve more than 5 million students and teachers in Metropolitan's service area through a variety of programs aimed at students from preschool through college. Teacher workshops, classroom materials, field trips and class instruction are provided to schools throughout Metropolitan's service area. The growing use of technology and social media is expanding the scope and reach of Metropolitan's education programs.

Metropolitan continues to offer three signature education programs. The World Water Forum College Grant Program will provide 17 grants of \$10,000 to colleges and universities for local and globally-focused projects that foster a better understanding and community awareness of water issues. Solar Cup, a team-based solar powered boat race/educational program drew 41 teams and more than 800 high school students in 2015. The artwork in Metropolitan's conservation-themed "Water is Life" Student Art and Calendar program was seen by 20,000 people displayed at 27 member and retail agencies this year.

## *Media Services*

The Media Services Section helps communicate and disseminate Metropolitan's messages, programs, information and achievements. The Press Office prepares and distributes news releases and other media materials, and handles and addresses media inquiries. The Publications team produces print, video and online materials that support Metropolitan's external and internal communication needs, while Web Services manages internal and external websites and a growing presence on social media platforms.

The top issues for press coverage in 2014 were the drought, Metropolitan's restrictions of wholesale water deliveries, the conservation outreach campaign, board support for the Proposition 1 water bond ballot initiative, and response to state's California WaterFix and California EcoRestore proposals to improve Delta conveyance and ecosystems. Other press releases provided information on major operational shutdowns, Solar Cup, Spring Green, the ECO Innovators Showcase competition, a new Rex Brandt art educational exhibit, the dedication of the Union Station courtyard to former Metropolitan Chairman Foley, and the seating of 10 new Metropolitan board members.

External Affairs designed, wrote and distributed brochures and publications, including the annual Water Quality Report, the annual progress report to the California Legislature on Achievements in Conservation, Recycling and Reuse, and various new conservation materials translated into Spanish, Mandarin, Korean and Vietnamese. The team also produced and distributed to more than 20,000 subscribers several editions of the Your Water electronic newsletter and helped design, create and disseminate promotional materials for meetings, special events and other forums. Staff also produced the Annual Report and wrote obituaries for retirees and current employees.

In addition to the redesigned mwdh2o.com website and enhanced Web pages for the On-Site Retrofit Program, Bay Delta Conservation Plan, Solar Cup, Water Quality Report and the SB 60 Annual Progress Report, the bewaterwise.com website was retooled to provide up-to-

date drought and water conservation information, receiving more than 750,000 unique visitors during the year.

### *Customer Service*

The Customer Service Unit assists member agencies, local governments, businesses and the public with requests for general information, speakers and other services. Staff also provides outreach to residents, businesses and cities affected by construction of Metropolitan facilities. This includes preliminary outreach to local cities to discuss environmental review, permitting and community impacts for upcoming projects as well as support and informational resources throughout the duration of the projects.

Staff is also assisting Water Resource Management with communications planning, development of informational materials and online resources, and new websites to support public outreach for Water Tomorrow, the update to the Integrated Water Resources Plan. Customer Service is also providing support for the 2016 Urban Water Management Plan, and other major project initiatives.

# THE AUDIT UNIVERSE



*The Audit universe shows all areas available to be audited within Metropolitan, including policies, procedures and practices, business units, information systems, contracts, and functions.*

## Internal Audit

The Audit Department provides independent, objective assurance and consulting services designed to add value and improve operations. Audit responsibilities are carried out by audit professionals who evaluate the extent to which internal controls mitigate risks effectively. The Audit Department also determines whether activities are consistent with policies, procedures and mandates. In this way, audit staff assists management in assessing risks that could impact the achievement of their objectives.

Audits are performed in accordance with The Institute of Internal Auditors' mandatory guidance including the *International Standards for the Professional Practice of Internal Auditing*. These standards help define the Audit Department's responsibilities and establish expectations for auditor professionalism and independence. This independence is assured through the General Auditor's reporting line to the Board of Directors and the Audit and Ethics Committee.

The Audit and Ethics Committee directs the focus of audit resources by review and approval of the General Auditor's annual Audit Plan. The fiscal year 2014/15 Audit Plan resulted from an internal assessment of risks and input from key stakeholders including board members, management and staff.

### *Major Activities and Accomplishments*

During FY 2014/15, the Audit Department contributed to governance activities through the following major actions:

- Successfully carried out the FY 2014/15 Audit Plan.
- Reassessed the Audit Plan quarterly to evaluate whether it met the needs and requests of the board and management, focused on areas of greatest concern or highest risks, and determined whether adequate progress was being achieved.

- Completed 25 audits, issued six bond comfort letters and completed nine special projects including board or management requested reviews, and participated in two Information Technology implementation projects. Results are below:

<b>List of Completed Reviews</b>	<b>Number of Reports</b>
<b>Financial/Contractual Audits:</b>	<b>34</b>
Director and Employee Expense	
Weymouth Oxidation Retrofit	
Environmental & Safety Mgmt. Info System	
Mills Plant Business Support Activities	
PC Replacement Project	
Fuel Supply	
Accounting For & Billing Reimbursable Projects	
Stores Inventory	
Legal Contracts and Settlements	
Consulting Agreements – Carollo Engineers, Dudek, AECOM Technical Services	
Consulting Agreements – CDM Smith Inc., MWH Americas, Inc.	
Consulting Agreements – Harvey Mudd College, Jan Fambro, Specialized Marketing Services	
Water Conservation System	
Weymouth Filter Seismic Upgrade	
Chemical Management	
Business Outreach Program	
Diemer Electrical/La Verne Machine-Fabrication Shops	
Water Information System (WINS)	
Energy Management Hydroelectric	
Desert Region Business Support Activities/Housing	
Inland Feeder and Lakeview Pipeline Intertie Project	
PCCP Rehabilitation and Replacement Program	
Fraser Communications	
Weymouth Oxidation Retrofit Program	
Conservation Credits Program	
Assist External Auditors (4)	
Revenue Bonds (5)	
<b>Special Requests and Reviews:</b>	<b>8</b>
Colorado River Water Users Association Review	
Internal Controls Over Financial Reporting	
Follow-up: Capital projects less than \$250 K, Purchase Card (2)	
Quarterly Audit Plan Risk Review and Update (4)	
<b>Monitoring:</b>	<b>5</b>
Systems Development Life Cycles (2)	
Quarterly Consulting Agreements and Routine Contracts Reporting (3)	



- Evaluated management's response to all significant control issues noted in audit reports; tracked and reviewed management responses on 38 recommendations included in audit reports, and ensured timely responses to all reports.
- Performed review procedures related to internal controls over financial reporting to provide reasonable assurance that they were adequate; procedures included review of audit results, process walkthroughs and substantive testing.
- Assisted in the transition to the new external auditors Macias, Gini & O'Connell with the performance of the June 30 annual Financial Audit and Single Audit Reports.
- Reviewed regional residential and commercial water efficient device rebate programs and the regional turf removal program.
- Implemented upgrade to TeamMate, an Audit Management Software Suite, from release 10.2.3 to 11.0.1.

### *Quality Assurance Activities*

Professional auditing standards require that internal auditors commit to improving internal processes and maintain a quality enhancement and continuous improvement program. In this regard, the Audit Department conducts a comprehensive Quality Assurance & Improvement Program that includes auditor training, ongoing and periodic internal quality reviews, and external independent quality assessments. Related activities during FY 2014/15 included the following:

- Completed an internal quality self-assessment that evaluated conformance with auditing standards; assessed governance practices; reviewed a sample of audit work papers; assessed planning, field work, and reporting practices; appraised staff development and resource management activities; and surveyed the Audit Department staff for feedback.
- Conducted anonymous surveys of clients on their perceptions of the audit process, including strengths and opportunities for improvement.
- Identified training opportunities for audit staff, who earned more than 200 continuing education credit hours in courses including risk assessment, data analytics and government auditing.

integrity

## Ethics

Created by state legislation in 1999, the Ethics Office develops and administers Metropolitan's internal ethics rules. The office's objective is to ensure the highest standards of integrity, transparency and objective decision-making in all aspects of Metropolitan business. The Ethics Officer and staff approach each of the office's particular responsibilities—policy-making, education and advice, compliance, and investigations—with this overall goal in mind.

### *Policy and Procedures*

The Ethics Officer's responsibilities are centered on Metropolitan's internal ethics rules and board-approved Statement of Values. The office is responsible for continuously evaluating whether modifications to these provisions are necessary to help Metropolitan maintain the highest standards of ethics.

This year, the office spent considerable time evaluating the effectiveness of amendments to the ethics code adopted by the Board of Directors in January 2014. Among these were changes to clarify the office's jurisdiction and to avoid ethics rules that are inherently subjective. This change focused the Ethics Office's resources on traditional government ethics issues, such as conflicts of interest, gift restrictions, and clear lines between political and governmental activities. The office's potential investigations are restricted to cases involving objective and verifiable standards. In the next year, the Ethics Office anticipates developing further amendments to Metropolitan's ethics rules for the board's consideration.

### ***Advice and Education***

The Ethics Office provides advice, counseling, and other assistance to any director, officer, employee, or contractor regarding application or interpretation of Metropolitan's ethics rules or policies. These functions are critical because they promote the ultimate goal of internal ethics and compliance—avoiding potential ethics violations in the first place.

### ***Compliance***

One of the Ethics Office's core operational duties is monitoring for compliance with various state-mandated ethics requirements. In November 2014, the office designed and hosted a comprehensive ethics training program for directors and other senior Metropolitan officials who are required by state law (AB 1234) to participate in a specialized ethics curriculum.

The Ethics Office performs all filing officer duties for Metropolitan to comply with mandatory disclosures of financial interests of designated officials to the Fair Political Practices Commission. In fiscal year 2014/15, the office handled over 500 discrete reports, including assuming-office statements, leaving-office statements, annual statements and statement amendments. Related to this function, the office offers guidance and advice to directors and employees about how the disclosure requirements apply to them in their unique circumstances.

Also in fiscal year 2014/15, the Ethics Office implemented Metropolitan's electronic filing system. Hundreds of employees and directors filed their 2014 annual disclosure statements electronically, reducing mailing and paper costs. The new electronic system also allowed officials to automatically carry over statement information for subsequent filings and to prepare duplicate statements for positions held with other agencies or elsewhere in government.

### ***Investigations***

The Ethics Office's mandate is to independently investigate and report about alleged violations of Metropolitan's ethics rules. Investigations are undertaken both to promote accountability and to identify systemic changes for avoiding future missteps.

During the course of this fiscal year, the Ethics Office undertook its first major investigation. This work followed board-approved changes to its investigation procedures that substantially enhanced the office's autonomy. The matter was particularly sensitive, involving actions of a former Metropolitan director. The Ethics Office's oversight committee, the Audit and Ethics Committee, appointed an ad hoc subcommittee to review the investigation report and consider arguments and evidence from the subject. The subcommittee then presented its own conclusions and recommendations to the board's Executive Committee in open session. Among the results of the process were board direction to the Ethics Officer and the General Counsel to provide the board with increased education and information about the conflicts of interest prohibitions and recusal procedures at issue in the investigation.

### ***Progress and Growth***

Some 15 years after the state Legislature directed the creation of the Ethics Office, it continues to evolve to respond to new challenges and conditions. This fiscal year saw strengthened procedures, increased focus on objective and enforceable internal standards, and a district-wide commitment to detection and prevention. The Ethics Office will continue working with the Board of Directors, management, and other stakeholders to continue this momentum.

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