AGENDA REPORT

Meeting Date: June 21, 2016

Item Number: F-1

To: Honorable Mayor & City Council

From: Trish Rhay, Assistant Director of Public Works Services

Vince Damasse, Water Resources Manager

Subject: RESOLUTION OF THE COUNCIL OF THE CITY OF BEVERLY HILLS ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN

Attachment:
1. Resolution of the Council of the City of Beverly Hills Adopting the 2015 Urban Water Management Plan
2. Draft 2015 Urban Water Management Plan

RECOMMENDATION

Staff recommends that the City Council conduct the public hearing and consider public comments to the City's Draft 2015 Urban Water Management Plan (UWMP); approve a resolution to adopt the City's 2015 UWMP and direct staff to finalize the 2015 UWMP to incorporate public comments as authorized by the City Council; direct the Director of Public Works Services to send the adopted 2015 UWMP to the Department of Water Resources (DWR) before July 1, 2016; and authorize the Director of Public Works Services to make revisions if required by the DWR prior to resubmittal.

BACKGROUND

The City, and any water agency serving over 3,000 acre-feet of water annually or providing service to more than 3,000 customers, is required to prepare an UWMP in years ending in 5 and 0 and submit it to the Department of Water Resources (DWR) by December 31 of that year. Due to DWR delays in publishing their 2015 UWMP Guidebook and recent changes in the content requirements, the 2015 UWMP is due to the DWR by July 1, 2016. It must be submitted to DWR using the online submittal tool available on the DWR website and submitted electronically to DWR staff.

The UWMP provides a prescribed State mandated policy framework for long-term water planning and informs the public of a water purveyor's plans for long-term resource planning that ensures water supplies for existing and future demands. The UWMP is required to estimate and project the agency's water supplies over a 20-year planning horizon, and report its progress on the 20 percent reduction in per-capita urban water

consumption by the year 2020 as required in the Water Conservation Bill of 2009 SBX7-7. The DWR reviews the UWMPs to ensure they have completed the requirements identified in the Water Code Sections 10608-10656 and then submits a report to the Legislature summarizing the status of the plans.

The UWMP, however, is not intended to address the City's local water master planning evaluation and infrastructure policy needs and/or the impact of new development on that localized infrastructure. The evaluation of new development's impact on the existing City's water system is performed as a part of the City's water will serve development process. The Public Works Commission and the Public Works Commission Liaison Committee has had discussions at previous meetings on the proposed water will serve guidelines and, following a recommendation from the Commission, the item will be presented to the City Council.

Additionally, if groundwater is identified as an existing or planned source of supply, the following information shall be included in the UWMP:

- A copy of any adopted groundwater management plan.
- A description of the groundwater basin or basins from which the supplier pumps groundwater. For unadjudicated basins, information as to whether the DWR has identified the basin or basins as overdrafted or has projected the basin will become overdrafted.
- A detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the supplier for the past five years.
- A detailed description and analysis of the amount and location that is projected to be pumped by the supplier.

The City hired a Consultant, Psomas, Inc., to prepare the draft 2015 UWMP that is an update to the City's previous 2010 UWMP. Psomas has completed the draft 2015 UWMP attached hereto with an executive summary of the UWMP findings. Additionally, at the April 18 and May 12, 2016, Public Works Commission (PWC) and May 26, 2016, Planning Commission meetings, Psomas and staff presented the UWMP and accepted comments from the PWC and Planning Commission. Both the PWC and Planning Commission recommended approval of the draft 2015 UWMP with minor comments.

Finally, as required by the Urban Water Management Planning Act (California Water Code Sections 10610 et. seq.) staff prepared and sent out the 60-day public hearing notice prior to the public hearing on June 6, 2016. The public hearing was opened at the June 6, 2016, meeting and continued to the June 21, 2016, meeting.

FISCAL IMPACT

There is no fiscal impact.

George Chavez
Approved By

ATTACHMENT 1

RESOLUTION NO. 16-R-_____

RESOLUTION OF THE COUNCIL OF THE CITY OF BEVERLY HILLS ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN

The City Council of the City of Beverly Hills hereby resolves as follows:

WHEREAS, California Water Code Section 10610 et seq under the Urban Water Management Planning Act ("Act") requires that an urban water supplier prepare and adopt an Urban Water Management Plan (UWMP). Once adopted, the Water Code requires the UWMP be updated every five years in years ending in "0" or "5".

WHEREAS, the City has prepared the draft 2015 UWMP which has been circulated for public review and may be modified following input from the public.

WHEREAS, the City Council has held a public hearing to hear, consider, and accept review comments as required under the "Act".

NOW THEREFORE,

Section 1. The Council adopts the City's 2015 UWMP and directs the Director of Public Works Services and/or his designee to incorporate public comments into the City's UWMP as directed by the Council, and file copies of the 2015 UWMP with the State Department of Water Resources, the California State Library, and the County of Los Angeles. If the State Department of Water Resources requires any revisions prior to acceptance of the UWMP, any such UWMP revisions shall be approved by the Director of Public Works Services prior to resubmittal.

Section 2. The City Clerk shall certify to the adoption of this resolution and shall cause this resolution and its certification to be entered in the Book of Resolutions of the Council of this City.

Adopted:

_____
JOHN A. MIRISCH
Mayor of the City of Beverly Hills, California

ATTEST:

_____ (SEAL)
BYRON POPE
City Clerk

APPROVED AS TO FORM:

LAURENCE S. WIENER
City Attorney

APPROVED AS TO CONTENT:

_____
MAHDI ALUZRI
City Manager

GEORGE CHAVEZ
Assistant City Manager/Director of Public Works Services

ATTACHMENT 2

DRAFT

2015 URBAN WATER MANAGEMENT PLAN

BEVERLY HILLS

CITY OF BEVERLY HILLS

JUNE 2016

PSOMAS

3 Hutton Centre Drive, Suite 200
Santa Ana, CA 92707

Draft

2015

URBAN WATER MANAGEMENT PLAN

City of Beverly Hills

June 2016

PSOMAS
3 Hutton Centre Drive, Suite 200
Santa Ana, CA 92707

PSOMAS

May 31, 2016

Balancing the Natural and Built Environment

DRAFT

Mr. Vince Damasse, P.E.
Water Resources Manager
City of Beverly Hills
345 Foothill Road
Beverly Hills, California 90210

Subject: Executive Summary of City's 2015 Urban Water Management Plan

Dear Mr. Damasse:

This letter report provides an Executive Summary of the City's 2015 Urban Water Management Plan (UWMP), which the City, and any water agency serving over 3,000 acre-feet of water annually or providing service to more than 3,000 customers, is required to prepare in years ending in 5 and 0, and submit it to the Department of Water Resources (DWR) by December 31 of that year. Due to DWR delays in publishing their 2015 UWMP Guidebook and recent changes in the content requirements, the 2015 UWMP is due to DWR by July 1, 2016.

Following a public hearing and adoption of the final UWMP, this document along with digital copies of the DWR tables included in the UWMP will be filed on-line with DWR prior to their July 1 due date.

Sincerely,
PSOMAS

Michael D. Swan, P.E.
Vice President
Senior Project Manager

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E.1. Basis for Preparing 2015 UWMP

The City, and any water agency serving over 3,000 acre-feet of water annually or providing service to more than 3,000 customers, is required to prepare an UWMP in years ending in 5 and 0, and submit it to the Department of Water Resources (DWR) by December 31 of that year. Due to DWR delays in publishing their 2015 UWMP Guidebook and recent changes in the content requirements, the 2015 UWMP is due to DWR by July 1, 2016.

The UWMP Act requires applicable water agencies to develop an UWMP to provide a framework for long term water planning and to inform the public of the supplier's plans to ensure adequate water supplies for existing and future demands. The UWMP is required to assess the reliability of the agency's water supplies over a 20-year planning horizon, and report its progress on 20 percent reduction in per-capita urban water consumption by the year 2020 as required in the Water Conservation Bill of 2009 (SBx7-7). DWR reviews the agency's UWMP to make sure they have completed the requirements identified in the Water Code Sections 10608-10656, then submits a report to the Legislature summarizing the status of the plans.

E.2. City Water System Description

The City's water service area encompasses an area of approximately 6.35 square miles (4,069 acres) and consists of the City of Beverly Hills with an area of 3,646 acres, and a portion of the City of West Hollywood with an area of 423 acres, which is 10.4 percent of the City's total water service area.

The City's water supply sources are treated imported water purchased from the Metropolitan Water District of Southern California (Metropolitan), and to a lesser extent, groundwater pumped from the Hollywood Groundwater Basin via four City wells.

The City's imported water supply is a blend of water received from Northern California (State Water Project or SWP) and the Colorado River that is treated at Metropolitan's Weymouth Treatment Plant in La Verne. The City's groundwater is treated at the City's water treatment plant utilizing a 2-stage reverse osmosis (RO) treatment train.

The City's water service area distribution system consists of 170 miles of water mains ranging from 2 to 24 inches in diameter. The water system is composed of 16 water service pressure zones and has 10 reservoirs within those zones with a combined storage capacity of 43.5 million gallons (MG).

E.3 City Water Service Area Demographics and Planned Growth

The City's water service area population was estimated at 43,189 in 2015, with 34,833 (81 percent) residing inside the City of Beverly Hills and 8,356 (19 percent) residing inside the City of West Hollywood. Current and projected population for the City's water service area is shown in Table E-1.

Table E-1: Population - Current and Projected							
Service Area	2015	2020	2025	2030	2035	2040	Increase[a]
West Hollywood[b]	8,356	8,635	8,914	9,193	9,471	9,750	16.7%
Beverly Hills[c]	34,833	35,306	35,780	36,253	36,727	37,200	6.8%
Total	43,189	43,942	44,694	45,446	46,198	46,950	8.7%

(a) Increase relative to 2015
(b) Approximately 23.5% of the City of West Hollywood's total population
(c) 100% of the City of Beverly Hill's total population

Future population for the City's water service area was estimated using the Southern California Association of Government (SCAG) Regional Transportation Plan (RTP) 2016 population projections for the City of Beverly Hills and the City of West Hollywood. As shown in Table E-1, the water service area population is projected to increase 8.7 percent between 2015 and 2040. However, a larger percentage of growth is projected to occur within the portion of the water service area in West Hollywood.

The water service area is built out, but there are infill and re-development projects on-going and planned for the future, especially in the portion of West Hollywood inside the City of Beverly Hills water service area. These West Hollywood development projects include:

- The Melrose Triangle Project at 9040-9098 Santa Monica Boulevard. The project area is approximately 3 acres and includes 4 levels of below ground parking and 3, 5-story mixed use commercial/residential/office buildings.
- The redevelopment project at 8899 Beverly Boulevard includes adaptive re-use of the existing 10-level retail/commercial building and the development of new residential uses on the 1.73 acre site.
- The Palm Mixed Use Project, 9001 Santa Monica Boulevard, is a five-story mixed use building that includes 42 residential units.
- The Sunset-Doheny Hotel project at 9040 Sunset Boulevard is an eleven-story mixed use project consisting of 190 hotel rooms, 20 condominiums, a nightclub, and 18,000 square feet of retail.
- Robertson Lane Hotel Project (645-681 Robertson Boulevard and 648-654 La Peer Drive) consists of the demolition of several structures on the site and construction of an eight-story, approximately 252,700 square foot development including a 251-room hotel, restaurant, retail showroom and personal service uses.
- The 702-714 N. Doheny Drive Condominium Project consists of the demolition of two single family homes on the 1.2 acre site and the development of 38 market rate condominiums and 12 affordable apartments.

It is important to note that the 2015 UWMP shows there are sufficient planned water supplies combined with planned water conservation to meet all projected demands for the water service area overall for normal, single-dry, and multiple-dry water demand scenarios through the year 2040. However, it does not look at whether there is sufficient water system infrastructure to provide adequate supply, pressure and fire flow volumes in localized areas or where new development projects may result in increased service requirements on the system. A water system master plan or subarea master plan including hydraulic modeling would be the appropriate vehicle to evaluate water system infrastructure in new development areas such as West Hollywood to ensure the adequate sizing of pipelines, reservoirs, and other appurtenant system infrastructure to service this increased localized demand. Additionally, a Water Supply Assessment, in accordance with Senate Bill 221 or 610 may be required if a development's water demand exceeds that of 500 dwelling units, building on the City's latest UWMP to ensure there is adequate water supply now and for 20 years into the future.

E.4 Historical, Current and Projected City Water Use

Through the implementation of City water conservation ordinances and measures, total water use for the City's service area has decreased 6.9 percent since 2010 and 21.4 percent since 2005 as shown in Table E-2. City Service Area per-capita water use, which is total water use divided by the service area population, has decreased by similar amounts. Likewise, City water supply, which comes from imported water purchases and groundwater production, has also decreased from 2005 to 2015.

Water loss in a water system is the difference between water supply or production and billed water use. This is also called unaccounted for or non-revenue water and is typically due to system leakage, metering inaccuracies, and unbilled and unmetered water use, i.e. fighting fires, flushing water mains, conducting fire flow tests, etc. For the City of Beverly Hills system and as defined by the American Waterworks Association (AWWA) production is considered the total of deliveries from Metropolitan plus the Treatment Plant production (water pumped into the distribution system at the Plant). As shown in Table E-2, City water loss decreased from 9.6 percent in 2005 to 8.4 percent in 2010 and down to 6.0 percent in 2015. This water loss is considered good compared with other municipal water systems, where water loss can exceed 10 percent.

In April 2015, Governor Jerry Brown issued an executive order requiring the State Water Resources Control Board to implement measures to cut the State's overall water usage by 25% due to the continuing drought. Cities and water agencies were assigned various reduction goals, and the City of Beverly Hills reduction goal was set at 32%. City water use has decreased a cumulative 19.0 percent for the first seven recording months (June 2015 through January 2016) relative to year 2013 water usage in response to the City's conservation goal set by the State, which has been extended to October 2016 or as long as the drought continues.

It is not known how long the current drought will last or when new droughts will start and end in the future. However, many of the water conservation measures already implemented and being

implemented by City customers will have permanent effects on water use (reduction) in the future. Significant future per-capita water use reduction will occur for the City due to new building codes and landscape ordinances for new construction and re-construction.

Projected City water use through the year 2040 is shown in Table E-3. Total City per-capita water use is projected to increase slightly to 225.6 gallons per capita per day (gpcd) in 2020 (from 215.6 gpcd in 2015) assuming some bounce-back due to normal water years versus current drought conditions, but gradually decrease back to 217.3 gpcd by 2040. Total water use is projected to increase from 10,431 acre-feet per year (afy) in 2015 to 11,428 afy in 2040 (an increase of 9.6 percent).

Table E-2: Historical City Water Use and Water Loss

	2005 Water Use/ Supply	2010 Water Use/ Supply	% Change (2005-2010)	2015 Water Use/ Supply	% Change (2010-2015)	% Change (2005-2015)
Water Use (afy)	13,279	11,204	-15.6%	10,432	-6.9%	-21.4%
Per-Capita Water Demand (gpcd)	275.8	237.1	-14.1%	215.6	-9.1%	-21.8%
Water Supply (afy)	13,297	11,204	-15.7%	10,432	-6.9%	-21.5%
Water Loss (afy)	1,272	937	-	629	-	-
Water Loss %	9.6%	8.4%	-	6.0%	-	-

Table E-3: Projected City Water Demands

	2015	2020	2025	2030	2035	2040
Population	43,181	43,932	44,683	45,435	46,186	46,937
Per-Capita Water Use (gpcd)	215.6	225.6	223.3	221.2	219.2	217.3
Water Use (afy)	10,431	11,104	11,182	11,262	11,344	11,428

E.5 Senate Bill x7-7 (SBx7-7)

Senate Bill x7-7 (SBx7-7) was enacted in November 2009 (Water Conservation Act of 2009), requiring all water suppliers to increase water use efficiency. The legislation set an overall goal of reducing per-capita urban water use by 20% by December 31, 2020 and to make incremental progress towards this goal by reducing per capita water use by at least 10% by December 31, 2015. In preparing the 2010 UWMP, each urban retail water supplier was required to develop baseline daily per-capita water use, minimum baseline daily per-capita water use, and target daily per-capita water use for 2015 and 2020 that were to be 10% and 20% less, respectively.

In preparing the 2015 UWMP, most water agencies including the City were required to recalculate their baseline population using 2010 Census data and then recalculate their target daily per-capita water use for 2015 and 2020. The 2015 and 2020 water use targets were calculated to be 262.6 and 233.4 gpcd, respectively. The City has had lower per-capita water use than its 2015 target for the past seven years (since 2009). In 2015, the City's per-capita water use was 215.6 gpcd, which was significantly lower than its 2015 target of 262.6 gpcd. The City's 2015 per-capita water use of 215.6 gpcd is also lower than its 2020 target of 233.4 gpcd.

E.6 Water Conservation

The City has implemented a number of water conservation ordinances and programs, also called demand management measures (DMMs), in order to meet its urban water use reduction targets. Permanently reducing water demands through water conservation is more effective than obtaining an equivalent amount of additional water supply. Through the implementation of City water conservation ordinances and measures, total per-capita City water use has significantly dropped since 2005.

The 2015 UWMP requires the submitting water agency to address six specific DMMs:

- Water waste prevention ordinances
- Metering
- Conservation pricing
- Public education and outreach
- Programs to assess and manage distribution system real water loss
- Water conservation program coordination and staffing support

The City does not currently have a water waste prevention ordinance and it is recommended that the City develop and adopt one.

Metering - The City maintains water meters on all residential, commercial, industrial and municipal water service connections. As part of the City's new water meter change out program, the City is employing an Advanced Metering Infrastructure (AMI or SMART meters), which will result in water customers being able to see their water usage on an hourly basis and be notified of continuous usage, which may be a sign of an on-site water leak.

Conservation Pricing - The City currently uses a tiered water rate structure with higher water usage falling in higher price tiers. Single family and multi-family customers have a tiered water rate structure while commercial customers have a single tiered water rate. In 2015, the City embarked on a water rate analysis, with consideration given towards developing a water rate structure that would address the following:

- Identify and define customer classes and tier "breakpoints" in a manner that is consistent with Prop 218
- Is revenue neutral (i.e. allows the City to recover both its variable and fixed costs associated with operating a water utility given the decreasing water sales related to conservation and continued operating costs)

- Accounts for the City's long term water conservation goals

Public Education and Outreach - Examples of venues/events the City has used to present water conservation include: Farmer's Market, Earth Day, Team Beverly Hills, and Public Works Day. City staff makes presentations to community groups. The City also promotes drought tolerant landscaping classes and rebate programs related to turf removal and water efficient devices. The City has partnered with Metropolitan in school education outreach programs that provide information to children to learn the importance of water conservation. In past years, funding for conservation programs averaged about $30,000 per year. In 2015, the City expanded its efforts by spending approximately $737,000 on mailings, outreach materials, and supplementing rebate programs to promote conservation. Additionally in 2015, the City launched a conservation web portal to promote conservation.

Programs to Assess and Manage Distribution System Real Water Loss - In addition to employing SMART water meter technology to proactively identify potential leaks, the City also maintains a Permalog Leak Detection System. During the period 2011-2015 the City replaced approximately 3.6 miles of pipeline at a cost of approximately $3.1 million. In addition, the City earmarked funds for capital improvement projects to promote conservation for FY2015-2016. This includes the development and implementation of a system to detect and manage distribution system real loss. Approximately $182,000 was earmarked in FY2015-2016 for capital projects related to managing distribution system water loss.

Water Conservation Program Coordination and Staffing Support - During FY15-16, the City established a Conservation Administrator position to develop, oversee and manage programs to help the City achieve its conservation goal and that position was filled in January 2016.

E.7 City Water Supply

The City obtains its water supply from two sources: imported surface water purchased from Metropolitan and local groundwater extracted from the local Hollywood Basin. The imported water is treated by Metropolitan and the groundwater is treated at the City's water treatment plant before being distributed to the City's water system. The City possesses appropriative local groundwater rights dating back to 1906. The City began purchasing water from Metropolitan in 1941-42 as a supplementary supply to City groundwater production.

In 1970, Metropolitan water purchases began to exceed the City's groundwater production, a trend that has continued to this day. In 1976, the City ceased operating its original groundwater treatment plant and all of its wells. The wells remained out of service until 2003 when a new groundwater treatment plant and four wells drilled in the Hollywood Basin were placed into operation. Since 2004, the City has purchased an average of 91.9 percent of its water from Metropolitan, with the remaining 8.5 percent coming from its own groundwater production.

The primary reason the City has relied on Metropolitan to supply most of its water since 1970 is because Metropolitan water is more cost-effective than the combined cost of pumping and treating groundwater. However, even if groundwater pumping and treatment were more cost-

effective, the City's four existing wells are not capable of reliably meeting more than 10 percent of the City's existing water demand. Also, there are limits to the amount of groundwater the Hollywood Basin can yield, even with the addition of more wells and expansion of the water treatment plant.

Although Metropolitan's water supply has proven to be reliable and cost effective relative to local groundwater production over the years, the ongoing drought has increased the need for the City to develop additional water supply reliability. Accordingly, the City developed and is planning to implement three new water supply projects as an outgrowth of the City's Water Enterprise Plan (WEP) prepared in July 2015:

1. *Groundwater Production from Central Basin* - Developing three new groundwater wells capable of producing a total of approximately 1,700 afy (net production) in the unadjudicated portion of the Central Basin (La Brea Sub Basin). The project would also require approximately 23,000 feet of pipeline from the production wells back to the existing treatment plant, which would need to be expanded in capacity from 2.35 million gallons per day (mgd) to 3.90 mgd. Construction of the pipeline and wells, treatment plant upgrade, and system testing could be completed by June of 2022.

2. *Increased Groundwater Production from Hollywood Basin* - The new water project entails developing shallow groundwater from the Hollywood Basin as an additional water supply for the City. Historically, the City has developed groundwater in the Hollywood Basin using deep groundwater wells completed into the San Pedro Formation. It is envisioned that two shallow water wells constructed near the existing treatment plant can net a production of 350 afy after treatment. The wells could be ready to supply water to the treatment plant as early as January 2017.

3. *Participation in Water Bank* - Groundwater banking is a water management tool designed to increase water supply reliability. By using dewatered aquifer space to percolate and store water during wet years (years when there is abundant rainfall and surplus water available). This water can then be pumped by extraction wells and used during dry years (during drought conditions). It is envisioned it will take at least two years to negotiate terms and conditions to join a water bank and make the initial purchase of banking water. It could take an additional three to five years to obtain low cost water to supply the bank, depending on State water conditions.

To help implement the recommended water supply portfolio, the City will augment current City staff levels over the next few years with 11 new full-time positions. The 11 new positions include a Water Resources Manager, a Water Conservation Coordinator, three Engineering Project Managers, three Water Treatment Plant Operators, a Pump/Well Mechanic, a Pump Well/Electrician and a Water Distribution Operator.

The City currently does not receive any recycled water supply. If the existing West Basin recycled water system were to expand closer to the City in the future, then recycled water supply from West Basin could become more economically feasible. For this 2015 UWMP, future

recycled water supply is not counted upon. The City's projected supplies for 2020 through 2040 are shown in Table E-4.

Table E-4: Projected City Water Supplies

Water Supply	Additional Detail	Projected Water Supply (afy)				
		2020	2025	2030	2035	2040
		Volume[a]	Volume[a]	Volume[a]	Volume[a]	Volume[a]
Imported Water	Treated MWD water	9,104	7,482	7,562	7,744	7,728
Groundwater	Hollywood Basin	2,000	2,000	2,000	2,000	2,000
Groundwater	LBSA of Central Basin	-	1,700	1,700	1,700	1,700
Total		11,104	11,182	11,262	11,344	11,428

(a) Supply expected to be reasonably available

E.8 Water Supply Reliability Assessment

Two of the most significant constraints on water supply for the City and for Southern California have been the drought that started in 2012 and has persisted into 2016, and Sacramento-San Joaquin River Delta ecosystem issues that affect imported water supply from the State Water Project (SWP), which provides water to 29 urban and agricultural agencies throughout California. More than two-thirds of California's residents obtain some of their drinking water from the Bay-Delta system.

The Bay-Delta's declining ecosystem, caused by a number of factors that include agricultural runoff, predation of native fish species, urban and agricultural discharge, changing ecosystem food supplies, and overall system operation, has led to reduction in imported water supply deliveries. SWP delivery restrictions due to regulatory requirements resulted in the loss of about 1.5 million acre feet (MAF) of supplies to Metropolitan from 2008 through 2014, reducing the likelihood that regional storage can be refilled in the near-term. Operational constraints will likely continue until a long-term solution to the problems in the Bay-Delta is identified and implemented.

In April 2015, the Brown Administration announced California WaterFix, as well as a separate ecosystem restoration effort called California EcoRestore. Together, the California WaterFix and California EcoRestore will make significant contributions toward achieving the coequal goals of providing a more reliable water supply for California and protecting, restoring and enhancing the Delta ecosystem established in the Sacramento-San Joaquin Delta Reform Act of 2009.

In their 2015 UWMP dated June 2016, Metropolitan estimated supply capability and projected demands through the year 2040 for an average (normal) year based on an average of hydrologies for the years 1922-2012; for a single dry-year based on a repeat of the hydrology in the year

1977; and for multiple dry years based on a repeat of the hydrology of 1990-1992. For each of these scenarios there is a projected surplus of supply in every forecast year through 2040. Projected supply surpluses, based on the capability of current supplies, range from 0.1 percent to 87 percent of projected demands. With the inclusion of supplies under development, potential surpluses range from 5 percent to 110 percent of projected demands.

City demands are estimated to increase by 5 percent during single dry-year and multiple dry-year supply scenarios. It should be noted that this is the same assumptions made in the Los Angeles Department of Water and Power's (LADWP) draft 2015 UWMP. Increased City demands during single dry-year and multiple dry-year supply scenarios are projected to be met with imported water and groundwater supplies as shown in Table E-5 with available Metropolitan surplus supplies as estimated in Metropolitan's Draft 2015 UWMP.

Table E-5: Projected City Water Demands and Supplies

Water Supply	Additional Detail	Projected Water Supply				
		2020	2025	2030	2035	2040
		Volume	Volume	Volume	Volume	Volume
Projected Normal-Year Supplies						
Imported Water	Treated MWD water	9,104	7,482	7,562	7,644	7,728
Groundwater	Hollywood Basin	2,000	2,000	2,000	2,000	2,000
Groundwater	LBSA of Central Basin	-	1,700	1,700	1,700	1,700
Total		11,104	11,182	11,262	11,344	11,428
Projected Single-Dry Year and Multiple-Dry -Year Supplies						
Imported Water	Treated MWD water	9,659	8,041	8,125	8,211	8,299
Groundwater	Hollywood Basin	2,000	2,000	2,000	2,000	2,000
Groundwater	LBSA of Central Basin	-	1,700	1,700	1,700	1,700
Total		11,659	11,741	11,825	11,911	11,999

E.9 Water Shortage Contingency Planning

In 1992, the Beverly Hills City Council adopted an Emergency Water Conservation Ordinance (Ordinance 92-O-2139), which was updated in 2015 by Ordinance 15-O-2677. The ordinance establishes five stages of water shortage severity based on predicted or actual water supply

reductions. The City implements certain initiatives to optimize water supply during water shortages or drought conditions. The City will manage water supplies to minimize the social and economic impacts of water shortages.

The Water Conservation Ordinance is designed to provide a minimum of up to 50 percent of normal supply during a severe or extended water shortage. The City's two potable water sources are local groundwater and imported deliveries through Metropolitan. Rationing stages may be triggered by a shortage in one source or a combination of sources, and shortages may trigger a stage at any time. In the event of a shortage, the City Manager will declare the appropriate water conservation stage by resolution.

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ACRONYMS and ABBREVIATIONS

AB	Assembly Bill
AF	Acre Feet
AFY	Acre Feet per Year
AMI	Area Median Income
AWWA	American Water Works Association
BMP	Best Management Practices
CAWCD	Central Arizona Water Conservation District
CEQA	California Environmental Quality Act
CFS	Cubic Feet Per Second
CII	Commercial, Industrial and Institutional
CIMIS	California Irrigation Management Information System
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CVWD	Coachella Valley Water District
DMM	Demand Management Measure
DOE	Department of Energy
DOF	Department of Finance
DWR	Department of Water Resources
DWCV	Desert Water Agency/Coachella Valley Water District
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ET	Evapotranspiration
Eto	Evapotranspiration From a Standardized Grass Surface
Etr	Evapotranspiration From a Standardized Alfalfa Surface
FY	Fiscal Year
GIS	Geographic Information Systems
GPCD	Gallons Per Capita Per Day
GPD	Gallons Per Day
GPM	Gallons Per Minute
GSA	Groundwater Sustainability Agency
GWMP	Groundwater Management Plan
HCD	Department of Housing and Commercial Development
ICS	Intentionally Created Surplus
IID	Imperial Irrigation District
IRP	Integrated Resources Plan
IRWM	Integrated Regional Water Management
LAA	Los Angeles Aqueduct
LADWP	Los Angeles Department of Water and Power
M&I	Municipal and Industrial
MAF	Million Acre Feet
MCL	Maximum Contaminant Level

Metropolitan,	
MWD	Metropolitan Water District of Southern California
MGD	Million Gallons per Day
Mg/L	Milligrams Per Liter
MOU	Memorandum of Understanding
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OWDDF	Ocean Water Desalination Demonstration Facility
PVID	Palo Verde Irrigation District
QSA	Quantification Settlement Agreement
RHNA	Regional Housing Needs Assessment
RDM	Robust Decision Making
RO	Reverse Osmosis
RTP	Regional Transportation Plan
RUWMP	Regional Urban Water Management Plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAG	Southern California Association of Governments
SDWA	Safe Drinking Water Act
SGMA	Sustainable Groundwater Management Act
SNWA	Southern Nevada Water Authority
SWP	State Water Project
SWRCB	State Water Resources Control Board
TAF	Thousand Acre Feet
USBR	U.S. Bureau of Reclamation
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
WEP	Water Enterprise Plan
WRCC	Western Regional Climate Center
WSAP	Water Supply Allocation Plan
WSDM	Water Surplus and Drought Management
WUCA	Water Utility Climate Alliance

1 INTRODUCTION AND OVERVIEW

1.1 BACKGROUND AND PURPOSE

The City of Beverly Hills has prepared the 2015 update of its Urban Water Management Plan to fulfill the requirements outlined in the California Urban Water Management Planning Act and the Water Conservation Bill of 2009.

1.2 UWMP UPDATE AND THE CALIFORNIA WATER CODE

This report has been prepared in compliance with Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act (Act), which were added by Statute 1983, Chapter 1009, and became effective on January 1, 1984. This Act requires that "every urban water supplier shall prepare and adopt an urban water management plan" (Water Code § 10620(a)). An "urban water supplier" is defined as a supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually (Water Code § 10617).

These plans must be filed with the California Department of Water Resources (DWR) every five years ending in 0 and 5 and submitted by December 31 of that year. However, the 2015 plans are due to be submitted to DWR by July 1, 2016. The Act's requirements include:

- Detailed evaluation of the supplies necessary to meet demands over at least a 20-year period, in five-year increments, for a single dry water year, in multi-year droughts, and during average year conditions,
- Documentation of the stages of actions an urban water supplier would undertake to address up to a 50 percent reduction in its water supplies,
- Description of the actions to be undertaken in the event of a catastrophic interruption in water supplies, and
- Evaluation of reasonable and practical efficient water uses, recycling, and conservation activities.

1.2.1 Changes in the Act Since 2010

Since 2010, several amendments have been made to the Act. The following is a summary of the significant changes in the Act that have occurred from 2010 to the present:

- Changes the deadline for water suppliers to submit their 2015 UWMPs to DWR by July 1, 2016 (Water Code § 10621(d)).
- Adds "distribution system water loss" to the list of past, present, and projected future water uses that the UWMP is to quantify to the extent that records are available and over the same 5-year increments described in Water Code § 10631(a). (Water Code § 10631(e)(1)(J)). For the 2015 UWMP, the distribution

system water loss must be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss must be quantified for each of the 5 years preceding the plan update. (Water Code § 10631(e)(3)(A)). The distribution system water loss quantification must be reported in accordance with a worksheet approved or developed by DWR through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association (AWWA) (Water Code § 10631(e)(3)(B)).

- If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area (Water Code § 10631(e)(4)(A)). To the extent that an urban water supplier reports the information described in § 10631(e)(4)(A), an urban water supplier shall do both of the following: (1) provide citations of the various codes, standards, ordinances, or transportation and land use plans used in making the projections; and (2) indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall note that fact (Water Code § 10631(e)(4)(B)).
- Requires plans by retail water suppliers to include a narrative description that addresses the nature and extent of each water demand management measure (DMM) implemented over the past 5 years. The narrative must describe the water DMMs that the supplier plans to implement to achieve its water use targets pursuant to Water Code § 10608.20 (Water Code § 10631(f)(1)(A)). The narrative must also include descriptions of the following water DMMs: water waste prevention ordinances, metering, conservation pricing, public education and outreach, programs to assess and manage distribution system real loss, water conservation program coordination and staffing support; and other DMMs that have a significant impact on water use as measured in gallons per capita day (gpcd), including innovative measures, if implemented (Water Code § 10631(f)(1)(B).
- Requires plans by wholesale water suppliers to include a narrative description of metering, public education and outreach, water conservation program coordination and staffing support, and other DMMs that have a significant impact on water use as measured in gpcd, including innovative measures, if implemented, as well as a narrative description of their distribution system asset management and wholesale supplier assistance programs (Water Code § 10631(f)(2)).
- Adds the voluntary reporting in the UWMP of any of the following information: an estimate of the amount of energy used: (1) to extract or divert water supplies; (2) to convey water supplies to water treatment plants or distribution systems; (3) to treat water supplies; (4) to distribute water supplies through the distribution system; (5) for treated water supplies in comparison to the amount used for non-treated water supplies; and (6) to place water into or to withdraw water from storage; and (7) any other energy-related information the urban water supplier

deems appropriate (Water Code § 10631.2(a)). DWR included in its UWMP guidance a methodology for the voluntary calculation or estimation of the energy intensity of urban water systems (Water Code § 10631.2(b))

- Requires urban water suppliers to submit plans or amendments to plans electronically and to include any standardized forms, tables, or displays specified by DWR (Water Code § 10644(a)(2))..

1.2.2 Senate Bill 7 of the Seventh Extraordinary Session of 2009, Water Conservation in the Delta Legislative Package

In addition to changes to the Act, the state Legislature passed Senate Bill 7 as part of the Seventh Extraordinary Session, referred to as SBx7-7, on November 10, 2009, which became effective February 3, 2010. This law was the water conservation component to the historic Delta legislative package, and seeks to achieve a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. This implements the Governor's similar 2008 water use reduction goals. The law requires each urban retail water supplier to develop urban water use targets to help meet the 20 percent goal by 2020, and an interim urban water reduction target by 2015.

The bill states that the legislative intent is to require all water suppliers to increase the efficiency of use of water resources and to establish a framework to meet the state targets for urban water conservation called for by the Governor. The bill establishes methods for urban retail water suppliers to determine targets to help achieve increased water use efficiency by the year 2020. The law is intended to promote urban water conservation standards consistent with the California Urban Water Conservation Council's adopted best management practices.

An urban retail water supplier may update its 2020 urban water use target in its 2015 UWMP (Water Code § 10608.20(g)).

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2 PLAN PREPARATION

2.1 BASIS FOR PREPARING A PLAN

Per CWC 10617, "urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems. The City of Beverly Hills is a public water supplier that meets the definition of an urban water supplier with 10,752 municipal water service connections and a total 10,432 acre-feet (AF) of water supplied to customers in their water service area in 2015. See Table 2-1.

Table 2-1: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Water Supplied 2015 (AF)
1	City of Beverly Hills	10,752	10,432
Total		10,752	10,432

2.2 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

The City of Beverly Hills has developed an individual UWMP (as opposed to a Regional UWMP) that reports solely on its service area; addresses all requirements of the CWC; and notifies and coordinates with appropriate regional agencies and constituents. See Table 2-2.

Table 2-2: Plan Identification

☑	Individual UWMP
☐	Regional UWMP (RUWMP)

2.3 FISCAL OR CALENDAR YEAR AND UNITS OF MEASURE

The City of Beverly Hills is a water retailer (as opposed to a water wholesaler). The City's 2015 UWMP has been prepared using calendar years (as opposed to fiscal years) and has been prepared using acre-feet (AF) as the units of water volume measure. See Table 2-3.

2.4 COORDINATION AND OUTREACH

Per CWC 10631(j), an urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan.

Table 2-3: Agency Identification	
Type of Agency	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
Units of Measure Used in UWMP	
Unit	AF

The City of Beverly Hills has provided the Metropolitan Water District of Southern California (Metropolitan), the City's water wholesaler, with projected water use in accordance with CWC 10631 and has relied upon water supply information provided by Metropolitan in fulfilling its 2015 UWMP.

Table 2-4: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Metropolitan Water District of Southern California

The intent of the 2015 UWMP is to focus on specific issues unique to the City's water service area. While some regional UWMP issues are introduced in this Plan, more detailed regional information is presented in Metropolitan's 2015 Regional UWMP (RUWMP).

To assist City staff in preparation of their 2015 UWMP, Psomas attended the 2015 UWMP Workshop at the Irvine Ranch Water District, November 18, 2015, that was facilitated by DWR.

Table 2-4A lists the entities that the City or Psomas coordinated with in the development of the City's 2015 UWMP. Information from the Final Metropolitan 2015 Final RUWMP, and the *"Guidebook to Assist Urban Water Suppliers to Prepare a 2015 Urban Water Management Plan"* prepared by DWR was utilized in preparing the City's 2015 UWMP. The City's water supply planning considers the programs of local and regional water agencies.

Prior to development of the 2015 UWMP, the City evaluated 19 potential alternatives for increasing the reliability of the City's water supply and/or for conserving water and reducing system demands that culminated in the preparation of a Water Enterprise Plan (WEP) in July 2015. The WEP developed a recommended water supply portfolio going forward.

The 2015 UWMP is intended to serve as a general, flexible, and open-ended document that is updated every five years (or more often if necessary) to reflect changes in the City's water supply trends, and conservation and water use efficiency policies. The 2015 UWMP along with the 2015 WEP will be used by City staff to guide the water use and management efforts through the year 2020, when the 2015 UWMP will require an update. The 2015 WEP provides water resource planning beyond 2020.

Table 2-4A: City of Beverly Hills Coordination and Public Involvement

	Participated In Plan Preparation	Contacted for Assistance	Commented on Draft	Notified of Public Hearing	Attended Public Hearing
City Water Department	x	x	x	x	x
City Public Works Commission		x	x	x	x
City Community Development Department		x		x	x
City Management Department				x	x
Beverly Hills City Council				x	x
Metropolitan		x		x	
City of West Hollywood				x	
City of Santa Monica				x	
City of Culver City				x	
Golden State Water Company				x	
L.A. Department of Water & Power				x	
L.A. County Dept. of Public Works				x	
Water Replenishment District				x	
Interested General Public				x	x

3 SYSTEM DESCRIPTION

3.1 GENERAL DESCRIPTION

The City is a general law city governed by a five-member City Council and a City Manager that serves as executive officer for the City. Professional personnel staff the City departments providing municipal services to the public. The Director of Public Works manages the City's Water Division.

The City's water service area encompasses an area of approximately 6.35 square miles (4,069 acres) and consists of the City of Beverly Hills with an area of 3,646 acres, and a portion of the City of West Hollywood with an area of 423 acres, which is 10.4 percent of the City's total water service area. The City's water service area is shown on Figure 3-1.

The City's domestic water supply includes imported water received from the Metropolitan Water District of Southern California (Metropolitan) and groundwater the City pumps from the Hollywood Groundwater Basin.

3.1.1 City Water System Description

The City's water supply sources are treated imported water purchased from the Metropolitan, and to a much lesser extent, groundwater pumped from the Hollywood Groundwater Basin, and then treated at the City's water treatment plant.

The City's imported water is delivered via two connections with Metropolitan's Santa Monica Feeder System (BH-1 and BH-2); each with a capacity of 40 cfs. At 80 percent annual operation, the connections can deliver up to 46,336 AFY. The City's imported water supply is a blend of water received from Northern California and the Colorado River that is treated at Metropolitan's Weymouth Treatment Plant in La Verne under normal conditions.

In addition to imported water, the City has water supply from four wells that pump groundwater from the local Hollywood Basin. The raw groundwater is treated at the City's water treatment plant that utilizes a 2-stage reverse osmosis (RO) treatment train.

The City distributes treated potable water to customers inside the City limits and, as mentioned above, to a portion of the City of West Hollywood. The City's water service area distribution system consists of 170 miles of water mains ranging from 2 to 24 inches in diameter. The water system is composed of 16 water service pressure zones and has 10 reservoirs within those zones with a combined storage capacity of 43.5 MG.

The City also has three emergency water system interconnections with Los Angeles Department of Water and Power ("LADWP"). One connection is located at the City's Booster Station No. 2 (14 cfs capacity); the second is located at Reservoir No. 7 (11 cfs capacity); and the third is located in the City's Zone 9 service area (7.5 cfs capacity). LADWP can also receive emergency water from the City via the connections.

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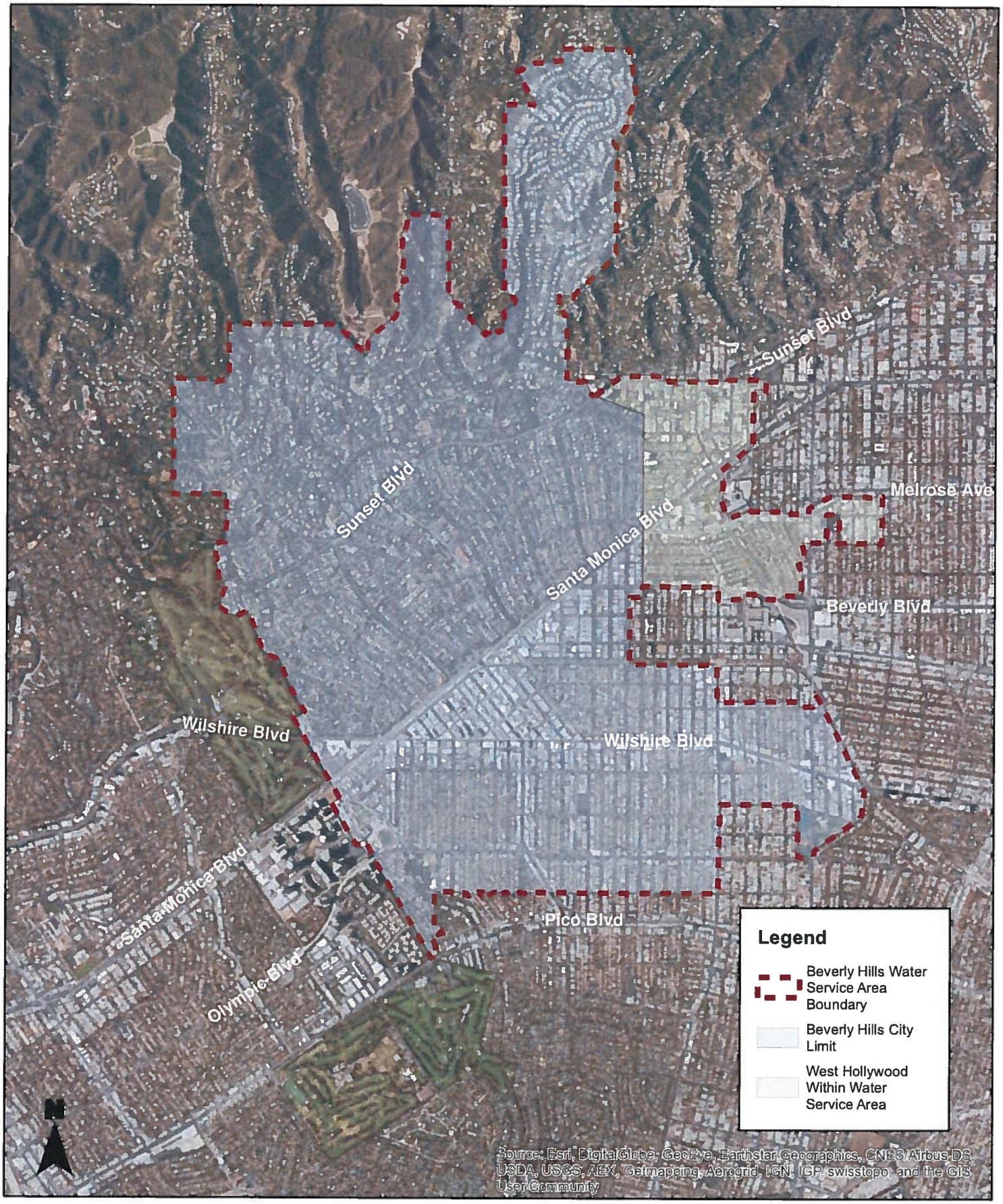

PSOMAS

Figure 3-1
City of Beverly Hills Water Service Area

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3.2 SERVICE AREA BOUNDARY MAPS

The City's water service area, which consists of the City of Beverly Hills and a portion of the City of West Hollywood, is shown on Figure 3-1.

3.3 SERVICE AREA CLIMATE

The City has a Mediterranean climate with moderate, dry summers and cool winters that receive the majority of rainfall. As shown in Table 3-1A, the average maximum temperature of 78.4°F occurs in August, and the average minimum temperature of 49.6 °F occurs in January. The average annual maximum temperature for the City is 71.4°F and the average annual minimum temperature is 55.0 °F. Approximately 77 percent of the City's average annual rainfall of 17.48 inches occurs between December and March. As shown in Table 3-1A, the average annual evapotranspiration (ETo) is 47.16 inches.

Table 3-1A: Historical City Climate Characteristics

Month	Standard Average ETo[a] (inches)	Average Rainfall[b] (inches)	Daily Max Temperature[b] (degrees F)	Daily Min Temperature[c] (degrees F)
January	2.33	3.68	66.0	49.6
February	2.52	4.23	66.3	49.8
March	3.70	2.79	66.7	50.0
April	4.70	1.11	68.6	52.2
May	5.14	0.25	69.9	54.8
June	5.24	0.06	72.6	57.6
July	5.62	0.01	77.2	60.7
August	5.57	0.09	78.4	61.6
September	4.31	0.19	78.2	60.9
October	3.40	0.59	75.2	58.0
November	2.48	1.65	71.3	54.0
December	2.15	2.82	66.7	50.5
Annual	47.16	17.48	71.4	55.0

a) Standard Average ETo from California Irrigation Management Information System (CIMIS) Station 99, Santa Monica, CA. Station 99 is CIMIS station closest to the City of Beverly Hills; Average for 12/11/1992 through 1/27/2016.

b) Data obtained from Western Regional Climate Center (WRCC), Desert Research Institute, Reno, Nevada (http://www.wrcc.dri.edu/cgi-bin/cliRECtM.pl?ca9152); WRCC program administered by the National Oceanic and Atmospheric Administration (NOAA); data extracted from monitoring Station 049152 at UCLA, CA, Average 3/01/1933 through 1/20/2015.

3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS

3.4.1 Service Area Population

The City's water service area population consists of people living in the City of Beverly Hills and people living in a portion of the City of West Hollywood.

The DWR Population Tool developed for use on the 2015 UWMP estimates a water agency's water service area population from 1990 through 2015 based on inputting residential (single-family and multi-family) water service connections for the years 1990, 2000, 2010, and 2015 along with the water service area boundary in electronic (KML) format.

City residential water service connections averaged 9,322 for the years 2002 through 2004 and then dropped to 8,566 (8.1 percent decrease) in 2005 because the City upgraded to a new financial and billing system in 2005, which allowed the City's finance department to do some adjustments and clean-up on the customer database. As this significant drop in residential service connections is not consistent with the actual population change for the City's water service area, the City requested and received permission from DWR to calculate the historical, SBx7-7, and future population estimates for the City's water service area by another slightly different method:

> State Department of Finance (DOF) population estimates and Census data were used to determine City of Beverly Hills population figures from 1990 through 2015. An electronic boundary of the portion of West Hollywood inside the City of Beverly Hills water service area was input into the DWR Population Tool along with service connection data for this area to determine the population for this area, which was then added to the City of Beverly Hills population (from DOF estimates) to determine the total service area population for the years 1990 through 2015. The DWR Population Tool worksheets are included in Appendix G.
>
> Since the population growth for the portion of West Hollywood inside the City of Beverly Hills water service area from 2010 to 2015 could not be determined, the overall percentage of growth for the entire City of West Hollywood as determined from DOF projections was added to the portion in the water service area. The portion of West Hollywood within the water service area is approximately 23.5 percent of the City of West Hollywood's total population based on 2010 census data. Assuming this percentage to remain constant, future populations for the City's water service area were estimated using the Southern California Association of Government (SCAG) Regional Transportation Plan (RTP) 2016 population projections for the City of Beverly Hills and the City of West Hollywood.

Current and projected population for the City's water service area is shown in Table 3-1. The water service area population is projected to increase 8.7 percent between 2015 and 2040.

3.4.2 Water-Use-Related Demographics

Of the 10,752 City water service connections in 2015, 8,529 were residential connections (79.3%). Of the 8,529 residential connections, 6,717 were single family (78.8%) and 1,812 were multi-family (21.2%). By far, the predominant land use in the City is single family residential; specifically, low-density residential, which has a maximum density of 1 dwelling unit (DU) per acre, and medium-density residential, which has a maximum density of 4 DU/acre; and high-density residential, which has a maximum density of 6 dwelling unit (DU) per acre.

Table 3-1: Population - Current and Projected

Service Area	2015	2020	2025	2030	2035	2040	Increase[a]
West Hollywood[b]	8,356	8,635	8,914	9,193	9,471	9,750	16.7%
Beverly Hills[c]	34,833	35,306	35,780	36,253	36,727	37,200	6.8%
Total	43,189	43,942	44,694	45,446	46,198	46,950	8.7%

(a) Increase relative to 2015
(b) Approximately 23.5% of the City of West Hollywood's total population
(c) 100% of the City of Beverly Hill's total population

To a much lesser extent, the next largest land uses are multi-family residential (22 to 50 DU/acre) and commercial, which are located south of Santa Monica Boulevard. There is also some institutional and low density general and municipal land uses south of Santa Monica Boulevard.

Approximately 50 percent of the land use in the portion of West Hollywood inside the City of Beverly Hills water service area is single-family or two-unit low density residential, and approximately 25 percent is multi-family high density residential. Approximately 10 to 15 percent of this area is zoned for commercial land use, with the remaining 10 to 15 percent of land use a mix of very low and medium residential and public land uses.

In 2015, the average number of people per dwelling unit inside the City of Beverly Hills was 2.33, according to DOF E-5 City/County Population and Housing Estimates, January 1, 2015. Whereas the predominant land uses in the City are for lower-density residential, the predominant housing units are 2- to 4-unit residences and five plus units. Of the 16,433 housing units inside the City limits in 2015, 5,733 (34.9%) were single-detached houses, 291 (0.02%) were single-attached; 1,895 (11.5%) were 2- to 4-unit residences, and 8,472 were five plus units (51.6%). The vacancy rate in 2015 was 9.3 percent.

The water service area is built out, but there are infill and re-development projects on-going and planned for the future, especially in the portion of West Hollywood inside the City of Beverly Hills water service area. These projects include:

- The Melrose Triangle Project at 9040-9098 Santa Monica Boulevard is the complete demolition and reconstruction of the blocks in West Hollywood between Doheny and Almont Drives, and Santa Monica Boulevard and Melrose Avenue. The project area is approximately 3 acres and includes 4-levels of below ground parking and 3, 5-story mixed use/ commercial/ residential/ office buildings. The West Hollywood City Council approved the project on October 6, 2014.

- The redevelopment project at 8899 Beverly Boulevard includes adaptive re-use of the existing 10 level retail/commercial building and the development of new residential uses on the 1.73 acre site. The project would include 76 residential units, approximately 30,000 square feet of office, retail and restaurant space and 256 off-street parking spaces. The existing site consists of a 10 level building and a surface parking lot. The West Hollywood City Council approved the project with conditions on August 17, 2014.

- The Palm Mixed Use Project, 9001 Santa Monica Boulevard, is a five-story mixed use building that includes 42 residential units. The Project includes retail, restaurant, market-rate and affordable housing and 180 parking stalls in subterranean parking. The West Hollywood City Council approved a request to amend the development agreement to extend the time period to commence construction. Substantial construction must begin before July 2016.

- The Sunset-Doheny Hotel project at 9040 Sunset Boulevard is an eleven-story mixed use project consisting of 190 hotel rooms, 20 condominiums, a nightclub, and 18,000 square feet of retail. The project was originally approved in 2010. In 2012, the West Hollywood City Council approved proposed modifications to the project to increase the number of hotel rooms to 190 from 148 and add a night-club to the project.

- Robertson Lane Hotel Project (645, 647, 653, 655, 657, 661, 665, and 681 Robertson Boulevard and 648, 650, 652 and 654 La Peer Drive) consists of the demolition of several structures on the site and construction of an eight-story, approximately 252,700 square foot development including a 251-room hotel, restaurant, retail showroom and personal service uses. On December 11, 2014 the City of West Hollywood released a Notice of Preparation of a Draft Environmental Impact Report.

- The 702-714 N. Doheny Drive Condominium Project (702-714 N. Doheny Drive, 9040-9056 West Keith Avenue, 9057-9073 West Harland Avenue) consists of the demolition of two single family homes on the 1.2 acre site and the development of 38 market rate condominiums and 12 affordable apartments. On February 17, 2015 the City of West Hollywood City Council adopted the Mitigated Negative Declaration and approved the project.

4 SYSTEM WATER USE

4.1 RECYCLED VERSUS POTABLE AND RAW WATER DEMAND

The City obtains its water supply from two sources: imported surface water purchased from Metropolitan, and local groundwater extracted from the local Hollywood Groundwater Basin (Hollywood Basin). The imported water is treated by Metropolitan and the groundwater is treated at the City's water treatment plant before being distributed to the City's water system. Currently, the City has no recycled water supply and no indirect recycled water use, which are also not projected to occur in the near future.

4.2 WATER USES BY SECTOR

Historical water service connections by customer sector are shown in Table 4-1A. The total number of water service connections increased by 2.1 percent between 2005 and 2010 and then decreased by 2.4 percent between 2010 and 2015, reflective in the changes in residential service connections. Residential (single-family plus multi-family) connections account for approximately 80 percent of total water service connections.

Table 4-1A: Historical City Water Service Connections

Customer Sector	2005	2010	2015
Single Family	6,666	6,958	6,717
Multi Family	1,900	1,929	1,812
Commercial	1,231	1,225	1,239
Industrial	80	0	0
Municipal	156	168	194
Fire	722	725	790
Other	36	8	0
	10,791	11,013	10,752

Historical metered and billed water use by customer sector is shown in Table 4-1B. Total water use including unaccounted-for (lost or non-revenue) water decreased from 13,297 AFY in 2005 to 11,204 AFY in 2010 (17.7 percent decrease); and to 10,524 AFY in 2015 (21.5 percent decrease relative to 2005). Per-capita water use also decreased and is discussed in Section 4.4. System water loss has decreased from 9.6 percent in 2005 to 6.0 percent in 2015 and is discussed in Section 4.3. Residential water use has accounted for approximately 70 percent of total system water use.

City water system demands for potable and raw water for 2015 are shown in Table 4-1. The City purchases treated surface water from Metropolitan and this represented nearly 100 percent of the water supply for the City's water service area in 2015. The City has historically pumped groundwater from the local Hollywood Basin, which is then treated

at the City's water treatment plant before being distributed to the City's water system. However, only 42.5 AFY of treated groundwater was produced through the treatment plant in 2015 as the plant was out of service for rehabilitation for most of the year. City water use by customer sector plus system water loss represents 100 percent of the water demands for the City's water system.

Table 4-1B: Historical Water Use and Water Loss (AFY)

	2005 Water Use/ Supply	2010 Water Use/ Supply	% Change (2005-2010)	2015 Water Use/ Supply	% Change (2010-2015)	% Change (2005-2015)
Single-Family Residential	6,403	5,281	-17.5%	5,029	-4.8%	-21.5%
Multi-Family Residential	2,862	2,553	-10.8%	2,211	-13.4%	-22.7%
Total Residential	9,265	7,834	-15.4%	7,240	-7.6%	-21.9%
Population	42,620	42,179	-1.8%	43,189	2.4%	0.5%
Residential Per-Capita (gpcd)	192.5	165.8	-13.9%	149.6	-9.7%	-22.3%
Commercial	2,249	2,047	-9.0%	2,168	5.9%	-3.6%
Industrial	69	63	-8.7%	60	-4.8%	-13.0%
Municipal	351	319	-9.1%	317	-0.6%	-9.7%
Fire	73	4	-94.5%	18	350.0%	-75.3%
Unaccounted	1,272	937	-26.3%	629	-32.9%	-50.6%
Total	13,279	11,204	-15.6%	10,432	-6.9%	-21.4%
Total Per-Capita (gpcd)	275.8	237.1	-14.1%	215.6	-9.1%	-21.8%
Water Supply	13,279	11,204	-15.6%	10,432	-6.9%	-21.4%
Water Loss	1,272	937	-26.3%	629	-32.9%	-50.6%
Water Loss %	9.6%	8.4%		6.0%		

Projected City water demands for the planning period (2020-2040) by water use sector and water loss are shown in Table 4-2. The methodology for developing these projected demands is presented in Section 4-4. Total projected water demands for the City is shown in Table 4-3. All projected water demands are for potable water as there is no recycled or indirect recycled water use projected for the City.

4.3 DISTRIBUTION SYSTEM WATER LOSSES

In accordance with CWC 10631, distribution system water loss is to be quantified for the most recent 12-month period available for the 2015 urban water management plan update and is to be reported in accordance with a worksheet approved or developed by DWR through a public process. The water loss quantification worksheet is to be based on the

water system balance methodology developed by the American Water Works Association (AWWA).

Table 4-1: Demands for Potable Water – Actual

Use Type	2015 Actual		
	Additional Description	Level of Treatment When Delivered	Volume (AFY)
Single-Family	-	Drinking Water	5,029
Multi-Family	-	Drinking Water	2,211
Commercial	-	Drinking Water	2,168
Industrial	-	Drinking Water	60
Institutional/Governmental	Municipal	Drinking Water	317
Other	Fire hydrant water	Drinking Water	18
Losses	-	Drinking Water	629
Groundwater recharge	-	-	0
Saline water intrusion barrier	-	-	0
Agricultural irrigation	-	-	0
Wetlands or wildlife habitat	-	-	0
Sales/Transfers/Exchanges to other agencies	-	-	0
Total			10,432

Table 4-2: Demands for Potable Water Projected

Use Type	Projected Water Use				
	2020	2025	2030	2035	2040
Single Family	5,353	5,390	5,429	5,469	5,509
Multi-Family	2,353	2,370	2,387	2,404	2,422
Commercial	2,308	2,324	2,340	2,358	2,375
Industrial	64	64	65	65	66
Institutional/Governmental	337	340	342	345	347
Other[(a)]	19	19	19	20	20
Losses	670	674	679	684	689
Total	11,104	11,182	11,262	11,344	11,428

(a) Fire hydrant water

Table 4-3: Total Water Demands						
	2015	2020	2025	2030	2035	2040
Potable Water Demand	10,432	11,104	11,182	11,262	11,344	11,428
Recycled Water Demand	0	0	0	0	0	0
Total Water Demand	10,432	11,104	11,182	11,262	11,344	11,428

The AWWA Water Audit Software Version 5.0 was used to quantify distribution water loss for the City for calendar year 2015. As shown in Table 4-4, a water loss volume of 498.5 AFY was calculated, which is 4.8 percent of the water supplied assuming 1.25 percent of authorized consumption (130.4 AFY) was unbilled and unmetered water use, i.e. water typically used for fighting fires, flushing water mains, conducting fire flow tests, etc. The AWWA Audit worksheets are included in Appendix C.

The City's pipeline replacement program helps to limit system water loss from pipeline leakage. From 2011 through 2015, the City averaged replacing approximately 3.0 miles of pipelines per year at an annual average cost of approximately $3 million.

Table 4-4: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss (AF)
(01/2015)	498.5

4.4 ESTIMATING FUTURE WATER SAVINGS

In September 2014, two legislative bills amending sections of the Act were approved and chaptered: AB 2067 and SB1420. Key among the changes to existing statutes was the addition of CWC Section 10631(e)(4). This specific addition provides the option for urban water suppliers to reflect its and its customer's efficiency efforts as part of its future demand projection. The new statutes added the following to CWC Section 10631(e):

> *(4) (A): If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.*
>
> *(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:*

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.
(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

4.4.1 Reduced City Water Use Since 2005

Through the implementation of City water conservation ordinances and measures discussed in Chapter 9, and as shown in Table 4-1B, total City of Beverly Hills per-capita water use has decreased 6.9 percent since 2010 and 21.5 percent since 2005; and residential per-capita water has decreased 7.6 percent since 2010 and 21.9 percent since 2005.

In April 2015, Governor Jerry Brown issued an executive order requiring the State Water Resources Control Board to implement measures to cut the State's overall water usage by 25% due to the continuing drought. The executive order mandates a 25% reduction in supply to California's approximately 400 water control agencies and requires water agencies and cities to reduce water use 25% (on average) below 2013 levels by the end of February 2016, with usage reported to the State by water suppliers. Cities and water agencies were assigned various reduction goals, and the City of Beverly Hills reduction goal was set at 32%.

City water use has decreased a cumulative 19.3 percent for the first nine recording months (June 2015 through March 2016) relative to year 2013 water usage in response to the City's conservation goal set by the State, which has been extended to October 2016 or as long as the drought continues.

4.4.2 Reduced Future City Water Use due to Existing and Future Conservation Measures

As shown in Table 4-5A, through the implementation of City water conservation ordinances and measures discussed in Chapter 9, total per-capita City water use has significantly dropped from 275.8 gpcd in to 237.1 gpcd in 2010 to 215.6 gpcd in 2015 (a reduction of 21.5 percent since 2005). Residential per-capita City water use has also significantly dropped from 192.5 gpcd in 2005 to 165.8 gpcd in 2010 to 149.6 gpcd in 2015 (a reduction of 22.3 percent since 2005).

It is not known how long the current drought will last or when new droughts will start and end in the future. However, many of the water conservation measures already implemented and being implemented by City customers such as turf removal, conversion to drought resistance landscapes, conversion to more efficient irrigation systems and ET-based irrigation controllers, retrofits to high efficiency clothes washers and toilets, implementation of weather-based irrigation controllers, etc. will have permanent effects on water use (reduction) in the future.

It is anticipated that once the drought ends, water use may increase to some degree, and per-capita water use will increase some relative to 2015 water use. However, it is also anticipated that a great deal of water conservation will remain due to permanent measures that have already been implemented for exiting City residences and other development.

As shown in Table 4-5A, it is estimated in this UWMP that total City water system per-capita water use will increase from 149.6 gpcd in 2015 to 160.0 in 2020 (approximately a 7 percent increase) for existing residences and development after the end of the drought, which is similar to the water use in 2010, but with a water loss of 6.5 percent (similar to the 6.0 percent loss in 2015). However, it is estimated that water conservation retrofits will continue for existing houses and development as aged plumbing and irrigation appurtenances are replaced over time, and that per-capita water use will decrease to 152.0 gpcd in 2040 (a reduction of approximately 5 percent). Water loss is estimated to remain at 6.5% for existing through 2040.

Table 4-5A: Historical & Projected City Per-Capita Water Use

	2005	2010	2015	2020	2040
Existing Households					
Residential Per-Capita (gpcd)	192.5	165.8	149.6	160.0	152.0
CII Per-Capita[a] (gpcd)	57.0	51.5	53.0	52.0	52.0
Water Loss Per-Capita [b](gpcd)	26.3	19.8	13.0	13.8	13.3
Total Per-Capita (gpcd)	275.8	237.1	215.6	225.8	217.3
New Households					
Residential Per-Capita (gpcd)	-	-	-	152.0	152.0
CII Per-Capita (gpcd)	-	-	-	52.0	52.0
Water Loss Per-Capita (gpcd)	-	-	-	11.2	13.3
Total Per-Capita (gpcd)	-	-	-	215.2	217.3

(a) Commercial, industrial and institutional per-capita water use
(b) Water loss was 9.6%, 8.4% and 6.0% in 2005, 2010, and 2015, respectively; and is estimated to be 6.5% and ranging from 5.5% (2020) to 6.5% (2040) in the future for existing & new development, respectively.

However, more significant future per-capita water use will occur for the City due to new building codes and landscape ordinances for new residential developments compared with existing residential land use. California's newly adopted green building code will have a direct impact on new home building and water conservation in the State. The new code aims to cut indoor water consumption by at least 20 percent, primarily through more efficient indoor water fixtures. For a three-bedroom house, the savings is estimated to be about 10,000 gallons of water per year, on average.

The California Green Building program also includes outdoor water conservation by reducing the area devoted to high-irrigation lawns and plants, emphasizing natural drought-tolerant plantings, and installing irrigation controls that respond to local weather conditions. This is consistent with the new Model Water Efficient Landscape Ordinance (MWELO), which was adopted by the State on July 15, 2015 and was adopted by the City on December 1, 2015, by default.

As shown in Table 4-5A, total per-capita water use for new housing and development is estimated to range from 215.2 gpcd in 2020 to 217.3 gpcd in 2040. A residential per-capita water use of 152.0 gpcd is estimated. Future commercial, industrial, and institutional (CII) per-capita water use is estimated at 52.0 gpcd and water loss for new developments is estimated to range from 5.5 percent in 2020 to 6.5 percent in 2040, with the slight increase accounting for aging of new facilities.

Based on per-capita water use developed for existing and new housing and other development in Table 4-5A, projected City water demands were developed and are shown in Table 4-5B. The following methodology was used to project City water demands:

> Total households for the City's water service area in 2040 is estimated at 22,677 based on SCAG 2016 Regional Transportation Plan (RTP) household estimates for the City of Beverly Hills and the City of West Hollywood inside the City of Beverly Hills water service area (23.3 percent of the entire City of West Hollywood based on population), which is 2,411 households greater than the number of houses estimated for the City's water service area in 2015 based on DOF estimates. Based on DOF figures of 2.3 people per household in Beverly Hills and 1.5 people per household in West Hollywood and an estimated population for the City's water service area in 2040 of 46,950, the population for new households is estimated at 4,651 and the population for existing households is estimated at 42,286 in 2040.

As shown in Table 4-5B, total water use is estimated to increase from 10,431 AFY in 2015 to 11,428 AFY in 2040 (an increase of approximately 9.6 percent), which is all attributable to new development. Total per-capita water use is estimated to increase from 215.6 gpcd in 2015 to 225.6 in 2020, and then gradually decrease back to 217.3 gpcd in 2040. It should be noted that the 2020 through 2040 projections are based on normal, non-drought years. These per-capita water use projections are less than the 2015 and 2020 SB X7-7 targets of 261.4 and 233.4 gpcd, respectively, developed for the City in this UWMP as detailed in Chapter 5.

4.5 WATER USE FOR LOWER INCOME HOUSEHOLDS

For planning and funding purposes, the State Department of Housing and Community Development (HCD) categorizes households into five income groups based on the County Area Median Income (AMI):

- Extremely Low Income — up to 30 percent of AMI
- Very Low Income - 31 to 50 percent of AMI
- Low Income - 51 to 80 percent of AMI
- Moderate Income - 81 to 120 percent of AMI
- Above Moderate Income — greater than 120 percent of AMI

Table 4-5B: Projected City Water Demands

	2015	2020	2025	2030	2035	2040
Existing Households						
Population	43,181	43,002	42,823	42,644	42,465	42,286
Total Per-Capita Water Use (gpcd)	215.6	225.8	223.7	221.6	219.4	217.3
Water Use (AFY)	10,431	10,879	10,732	10,586	10,440	10,296
New Households						
Population	0	930	1,860	2,791	3,721	4,651
Total Per-Capita Water Use (gpcd)	0	215.2	215.7	216.3	216.8	217.3
Water Use (AFY)	0	224	450	676	904	1,132
Total Per-Capita Water Use (gpcd)	10,431	11,104	11,182	11,262	11,344	11,428
Total Water Use (AFY)	215.6	225.6	223.3	221.2	219.2	217.3

Combined, extremely low, very low, and low income households are often referred to as lower income household.

State Housing Element law requires that a local jurisdiction accommodate a share of the region's projected housing needs for the planning period. This share, called the Regional Housing Needs Allocation (RHNA), is important because State law mandates that a jurisdiction provide sufficient land to accommodate a variety of housing opportunities for all economic segments of the community. Compliance with this requirement is measured by the jurisdiction's ability in providing adequate land with adequate density and appropriate development standards to accommodate the RHNA. The Southern California Association of Governments (SCAG), as the regional planning agency, is responsible for allocating the RHNA to individual jurisdictions within the region.

SCAG assigned a RHNA of only 3 units to the City of Beverly Hills for the 2014-2021 RHNA period, in the following income distribution:

Extremely Low/Very Low Income:	1 unit
Low Income:	1 unit
Moderate Income:	1 unit
Above Moderate Income:	0 units

The lower income households total 3 units for the City of Beverly Hills.

SCAG assigned a RHNA of 77 units to the City of West Hollywood for the 2014-2021 RHNA period, in the following income distribution:

Extremely Low/Very Low Income:	19 units
Low Income:	12 units
Moderate Income:	13 units
Above Moderate Income:	33 units

The lower income households total 44 units for the City of West Hollywood. Assuming approximately 23.5 percent of the lower income households for the City of Hollywood will be located in the City of Beverly Hills water service area (23.5 percent is the estimated population of West Hollywood inside the City of Beverly Hills water service area) results in a total of 21 low income households in the City of Beverly Hills water service area (3 for Beverly Hills and 18 for West Hollywood portion).

Assuming all 21 lower income housing units are built by 2021, and based on the current people per dwelling unit factors for West Hollywood and Beverly Hills and a per-capita residential water usage (including a water loss of 5.5 percent) of 163.2 gpcd (see Table 4-5A), the water demand increase for these 21 lower income housing units is estimated at 3.3 AFY, which is included in all water demand projections in this UWMP.

Confirmation that future water savings and demands for lower income households are included in demand projections is provided in Table 4-5.

Table 4-5: Inclusion in Water Use Projections

Are Future Water Savings Included in Projections?	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc., utilized in demand projections are found.	Chapter 9 2015 UWMP
Are Lower Income Residential Demands Included In Projections?	Yes

4.6 CLIMATE CHANGE

As presented in Metropolitan's 2015 RUWMP: Climate change adds its own uncertainties to the challenges of planning. Metropolitan's water supply planning has been fortunate in having almost one-hundred years of hydrological data regarding weather and water supply. This history of rainfall data has provided a sound foundation for forecasting both the frequency and the severity of future drought conditions, as well as the frequency and abundance of above-normal rainfall.

But, weather patterns can be expected to shift dramatically and unpredictably in a climate driven by increased concentrations of carbon dioxide in the atmosphere. These changes in weather significantly affect water supply planning, irrespective of the debate associated with the sources and cause of increasing concentrations of greenhouse gasses. As a major steward of the region's water supply resources, Metropolitan is committed to performing its due diligence with respect to climate change.

While uncertainties remain regarding the exact timing, magnitude, and regional impacts of these temperature and precipitation changes, researchers have identified several areas of concern for California water planners. These include:

- Reduction in Sierra Nevada snowpack;
- Increased intensity and frequency of extreme weather events; and
- Rising sea levels resulting in
    - Impacts to coastal groundwater basins due to seawater intrusion
    - Increased risk of damage from storms, high-tide events, and the erosion of levees; and
    - Potential pumping cutbacks on the SWP and Central Valley Project (CVP)

Other important issues of concern due to global climate change include:

- Effects on local supplies such as groundwater;
- Changes in urban and agricultural demand levels and patterns;
- Impacts to human health from water-borne pathogens and water quality degradation;
- Declines in ecosystem health and function; and
- Alterations to power generation and pumping regimes.

4.6.1 Metropolitan's Activities Related to Climate Change Concerns

Under the 2015 Integrated Resource Plan (IRP) Update, Metropolitan recognizes additional risks and uncertainties from a variety of sources:

- Water quality
- Climate change
- Regulatory and operational changes
- Project construction and implementation issues
- Infrastructure reliability and maintenance
- Demographic and growth uncertainty

Any of these risks and uncertainties, should they occur individually or collectively, may result in a negative impact to water supply reliability. While it is impossible to know how much risk and uncertainty to guard against, the region's reliability will be more secure with a long-term plan that recognizes risk and provides resource development to offset that risk. Some risk and uncertainty will be addressed by following the findings of the 2015 IRP Update. But there are other risks that may take longer to manifest, like climate change or shifts in demographic growth patterns that increase or move the demands for water.

Metropolitan has established an intensive, comprehensive technical process to identify key vulnerabilities. This Robust Decision Making (RDM) approach was used with the 2010 IRP Update resource plan. The RDM approach can show how vulnerable the region's reliability is to longer-term risks and can also establish "signposts" that can be monitored to see when critical changes may be happening. Signposts include monitoring the direction of ever-changing impacts from improved Global Climate Models, and housing and population growth patterns. The RDM approach will be revisited with the new resource reliability targets identified in the 2015 IRP Update.

Initial 2015 IRP analysis indicated an additional 200,000 AF of water conservation and local supplies may be needed to address these risks. This additional supply goal will be considered when examining implementation polices and approaches as the IRP process continues.

Metropolitan is an active and founding member of the Water Utility Climate Alliance (WUCA). WUCA consists of ten nationwide water providers collaborating on climate change adaptation and greenhouse gas mitigation issues. As a part of this effort, WUCA pursues a variety of activities on multiple fronts.

Member agencies of WUCA annually share individual agency actions to mitigate greenhouse gas emissions to facilitate further implementation of these programs. WUCA also monitors development of climate change-related research, technology, programs, and federal legislation.

In addition to supporting federal and regional efforts, WUCA released a white paper entitled "Options for Improving Climate Modeling to Assist Water Utility Planning for Climate Change" in January 2010. The purpose of this paper was to assess Global Circulation Models, identify key aspects for water utility planning, and make seven initial recommendations for how climate modeling and downscaling techniques can be improved so that these tools and techniques can be more useful for the water sector. Another recent WUCA publication related to water planning is: "Embracing Uncertainty: A Case Study Examination of How Climate Change is Shifting Water Utility Planning" (2015). A fundamental goal of this recent white paper is to provide water professionals with practical and relevant examples, with insights from their peers, on how and why to modify planning and decision-making processes to better prepare for a changing climate.

In addition to these efforts, the member agencies of WUCA annually share individual agency actions to mitigate greenhouse gas emissions to facilitate further implementation of these programs. At a September 2009 summit at the Aspen Global Change Institute, WUCA members met with global climate modelers, along with federal agencies, academic scientists, and climate researchers to establish collaborative directions to progress climate science and modeling efforts. WUCA continues to pursue these opportunities and partnerships with water providers, climate scientists, federal agencies, research centers, academia and key stakeholders.

Metropolitan also continues to pursue knowledge sharing and research support activities outside of WUCA. Metropolitan regularly provides input and direction on California legislation related to climate change issues. Metropolitan is active in collaborating with other state and federal agencies, as well as non-governmental organizations, on climate change related planning issues. The following list provides a sampling of entities that Metropolitan has recently worked with on a collaborative basis:

- USBR
- U.S. Army Corps of Engineers
- AWWA Research Foundation
- National Center for Atmospheric Research
- California Energy Commission
- California Department of Water Resources
- Quantification of Current Research

Metropolitan continues to incorporate current climate change science into its planning efforts. A major component of the current IRP update effort is to explicitly reflect uncertainty in Metropolitan's future water management environment. This involves evaluating a wider range of water management strategies, and seeking robust and adaptive plans that respond to uncertain conditions as they evolve over time, and that ultimately will perform adequately under a wide range of future conditions. The potential impacts and risks associated with climate change, as well as other major uncertainties and vulnerabilities, will be incorporated into the update and accounted. Overall, Metropolitan's planning activities strive to support the Board adopted policy principles on climate change by:

- Supporting reasonable, economically viable, and technologically feasible management strategies for reducing impacts on water supply,
- Supporting flexible "no regret" solutions that provide water supply and quality benefits while increasing the ability to manage future climate change impacts, and
- Evaluating staff recommendations regarding climate change and water resources under the California Environmental Quality Act (CEQA) to avoid adverse effects on the environment.

Metropolitan has made great efforts to implement greenhouse gas mitigation programs and policies for its facilities and operations. To date, these programs and policies have focused on:

- Exploring water supply/energy relationships and opportunities to increase efficiencies;
- Participating in the Climate Registry, a nonprofit greenhouse gas emissions registry for North America that provides organizations with the tools and resources to help them calculate, verify, report, and manage their greenhouse gas emissions in a publicly transparent and credible way;
- Acquiring "green" fleet vehicles, and supporting an employee Rideshare program;
- Developing solar power at both the Skinner water treatment plant (completed) and the Weymouth water treatment plant (in progress); and
- Identifying and pursuing development of "green" renewable water and energy programs that support the efficient and sustainable use of water.

Metropolitan also continues to be a leader in efforts to increase regional water use efficiency. Metropolitan has worked to increase the availability of incentives for local conservation and recycling projects, as well as supporting conservation Best Management Practices for industry and commercial businesses.

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5 SB X7-7 BASELINES AND TARGETS

Senate Bill x7-7 (SBx7-7) was enacted in November 2009 (Water Conservation Act of 2009), requiring all water suppliers to increase water use efficiency. The legislation set an overall goal of reducing per-capita urban water use by 20% by December 31, 2020 and to make incremental progress towards this goal by reducing per capita water use by at least 10% by December 31, 2015.

In preparing the 2010 UWMP, each urban retail water supplier was required to develop baseline daily per-capita water use, minimum baseline daily per-capita water use, and target daily per-capita water use for 2015 and 2020 that were to be 10% and 20% less, respectively, than the baseline daily per-capita water use based on utilizing one of four methods provided; with the target reduction for 2020 greater than the legislation's minimum water use reduction requirement. The four methods are:

- Method 1: Eighty percent of the water supplier's baseline per capita water use
- Method 2: Per capita daily water use estimated using the sum of performance standards applied to indoor residential use; landscape area water use; and commercial, industrial, and institutional uses
- Method 3: Ninety-five percent of the applicable state hydrologic region target as stated in the State's April 30, 2009, draft 20x2020 Water Conservation Plan
- Method 4: A BMP Option based on standards that are consistent with the California Urban Water Conservation Council's (CUWCC) best management practices (BMPs).

Baseline daily per-capita water use is defined as a continuous 10 or 15 year base period (baseline) for water use ending no earlier than December 31, 2004 and no later than December 31, 2010.

If the average baseline daily per-capita water use is greater than 100 gpcd for a defined 5-year baseline period, the legislation's minimum water use reduction requirement must also be met as set in Section 10608.22 of Senate Bill No. 7 SBx7-7. Per SBx7-7, the minimum water use reduction baseline period must end no earlier than December 31, 2007 and no later than December 31, 2010 and the minimum reduction shall be no less than 5 percent of this 5-year base daily per capita water use.

For the 2015 UWMP, water agencies must demonstrate compliance with their established water use target for 2015, which will also demonstrate whether the agency is on currently on track to achieve its 2020 target.

5.1 UPDATING CALCULATIONS FROM 2010 UWMP

In the 2010 UWMP, water agencies calculated a 2020 Urban Water Use Target through the use of a selected target method. In 2015 UWMPs, water agencies may update their 2020 Target and may make this calculation using a different target method than was used in 2010

DWR determined that significant discrepancies exist between State Department of Finance (DOF) projected populations for 2010 (based on 2000 U.S. Census data) and actual populations for 2010 based on 2010 U.S. Census data. The average difference between projected and actual was approximately 3 percent, but the difference for some cities was as high as 9 percent.

Therefore, if an agency did not use 2010 Census data for their baseline population calculations in the 2010 UWMP (the full census data set was not available until 2012) DWR has determined that these agencies must recalculate their baseline population for the 2015 UWMPs using 2000 and 2010 Census data. This may affect the baseline and target values calculated in the 2010 UWMP, which must be modified accordingly in the 2015 UWMP. The City's 2010 UWMP did not use 2010 census data for its baseline population calculations and it is therefore recalculated in the 2015 UWMP in developing new SBx7-7 targets

5.2 BASELINE PERIODS

The City currently does not produce or receive recycled water supply, and therefore, a 10-year baseline period is used as opposed to a 15-year baseline period. The baseline period must end no earlier than December 31, 2004 and no later than December 31, 2010. The most advantageous sequence of years for calculating per-capita water use is the sequence that generates the highest per-capita water use, making subsequent water conservation easier to achieve. Accordingly, the 10-year period 1996 through 2005 was selected as the average per-capita water use baseline for the 2015 UWMP, which is the same baseline period used in the 2010 UWMP, as shown in Table 5-1A.

Per SBX7-7, the minimum 5-year water use reduction baseline period must end no earlier than December 31, 2007 and no later than December 31, 2010. A 5-year minimum water use reduction baseline period between 2003 through 2007 was selected to calculate the most advantageous 5-year minimum water use reduction target as shown in Table 5-1B. The minimum 5-year water use reduction baseline period is used to calculate the legislation's minimum water use reduction requirement.

5.3 SERVICE AREA POPULATION

The City's water service area consists of the City of Beverly Hills and a portion of the City of West Hollywood, which is 10.4 percent of the City's total water service area. The City's water service area population consists of the population for the City of Beverly Hills and the population for the portion of West Hollywood in the City's water service area.

Table 5-1A: Baseline Daily Per-Capita Water Use				
Sequence Year	Calendar Year	Water Service Area Population	Daily System Gross Water Use (AFY)	Annual Daily Per Capita Water Use (gpcd)
1	1996	40,147	13,253	294.9
2	1997	40,356	14,102	311.9
3	1998	40,642	13,124	288.3
4	1999	41,022	13,737	298.9
5	2000	41,697	13,940	298.4
6	2001	42,199	13,166	278.5
7	2002	42,416	13,787	290.2
8	2003	42,644	13,717	287.2
9	2004	42,741	13,879	289.9
10	2005	42,620	13,297	278.5
Baseline Daily Per Capita Water Use:				291.7

Table 5-1B: Minimum Baseline Daily Per-Capita Water Use				
Sequence Year	Calendar Year	Water Service Area Population	Daily System Gross Water Use (AFY)	Annual Daily Per Capita Water Use (GPCD)
1	2003	42,644	13,717	287.2
2	2004	42,741	13,879	289.9
3	2005	42,620	13,297	278.5
4	2006	42,363	13,475	284.0
5	2007	42,267	13,821	291.9
Minimum Baseline Daily Per Capita Water Use:				286.3

DWR developed a "Population Tool" that uses Geographic Information Systems (GIS) and Census data to calculate population within the water supplier's service area, which can be used for the preparation of the 2015 UWMP. The Population Tool is particularly useful for agencies whose water service area boundaries do not match up to a city's boundary and cannot use Census or DOF population data alone. The Population Tool utilizes US Census data and electronic maps of the agency's service area. Using the number of agency residential service connections, the tool will calculate the population for the non-census years.

The DWR Population Tool utilizes residential (single-family and multi-family) water

service connections for the years 1990, 2000, 2010, and 2015 along with the water service area boundary in electronic (KML) format to estimate a water agency's water service area population from 1990 through 2015 based on inputting residential (single-family and multi-family) connection data for each of those four periods.

As discussed in Section 3.4.1, there was an unusual non-population related change in City water service connections in 2005. Therefore, the City received permission from DWR to use an alternative method to their Population Tool for calculating the SBx7-7 populations for the City's water service area. This DWR-approved alternative method is discussed in detail in Section 3.4.1. Appendix G contains the DWR Population Tool worksheets.

5.4 GROSS WATER USE

For the baseline and minimum baseline periods, 97 percent and 91 percent, respectively, of City gross water use was supplied with Metropolitan imported water and the remaining demands were supplied by City groundwater production. The City has no recycled water supply; no indirect recycled water use; no water placed in long-term storage; no water delivered to another urban supplier; no water delivered for agricultural use; and no significant process water use. Gross water use for the baseline and minimum baseline periods are shown in Table 5-1A and 5-1B, respectively.

5.5 BASELINE DAILY PER CAPITA WATER USE

As shown in Table 5-1A, the baseline per-capita water use is calculated to be 291.7 gpcd. In the 2010 UWMP, the baseline per-capita water use was calculated to be 284.4 gpcd. As shown in Table 5-1B, the minimum baseline per-capita water use is calculated to be 286.3 gpcd. In the 2010 UWMP, the baseline per-capita water use was calculated to be 277.0 gpcd.

5.6 2015 AND 2020 TARGETS

As shown in Table 5-1B, the minimum baseline water use averages 286.3 gpcd. The minimum per capita water use target for 2020 must therefore be 272.0 gpcd (95% of 286.3). The calculation of the 2020 water use reduction target for the four methods are as follows:

- Method 1: Using a baseline per-capita average of 291.7 gpcd (shown in Table 5-1A) the City of Beverly Hills 2020 target would be 233.4 gpcd (80% of 291.7). Since the target water use for Method 1 is less than the one found using the legislation's minimum requirement criteria (272.0), no further adjustments to this water use target would be required, if this method is selected.
- Method 2: The City does not currently maintain records of lot size, irrigated landscaped area for each parcel, reference evapotranspiration for each parcel, etc. to split its residential, commercial, industrial, or institutional uses into inside and outside (landscape irrigation) uses. The use of Method 2 to calculate conservation targets is therefore not feasible.

- Method 3: The City of Beverly Hills falls within the South Coast Hydrologic Region (Hydrologic Region 4). According to the State's 20x2020 Water Conservation Plan, the 2020 Target for Hydrologic Region 4 is 149 gpcd. Using Method 3, the City's 2020 water use target would be 141.6 gpcd (95% of 149). Since the target water use generated by Method 3 is less than the one found using the minimum requirement, no further adjustments to this water use target would be required, if this method is selected.
- Method 4: DWR's Target Method 4 Calculator was utilized to calculate 2020 target water use for the City under this method based on standards consistent with CUWCC BMPs. The City currently meters all water services, so there is no projected metering savings. A default indoor residential water savings of 15 gpcd was assumed. CII savings was calculated to be 5.6 gpcd and landscape irrigation and water loss savings was calculated to be 35.3 gpcd. Using Method 4, the City's 2020 water use target would be 233.4 gpcd. Since the target water use generated by Method 4 is less than the one found using the minimum requirement, no further adjustments to this water use target would be required, if this method is selected.

The discussion and calculations above are summarized in Table 5-1C.

Table 5-1C: 2020 Targets by Method

Method	2020
1	233.4
2	Not Applicable
3	141.6
4	233.4

As shown in Table 5-1, both Method 1 and Method 4 results in the most favorable 2020 water use target level for the City: 233.4 gpcd. The 2015 interim target would then be 262.6 gpcd (mid-point between baseline of 291.7 and 2020 target of 233.4). In the City's 2010 UWMP, the City's 2020 target water use was calculated to be 228 gpcd using Method 1 and the 2015 interim target was calculated to be 256 gpcd. These baselines and targets are summarized in Table 5-1.

Table 5-1: Baselines and Targets Summary

Baseline Period	Start Year	End Year	Average Baseline gpcd[(a)]	2015 Interim Target[(a)]	Confirmed 2020 Target[(a)]
10-15 year	1996	2005	291.7	262.6	233.4
5 Year	2003	2007	286.3		

(a) All values are in gallons per capita per day (gpcd)

5.7 2015 COMPLIANCE DAILY PER CAPITA WATER USE (GPCD)

The City has had lower per-capita water use than its 2015 target for the past seven years since 2009. In 2015, the City's per-capita water use was 215.6 gpcd, which was significantly lower than its 2015 target of 262.6 gpcd as demonstrated in Table 5-2. There were no adjustments to the 2015 target for extraordinary events, economic adjustment, or weather normalization. The City's 2015 per-capita water use of 215.6 gpcd is also lower than its 2020 target of 233.4 gpcd.

5.8 REGIONAL ALLIANCE

The City is not participating in a regional alliance and is submitting their 2015 UWMP individually.

Table 5-2: 2015 Compliance

Actual 2015 gpcd	2015 Interim Target gpcd	**Optional Adjustments to 2015 gpcd** Enter "0" for adjustments not used *From Methodology 8*					2015 gpcd	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events	Economic Adjustment	Weather Normal-ization	TOTAL Adjustments	Adjusted 2015 gpcd		
215.6	262.6	0	0	0	0	215.6	215.6	Yes

(a) All values are in gallons per capita per day (gpcd)

6 SYSTEM SUPPLIES

The City obtains its water supply from two sources: imported surface water purchased from the Metropolitan and local groundwater extracted from the local Hollywood Basin. The imported water is treated by Metropolitan and the groundwater is treated at the City's water treatment plant before being distributed to the City's water system.

The City possesses appropriative local groundwater rights dating back to 1906. The City began purchasing water from Metropolitan in 1941-42 as a supplementary supply to City groundwater production.

In 1970, Metropolitan water purchases began to exceed the City's groundwater production, a trend that has continued to this day. In 1976, the City ceased operating its original groundwater treatment plant and all of its wells. The wells remained out of service until 2003 when a new groundwater treatment plant and four wells were placed into operation.

City water supply for the years 1996 through 2015 is shown in Table 6-1. From 1996 through 2003, all City water supply came from imported water purchased from Metropolitan, which has averaged 95.2 percent of the City's total demand since 1996. Since 2004, the year the new water treatment plant was placed into service, the City has purchased an average of 91.9 percent of its water from Metropolitan, with the remaining 8.5 percent coming from its own groundwater production.

Metropolitan's available supplies have adequately met its member agency's needs for the past 20 years. However, to cautiously preserve its supplies, Metropolitan imposed allocations in 2009 and again in 2015 to address concerns stemming from the ongoing drought. Additionally, in the event of a severe emergency or a failure to agree on an allocation plan, Metropolitan's Administrative Code requires allocations to be generally distributed based on "preferential rights" or cumulative fixed-fees paid. Metropolitan's total minimum supply, absent impacts of a major earthquake or other natural or man-made disaster, is approximately 1.2 Million AFY. Beverly Hills' preferential rights share of that total supply is about 11,800 AFY.

The primary reason the City has relied on Metropolitan to supply most of its water since 1970 is because Metropolitan water is more cost-effective than the combined cost of pumping and treating groundwater. However, even if groundwater pumping and treatment were more cost-effective, the City's four existing wells are not capable of reliably meeting more than 10 percent of the City's existing water demand. Also, there are also limits to the amount of groundwater local groundwater basins can yield, even with the addition of more wells and expansion of the water treatment plant.

Although Metropolitan's water supply has proven to be reliable and cost effective relative to local groundwater production over the years, the ongoing drought has increased the need for the City to develop additional water supply reliability. Accordingly, the City evaluated 19 potential alternatives for increasing the reliability of the City's water supply

and/or for conserving water and reducing system demands that culminated in the preparation of a Water Enterprise Plan (WEP) in July 2015. The plan sets forth a recommended water supply portfolio that is discussed in Section 6.8.

Table 6-1A: City Water Supply 1996 – 2015

Year	Imported Water/ Metropolitan (AFY)	%	Treated Groundwater (AFY)	%	Total Water Supply (AFY)	%
1996	13,368	100	0	0	13,368	100
1997	13,659	100	0	0	13,659	100
1998	13,139	100	0	0	13,139	100
1999	13,545	100	0	0	13,545	100
2000	14,093	100	0	0	14,093	100
2001	13,598	100	0	0	13,598	100
2002	13,598	100	0	0	13,598	100
2003	13,178	97.0	405	3.0	13,583	100
2004	12,188	86.8	1,854	13.2	14,042	100
2005	11,918	89.7	1,362	10.3	13,280	100
2006	12,144	91.4	1,142	8.6	13,286	100
2007	12,775	91.2	1,231	8.8	14,007	100
2008	12,179	90.5	1,273	9.5	13,453	100
2009	11,801	93.3	852	6.7	12,653	100
2010	10,474	90.6	1,088	9.4	11,562	100
2011	10,249	92.6	819	7.4	11,068	100
2012	10,495	91.7	944	8.3	11,439	100
2013	11,114	93.4	779	6.6	11,893	100
2014	11,632	94.8	637	5.2	12,269	100
2015	10,389	99.6	43	0.4	10,432	100
Average % 1996-2015		95.2		4.8		100
Average % 2004-2015		91.9		8.1		100

6.1 PURCHASED IMPORTED WATER

The City's primary source of water supply is water purchased from Metropolitan, a wholesale water agency serving 19 million people in six Southern California counties. Metropolitan was formed in 1928 and is composed of 26 member agencies including both cities and water districts. The City is one of 11 founding members and provides one of the 37 Directors who govern Metropolitan. Metropolitan provides water from the

Colorado River and the State Water Project (San-Joaquin River Delta), and also obtains additional supplies from numerous storage, water transfers, exchanges, water banking, and fallowing projects.

Metropolitan has a legal entitlement to receive water from the Colorado River under a permanent service contract with the Secretary of the Interior. The Colorado River Aqueduct (CRA) transports water from Lake Havasu, at the border of the states of California and Arizona, approximately 242 miles to its terminus at Lake Mathews in Riverside County. The CRA is owned and operated by Metropolitan and has a capacity of 1.2 MAF a year.

Metropolitan also receives water from the San-Joaquin River Delta (Delta) in northern California via the 444-mile-long California Aqueduct (State Water Project or SWP), which is managed by the Department of Water Resources (DWR). The SWP provides imported water to the Metropolitan service area and has provided from 25 to 50 percent of Metropolitan's water supplies. In accordance with its contract with the Department of Water Resources (DWR), Metropolitan has a Table A allocation of 1,911,500 AF per year under contract from the State Water Project.

As a wholesale agency, Metropolitan distributes imported water to its 26 member agencies throughout Southern California. The City of Beverly Hills is one of 15 retail agencies served by Metropolitan. The City has two connections (BH-1 and BH-2) to the Metropolitan Santa Monica Feeder System, each having an operational capacity of 40 cfs or approximately 23,000 AFY (at 80% capacity). The City's Tier 1 rate allocation is 13,380 AFY. Approximately 67% of the City's imported water from the SWP and 33% comes from the CRA.

Metropolitan's total minimum supply, absent impacts of a major earthquake or other natural or man-made disaster, is approximately 1.2 Million AFY. Beverly Hills' preferential rights share of that total supply is about 11,800 AFY.

6.1.1 Metropolitan Import Deliveries under Water Supply Allocation

In April 2015, citing continued drought conditions and reduced allocations from the State Water Project and Colorado River, the Metropolitan Board of Directors approved going into their Water Supply Allocation Plan, this time aimed at cutting imported water deliveries to its member agencies by 15% starting July 1, 2015. During this allocation, MWD could impose a surcharge, ranging from $1,480 to $2,960/AF of additional water for any member agency that failed to meet the 15% reduction. The allocation plan limits water usage for its 26 member agencies based on their dependency on MWD supplies, while considering local supply conditions and past water-saving actions. This WSAP was previously utilized by Metropolitan for about a year and a half in 2010-2012 at a 10% allocation. However, on May 10, 2016, due to lower demands achieved through the region's water saving efforts and improved supply conditions, particularly in Northern California, these restrictions were lifted.

6.2 GROUNDWATER

The City has a history of groundwater production from both the Hollywood Basin and the adjacent unadjudicated portion of the Central Groundwater Basin (Central Basin) referred to as the La Brea Subarea. The City's secondary source of water supply behind imported surface water purchased from Metropolitan has been groundwater pumped from the Hollywood Basin, which is bounded on the north by Santa Monica Mountains and the Hollywood fault, on the east by the Elysian Hills, on the west by the Inglewood fault zone, and on the south by the La Brea High, formed by an anticline that brings impermeable rocks close to the surface.

The Basin has a surface area of 10,500 acres (16.4 square miles) of mostly flat to mildly hilly terrain and underlies the northeastern part of the Coastal Plain of Los Angeles Groundwater Basin.

The Basin has water formations that include unconsolidated and semi-consolidated marine and alluvial sediments deposited over time. The San Pedro Formation (Jefferson, Lynwood, Silverado, and Sunnyside) and the shallower aquifers of the Lakewood Formation (Exposition and Gage) are the major production aquifers. The Gage aquifer is the major water-bearing aquiver of the basin. However, aquifers in the basin are not highly transmissive and do not yield significant amounts of groundwater expect in the deeper aquifers of the San Pedro Formation, which is located in the western part of the Basin.

Percolation from precipitation, surface stream flows, and subsurface inflows from the Santa Monica Mountains naturally replenish the Hollywood Basin. Direct percolation has decreased significantly due to urbanization, and natural replenishment to the Basin's water-bearing formations is limited to only a small portion of basin soils. The basin does not receive any artificial recharge through injection wells or spreading basins, and groundwater production is limited by low safe-yield limits.

Groundwater flow in the Basin is generally from the Santa Monica Mountains to the north and out towards the Central Basin to the south. The USGS has estimated groundwater outflows of about 5,900 AFY to the Central Basin, but there are no formal agreements regarding this outflow. The total Hollywood Basin storage is estimated to be approximately 200,000 acre-feet (MAF) and the natural safe yield is estimated to be about 3,000 AFY. As the Basin does not receive artificial recharge, the actual annual pumping limits are equal to the natural safe yield of 3,000 AFY.

Groundwater levels in the Basin are generally at or above mean sea level (MSL) and aquifers in the western portion of the Basin, which is the main groundwater producing zone, are estimated up to 660 feet in depth. The water bearing thickness ranges from 60 to 175 feet.

Seawater intrusion is not a risk to the City's groundwater supply due to its distance from the ocean and because the Newport-Inglewood uplift restricts outflows from the Santa Monica Basin, which has a higher risk of seawater intrusion. Accordingly, there are no seawater intrusion barriers in the Hollywood Basin.

There are no spreading grounds in the Hollywood Basin because of natural replenishment and mild pumping. Groundwater levels are monitored and the City also works closely with other agencies in the Basin to prevent overdraft.

The Hollywood Basin is unadjudicated. The City of Beverly Hills manages the Basin through municipal ordinances that regulate the production of groundwater, prohibit waste, protect water quality and require dewatering activities to mitigate adverse impacts on the Hollywood Basin. The California Department of Health Services provides additional oversight of the Basin's groundwater quality and help monitor contaminant levels.

The City pumps groundwater from the Hollywood Basin to the City's water treatment plant via City Well Nos. 2, 4, 5 and 6. Groundwater pumped from the basin from 2011 through 2015 is shown in Table 6-1.

Table 6-1: Groundwater Volume Pumped

Groundwater Type	Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	Hollywood Basin	933.0	961.8	971.9	727.4	106.8
Total		933.0	961.8	971.9	727.4	106.8

The wells pump the groundwater to the City's water treatment plant, where approximately 60 percent of the feed water is directed to a two-stage reverse osmosis (RO) treatment train, with the remaining 40 percent bypassing that train. The bypass provides a blended final treated water that contains sufficient calcium hardness and alkalinity to maintain a stable final water quality.

The RO system consists of two stages with 20 pressure vessels in the first stage and 10 in the second stage. Each vessel contains seven RO membrane elements. The RO System is physically arranged in three parallel banks of 10 vessels. The water is fed to the first 20 elements (arranged in two banks) where approximately half of the water is produced as a high quality permeate.

The concentrate waste from the first stage is further directed to the second stage where additional permeate is produced. Permeate from both stages is blended together to produce a final RO permeate stream. Approximately 78 percent of the feed water becomes treated permeate, with the remaining 22 percent concentrate stream diverted as waste to sewer. The combined RO permeate and treated bypass water are then blended in a clearwell, where sodium hypochlorite is added to provide a free chlorine in the clearwell.

City well production compared with treatment plant production for the years 2011 through 2015 is shown in Table 6-1B. Water is lost in the treatment process due to creation of brine, which is discharged to the sewer system, and the percentage of lost water has increased since 2011. The treatment plant (as well as City groundwater production) has been out of service since January 2015 as the plant is currently

undergoing rehabilitation. The treatment plant and City groundwater production is anticipated to be back in service later in 2016.

6.2.1 Sustainable Groundwater Management Act of 2014

Historically, California has never managed its groundwater supplies on a state-wide basis. That has now changed. As of January 1, 2015, the Sustainable Groundwater Management Act (SGMA), signed by Governor Edmund G. Brown in September 2014, will regulate the use of groundwater on a more universal scale.

Table 6-1B: Raw & Treated Groundwater Production (AFY)

Groundwater Production	2011	2012	2013	2014	2015
Well Production	933.0	961.8	971.9	727.4	106.8
Treatment Plant Production	799.5	775.1	737.8	484.7	42.5
Plant Losses %	14.3%	19.4%	24.1%	33.4%	60.2%
Total	933.0	961.8	971.9	727.4	106.8

The new law will have profound practical impacts, particularly on the state's agricultural community. Issues raised by the SGMA – some of which will doubtless play out in protracted court battles – will shape western water law and policy for years to come. At the same time, the SGMA's emphasis on local groundwater management should provide an unprecedented opportunity to shape California's future, for those whose livelihoods and involvement in the larger economy are fundamentally dependent on access to the state's groundwater resources.

6.2.1.1 California's Approach to Managing Groundwater

Until now, the right to use groundwater in California has been viewed as a property right attached to overlying surface lands. In *City of Pasadena v. City of Alhambra,* for example, the California Supreme Court stated that the "overlying right," or right of the owner of the land to take water from the ground underneath for use on his overlying land "...is based on ownership of the land and is appurtenant thereto." Under the doctrine of correlative rights, land owners had a common right to the beneficial use of percolating waters underlying their property. When an underlying aquifer became overdrawn, courts could allocate pumping rights among overlying land owners through an adjudicatory procedure.

The SGMA adopts a fundamentally different strategy for managing the State's groundwater resources. At the heart of the new law is a requirement to implement sustainability plans for the majority of groundwater basins throughout the state, including many on which California's agricultural community are highly dependent. These plans can vary from simple basin-wide plans developed and implemented by individual local

agencies, to multiple plans by different local agencies operating in the same basin, to state-imposed plans where no sufficient local plan exists.

While sustainability plans must contain a number of specific requirements, by far the most significant is that they be designed to meet what the SGMA calls the "sustainability goal" within 20 years of implementation. The sustainability goal is, in short, a stated objective to "achieve sustainable groundwater management" by ensuring that a given basin is "operated within its sustainable yield." In other words, the basin must be operated in such a way as not to cause "undesirable results." Many of these standards leave a great deal of interpretive work to regulatory agencies and ultimately to the courts. Disputes over the on-the-ground, practical meaning of key terms such as "sustainable groundwater management," "sustainable yield," and "undesirable results," for example, almost certainly will wind up in litigation.

The SGMA also contains procedural requirements for plan development and implementation, and exempts many activities involved in that process from the environmental review requirements of the California Environmental Quality Act ("CEQA").

While the SGMA will regulate California's groundwater on a statewide basis for the first time, it does not cover every groundwater basin within the state's jurisdiction, nor will its impacts be felt immediately. The statute generally does not apply to specified basins that have already been adjudicated under existing law, for example, and it does not require sustainability plans from basins considered to be low priority. Moreover, sustainability plans need not be implemented for several years, and affected basins are not required to attain sustainability goals until approximately 2040.

That said, the California Department of Water Resources (DWR) has estimated the SGMA will cover 96 percent of groundwater used in California. California water users cannot afford to wait to get involved in efforts now underway to shape the manner in which the statute is applied.

The Central Basin has been designated as a high priority under SGMA. The Central Basin is largely adjudicated, however the La Brea Sub Basin, where the City of Beverly Hills is planning a well field, was excluded from the adjudication. The adjudicated portion of the Central Basin does not require a sustainability plan or other type of basin management. However, the un-adjudicated La Brea Sub Basin will require the formation of a Groundwater Sustainability Agency (GSA) and a sustainability plan. The Hollywood Basin is rated very low and at this time is exempted from the SGMA program.

6.2.1.2 The Importance of Local Control

In enacting the SGMA, the California legislature sought to "manage groundwater basins through the actions of local governmental agencies to the greatest extent feasible." For the most part, any local agency with water supply, water management, or land use

responsibilities in a given groundwater basin (or a combination of such agencies) can become the groundwater sustainability agency for that basin.

The SGMA gives sustainability agencies a number of powers and authorities in addition to those they already may possess. Agencies are authorized (among other things) to conduct investigations; require registration of facilities that extract groundwater; require said facilities to measure the amount of water they extract; acquire property including water rights; regulate, limit or allocate groundwater extraction; and authorize transfers of groundwater allocations. They also have the power to "impose fees, including…permit fees and fees on groundwater extraction" to support their activities, and to bring enforcement actions seeking civil penalties for violations relating to rules implemented pursuant to the SGMA.

The SGMA's use of local planning and management—as opposed to purely centralized state control—should be viewed as valuable opportunities for informed and proactive water users to have a say in groundwater sustainability planning from the start.

A GSA will need to be formed by June 30, 2017 to manage the La Brea Sub Area. The formation will require involvement of other potential stakeholders, including the Central Basin Municipal Water District and the City of Los Angeles. The sub basin lies within the City of Los Angeles jurisdiction and it has principal land use responsibility.

6.2.1.3 State Oversight and Intervention

While the SGMA generally emphasizes local management of groundwater resources, it does provide for state involvement on a number of levels. For example, DWR must develop and publish best management practices for sustainable groundwater management, and it is responsible for reviewing sustainability plans every five years to ensure compliance with the SGMA. In addition, the State Water Resources Control Board (SWRCB or State Board) can "designate a basin as a probationary basin" for failure to develop a groundwater sustainability plan where one is needed, or for implementation of an insufficient plan. If a local agency fails to remedy the problem that led to a designation, the State Board may adopt its own interim sustainability plan for the basin.

DWR is also tasked with establishing the initial priority for the state's groundwater basins, a job of considerable consequence given that many of the SGMA's requirements apply only to those basins designated as high or medium priority. DWR has announced that the basin designations it finalized under the California Statewide Groundwater Elevation Monitoring (CASGEM) program will serve as the initial prioritization required by the SGMA.

There is no doubt that implementation of the law will be controversial and will invariably generate considerable litigation, particularly in California's Central Valley. Looming restrictions on the use of groundwater by the state's agricultural community, at a time when other resources have become increasingly scarce, will have severe impacts on farms and ranches throughout the state. Ranchers, farming interests and water districts

already are lining up to position themselves to avoid the most onerous potential consequences of the new regulatory regime.

6.2.1.4 Timeline

Important scheduled milestones that have occurred and are upcoming for implementation of the SGMA are as follows:

- September 16, 2014: Groundwater management legislation becomes law

  Governor Brown signed Senate Bill 1168, Assembly Bill 1739, and Senate Bill 1319, which made up the groundwater management legislation package.

- January 1, 2015: Legislation goes into effect

  The SGMA became effective.

- January 31, 2015: DWR must establish initial groundwater basin priority

  DWR established the initial priority – high, medium, low or very low – or each groundwater basin in the state by the end of January 2015 (Water Code § 10722.4).

- January 1, 2016: DWR must set emergency regulations for basin boundary revision

  DWR adopted emergency regulations for groundwater basin boundary revisions by January 1, 2016. The regulations must include the methodology and criteria used to evaluate proposed boundary revisions, including the establishment of new sub basins (Water Code § 10722.2).

- June 1, 2016: DWR must establish emergency regulations for evaluating plans

  DWR to adopt emergency regulations for evaluating GSPs and their implementation and coordination agreements among local agencies for ground water sustainability planning. The regulations must identify GSP components and information to assist plan and coordination agreement development and implementation (Water Code § 10733.2).

- December 31, 2016: DWR estimate of water available for groundwater replenishment due

  DWR to publish its estimate of the water available for groundwater replenishment on its website (Water Code § 10729(c)).

- January 1, 2017: Basin deadline to submit alternative to a GSP

  Medium- and high-priority basins choosing to meet sustainability objectives by ways other than groundwater sustainability planning (which includes not forming a GSA) must submit their alternatives to DWR (and then again every five years) (Water Code § 10733.6).

- January 1, 2017: DWR will establish best management practices for sustainable management

  DWR to publish best management practices for the sustainable management of groundwater on its website (Water Code § 10729(d)).

- June 30, 2017: Deadline to form a GSA

  A local agency or agencies in each high- or medium-priority groundwater basin must have officially formed one or more (GSAs) for the entire basin (Water Code §5 10724, 10735.2(a)(1))

- June 30, 2017: State Water Board can begin to put basins on probation

  The State Water Board can initiate probationary status to a medium- or high-priority basin if the basin lacks one or more GSA(s) that covers the entire basin or no alternative has been approved (Water Code § 10735.2(a)(1)).

- July 1, 2017: Those pumping in a probationary basin must report extractions

  Pumping groundwater in a basin that either has been designated as a probationary basin or lies outside a GSA's management area must be reported to the State Water Board. These reporting requirements do not apply to those extracting for domestic purposes 2 AFY or less, and some others (Water Code §§ 5202, 10724).

- January 31, 2020: GSPs required for critically over drafted basins

  Basins designated as high- or medium-priority and subject to critical conditions of overdraft must be managed under a GSP or GSPs. The State Water Board can initiate probationary status for all or part of a basin if there is no GSP, if the GSP is inadequate, or the GSP implementation will not likely achieve sustainability (Water Code § 10720.7(a)(1), 10735.2(a)(2), 10735.2(a)(3)).

- January 31, 2022: GSPs required for all remaining high- and medium- priority groundwater basins

  All remaining basins designated as high- or medium-priority must be managed under a GSP or GSPs. The State Water Board can initiate probationary status in 2022 for all or part of a basin if there is no GSP, if the GSP is inadequate, or the GSP implementation will not likely achieve sustainability except for basins where groundwater extractions result in significant depletion of interconnected surface waters (Water Code § 10720.7(a)(2), 10735.2(a)(4), and 10735.2(a)(5)(A)).

- January31, 2025: State Water Board actions where extractions impact surface waters

  The State Water Board can initiate probationary status for those medium- or high-priority basin where the GSP is inadequate or implementation is not likely

to achieve sustainability and the basin is in a condition where groundwater extractions result in significant depletion of interconnected surface waters (Water Code § 10735(a)(5)(B).

6.2.1.5 Conclusions

The two groundwater basins from which the City is presently pumping and from which the City plans to continue pumping groundwater are included in the SGMA. The basins are the Hollywood Basin and the La Brea Sub Area of the Central Basin. The Hollywood Basin is ranked as very low priority and is not included in the SGMA program. The Central Basin as a whole is ranked as high priority. The majority of the Central Basin is adjudicated and is generally not subject to SGMA. However, the La Brea Sub Area (which is the unadjudicated portion of the Central Basin) is subject to SGMA.

To comply with the SGMA, the City will need to establish a Groundwater Sustainability Agency (GSA). The deadline for establishing the GSA is June 30, 2017. Since the La Brea Sub Area is largely overlain by the City of Los Angeles, it will be necessary to include them in the formation of the GSA. The GSA will then be the entity that will ensure compliance with the SGMA requirements and develop and adopt a Groundwater Sustainability Plan (GSP) by January 31, 2020.

6.3 SURFACE WATER

The City does not use, or plan to use, self-supplied surface water as part of its water supply.

6.4 STORMWATER

Although the City is currently not using stormwater to meet local water supply demands at this time, the City is investigating the feasibility of capturing urban runoff in public medians and parks and using the water for irrigation. This is a control measure prescribed to meet stormwater quality regulations. Capturing urban runoff from large drainage areas has the potential to offset hundreds of acre-ft of park and median irrigation per year. In addition, the City is looking at the feasibility of treating this water and using it to recharge the groundwater aquifer.

Similarly, the City adopted the Low Impact Development (LID) Ordinance that requires development projects to capture and/or infiltrate the first inch of rain of a storm event. Runoff from these projects are required to be diverted to landscape or pervious areas or collected for irrigation. If these concepts and projects are deemed successful, the City will look to expand upon these projects.

6.5 WASTEWATER AND RECYCLED WATER

The City collects sanitary wastewater flows within the City via a City sewer system that conveys the flows to trunk sewers operated and maintained by the Los Angeles Bureau of Sanitation (L.A. Bureau of Sanitation). The trunk sewers convey the wastewater to the

Hyperion Wastewater Treatment Plant that is owned by the City of Los Angeles and operated by the L.A. Bureau of Sanitation. City of Beverly Hills metered wastewater flows totaled 6,300 AFY (5.65 MGD) in 2015. City wastewater characteristics are shown in Table 6-2.

Initially built as a raw sewage discharge plant into the Santa Monica Bay, Hyperion has been upgraded over the years to secondary and full secondary treatment. Hyperion's full treatment capacity is 450-850 MGD and secondary treatment capacity is 450 MGD.

West Basin Municipal Water District, a water wholesaler that provides imported and recycled water to 17 cities in the Los Angeles region, purchases approximately 12 percent of Hyperion's secondary effluent for treatment at the Edward C. Little Water Recycling Facility, where most of the water is treated to meet California Code of Regulations Title 22 tertiary standards for uses as recycled water including groundwater replenishment, injection into the seawater intrusion barrier, industrial use, irrigation, and other reuse purposes. The plant, which has a current tertiary treatment capacity of 62,700 AFY, produced approximately 58,000 AFY tertiary Title 22 recycled water in 2015.

Table 6-2: Wastewater Collected Within Service Area in 2015

Wastewater Collection			Recipient of Collected Wastewater		
Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected in 2015 (AFY)	Wastewater Treatment Agency	Treatment Plant Name	Is WWTP Located Within UWMP Area?
L.A. Bureau of Sanitation	Metered	6,300	L.A. Bureau of Sanitation	Hyperion	No
Total		6,300			

The City currently does not receive any recycled water supply. The City is approximately 15 miles from the nearest West Basin recycled water transmission main and the costs to construct infrastructure to connect the City to the existing West Basin recycled water system would be prohibitive at this time. If the West Basin recycled water system were to expand closer to the City in the future, then recycled water supply from West Basin could become more economically feasible. Wastewater treatment and discharge characteristics associated with the City are shown in Table 6-3.

The City of Los Angeles prepared a Recycled Water Master Plan, which proposed a three-phased expansion recycled water use throughout the region. As a part of the third phase of this program, this plan proposed delivering water to Los Angeles Country Club, which is adjacent to the southwesterly boundary of the City of Beverly Hills. This recycled water expansion program was estimated to be phased over approximately 20 years and is detailed in the WEP. In the WEP, it was recommended that extension into the City of Beverly Hills be evaluated if and when the final phase of the proposed expansion program comes to fruition.

Table 6-3: Wastewater Treatment and Discharge Within Service Area in 2015

WW Treatment Plant	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2015 Volumes			
				WW Treated	Discharged Treated WW	Recycled Within Service Area	Recycled Outside of Service Area
Hyperion[a]	Ocean outfall	Yes	Full Secondary	465,000	379,000	0	86,000
Total				465,000	379,000	0	86,000

(a) Hyperion treats to full secondary with the majority of treated effluent conveyed to an ocean outfall. Approximately 6% of effluent is recycled for local cooling tower usage and approximately 12% is conveyed to West Basin's Edward C. Little Water Recycling Facility, where most of the water is treated to Title 22 standards for recycled water use.

Recently Metropolitan and the County of Los Angeles Sanitation Districts announced a joint proposal to add Advanced Wastewater Treatment facilities to the County Sanitation District's Joint Water Pollution Control Plant in Carson that could result in the reuse of up to 168,000 AFY of wastewater in a similar manner to Orange County Water District's Groundwater Replenishment System.

Under this program, water would be purified at the plant, then injected or spread into local groundwater basins, before being pumped out and used as drinking water. A 1-MGD demonstration plant is currently in the design phase. The new advanced water treatment plant would be located on Sanitation Districts' property at the Carson site, and the purified water would be distributed to groundwater basins in Los Angeles and Orange Counties through a 30-mile network of new distribution pipelines. The program's first operational phase could produce about 67,000 acre-feet of recycled water per year. Additional phases could bring total production up to 168,000 acre-feet.

6.6 DESALINATED WATER OPPORTUNITIES

Over an eight year period, West Basin conducted ocean water desalination pilot testing at the El Segundo Power Generating Station and assessed the feasibility of converting ocean water into drinking water. Various water treatment technologies including high-rate pre-screening, microfiltration/ultrafiltration, reverse osmosis, etc. were piloted and extensive water quality monitoring of the raw ocean source water, discharge concentrate, and product water quality was performed. As a result of this testing, West Basin concluded that ocean water desalination could be a viable alternative water supply and additional research was needed to further develop it as a future water supply resource.

West Basin is currently conducting larger scale testing at their Ocean Water Desalination Demonstration Facility (OWDDF) at the SEA Lab in Redondo Beach. The OWDDF was completed in 2010 and has been operating continuously. The OWDDF is providing West

Basin with the opportunity to build on the operational protocols and challenges from piloting to establish environmentally-effective and sustainable intake technologies, determine an approach to energy usage and optimization/minimization, develop process optimization protocols, determine operational requirements, establish target water quality goals, and evaluate concentrate discharge management options. The OWDDF includes an evaluation of passive screening and subsurface intake systems, energy consumption and optimization analysis and an intensive brine discharge study. The results of the two to three year demonstration project will be used as the foundation for development of a full-scale design, permitting, and operations approach.

The City will look to participate in future water desalination projects with West Basin when the opportunity arises.

6.7 EXCHANGES OR TRANSFERS

The City currently does not participate with other water agencies on water exchanges or transfers into or out of the City's water service area, but will evaluate future opportunities as they arise.

6.8 FUTURE WATER PROJECTS

The City evaluated 19 potential alternatives for increasing the reliability of the City's water supply and/or for conserving water and reducing system demands that culminated in the preparation of a Water Enterprise Plan (WEP) in July 2015. The plan sets forth the following recommended water supply portfolio:

1. Groundwater – Developing three new groundwater wells capable of producing a total of approximately 1,700 AFY (net production) in the unadjudicated portion of the Central Basin (Future Water Project).
2. Water Treatment – Rehabilitating the City's existing reverse osmosis water treatment plant to allow efficient treatment of water produced from two recently approved shallow groundwater wells and four existing City wells in the Hollywood Basin (Future Water Project).
3. Water Bank – Participating in a regional water bank, allowing the City to access stored water during severe drought conditions (Future Water project).
4. Water Conservation – Implementing a Water Conservation program complying with both Senate Bill SBx7-7 and tailored to the unique characteristics of Beverly Hills.
5. Metropolitan Water District (Metropolitan) – Continuing to rely on Metropolitan purchases to meet the majority of the City's water demands.
6. City Staffing – Augmenting current City staff levels with new full time positions to help implement the recommended water supply portfolio.

6.8.1 Developing New Groundwater Wells in Unadjudicated Portion of Central Basin

The new water project is the development of groundwater from the La Brea Subarea (LBSA) of the unadjudicated portion of the Central Basin using three new production wells, which is based on the City's historical production from the LBSA. Several groundwater aquifers are present within the Central Basin and the U.S. Geological Survey (USGS) has estimated average natural recharge into the adjacent Hollywood Basin (which discharges to the LBSA) at over 6,000 acre-feet per year (AFY).

The current estimate for production from the LBSA would be approximately 1,700 AFY. Preliminary calculations indicate a requirement for three wells, each producing approximately 800 gpm. The preliminary location would be similar to the previously installed wells near the intersection of Ballona Creek and the U.S. Interstate 10 Freeway. The concept would also require approximately 23,000 feet of pipeline from the production wells back to the existing treatment plant located at the Department of Public Works facility.

The treatment plant would need to expand its current capacity for finished total blended potable water of 2.35 million gallons per day (MGD) to 3.90 MGD. Based on preliminary information, the treatment plant capacity could be expanded to 4.7 MGD at its current location.

The proposed source of the water supply alternative is unrelated to water delivered by Metropolitan (which largely relies on availability of water from the California State Aqueduct and the Colorado River Aqueduct). The proposed water source relies on natural recharge to underlying aquifers in the unadjudicated portion of the Central Basin. The La Brea Sub Area or LBSA, which constitutes a portion of the unadjudicated portion of the Central Basin, contains a quantity of water in storage and also receives (in an average year) approximately 6,000 AFY in mountain front recharge. Utilization of this source of water supply would increase reliability of the water delivered to the City.

The implementation schedule anticipates that a Feasibility Study/Pilot Well Study could be completed by the end of 2017 with Final Design completed by June of 2019. Construction of the pipeline and wells, treatment plant upgrade, and system testing could be completed by June of 2022.

6.8.2 Firming Up Hollywood Basin Groundwater

The new water project entails developing shallow groundwater from the Hollywood Basin as an alternative water supply for the City. Historically, the City has developed groundwater in the Hollywood Basin using deep groundwater wells completed into the San Pedro Formation. Shallow groundwater was not being captured by existing production wells.

It is envisioned that two shallow, municipal-supply water wells near the existing treatment plant can be constructed, tested, and eventually supply water from the shallow

zone groundwater system at a combined supply capacity of approximately 400 gpm for an estimated production of 350 AFY. It is estimated that the existing water treatment plant has the capacity to treat this additional flow without expansion. In fact this additional flow will bring the plant up to full capacity, which provides the City with a more-economical unit cost for operating the treatment plant.

The source of the proposed water supply alternative will not rely on water delivered by Metropolitan (which largely relies on availability of water from the California State Aqueduct and the Colorado River Aqueduct). The water source relies on natural recharge to underlying aquifers in the Hollywood Basin. The Hollywood Basin contains a quantity of water in storage and receives approximately 5,800 AFY in mountain front recharge. Tapping this source of water supply would increase reliability of the water delivered to the City.

Assuming the design can be finalized by June 2015, well installation completed by January 2016, and one year of required testing completed by the California Department of Water Resources, the wells could be ready to supply water to the treatment plant as early as January 2017 (assuming the design and installation of the pipeline is done concurrently with well installation and testing).

6.8.3 Participation in Regional Water Bank

Groundwater banking is a water management tool designed to increase water supply reliability. By using dewatered aquifer space to store water during wet years (years when there is abundant rainfall and surplus water available), it can be pumped and used during dry years (years with little rainfall and no surplus water). Water banking is a long-term investment of 30 years or more so participation in a bank should be a well thought-out decision.

Groundwater banking is accomplished through in-lieu and direct recharge. In-lieu recharge is storing water by utilizing surface water "in-lieu" of pumping groundwater, thereby storing an equal amount in the groundwater basin. Direct recharge stores water by allowing it to percolate directly to storage in the groundwater basin.

Most of the available water banking programs in Southern California are located in Kern County. In wet years when surface water is abundant, the Kern County water banks store water in the groundwater basin primarily through in-lieu recharge. The member district delivers surface water to farmers for irrigation in-lieu (or instead of) pumping groundwater. Surface water can be either State Project Water or runoff from local rivers. The banks also store water through direct recharge. Throughout the member agencies' service area, there are a number of recharge basins where water percolates to the groundwater basin.

Whenever necessary, the "banked" water is returned to the State Water Project (SWP) to deliver to banking partners by a release of contract entitlement or, in some cases, through

pumping back to the California Aqueduct. The California Aqueduct, part of the SWP, can deliver water to most of Southern California.

The SWP is water storage and delivery system composed of reservoirs, aqueducts, power plants and pumping plants. Its main purpose is to store water and distribute it to 29 urban and agricultural water suppliers in Northern California, the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California. The project delivers water to two-thirds of California's population and is maintained and operated by the California Department of Water Resources.

Participation in a water bank would provide the City with improved overall water supply reliability in times of drought, filling in shortfalls created by a reduction in delivery of Metropolitan-sourced water. Access to a water bank would provide a supplemental water supply outside of Metropolitan.

During wet periods, the City would purchase surplus water. That surplus water would be purchased either from the SWP, Metropolitan, or another provider and then diverted to the water bank for storage. Water would be extracted and delivered to the City in times of drought, a reduction in Metropolitan allocation, or during an outage of one or more wells. However, in most cases, the City would only be able draw out what it banked. Extraordinary supplies such as banked water are exempt from the Metropolitan allocation formula during a period of allocation.

There are several different water banking operational, financial and management models. The example discussed here is from the Willow Springs Water Bank located in the Antelope Valley in southern Kern County.

Water delivery to the City from the water bank would entail pumping from the water bank and transporting the water to the City via the SWP's California Aqueduct to Metropolitan's delivery system, and then to the City.

The City will evaluate the viability of participating in a water banking program to improve overall water supply reliability and offset any water supply shortfalls during drought periods. If deemed viable, it would take at least two years to negotiate terms and conditions to join a water bank and make the initial purchase of banking water. It could take an additional three to five years to obtain low cost water to supply the bank.

6.8.4 Increased Water Conservation

Increased water conservation is not a new water supply project, but it offers the same benefit by separating demand limits from supply limits especially during times of drought. Permanently reducing water demands is more effective than obtaining an equivalent amount of additional water supply. And if some of that reduction is inside the home or business, it will also reduce the agency's sewage collection and treatment requirements and costs.

Through the implementation of City water conservation ordinances and measures discussed in Chapter 9, total per-capita City water use has significantly dropped from 275.8 gpcd in 2005 to 237.1 gpcd in 2010 to 215.6 gpcd in 2015 (a reduction of 21.5 percent).

In April 2015, Governor Jerry Brown issued an executive order requiring the State Water Resources Control Board to implement measures to cut the State's overall water usage by 25% due to the continuing drought. The executive order mandates a 25% reduction in supply to California's approximately 400 water control agencies and requires water agencies and cities to reduce water use 25% (on average) below 2013 levels by the end of February 2016, with usage reported to the State by water suppliers. Cities and water agencies were assigned various reduction goals, and the City of Beverly Hills reduction goal was set at 32%.

City water use has decreased a cumulative 19.3 percent for the first nine recording months (June 2015 through March 2016) relative to year 2013 water usage in response to the City's conservation goal set by the State, which has been extended to October 2016 or as long as the drought continues.

As presented in Section 5, the City's 2020 target conservation goal was recalculated at 233.4 gpcd, with a 2015 interim target of 261.4 gpcd. The City has had lower per-capita water use than its 2015 target for the past seven years since 2009. In 2015, the City's per-capita water use was 215.6 gpcd, which was significantly lower than its 2015 target of 261.4 gpcd and is also lower than its 2020 target of 233.4. However, this was after per-capita water usage increased to 250.2 gpcd in 2014.

Although many of the water conservation measures already implemented and being implemented by City customers such as turf removal, conversion to drought resistance landscapes, conversion to more efficient irrigation systems and ET-based irrigation controllers, retrofits to high efficiency clothes washers and toilets, implementation of weather-based irrigation controllers, etc. will have permanent effects on water use (reduction) in the future, additional water conservation measures will be required to help retain a significant percentage of the water conservation attained in 2015 after the drought ends.

In addition to the water conservation measures already undertaken by the City, the following types of programs will be pursued:

1. Analytic/Public Engagement Program for public and quasi-public customers
2. Analytic/Public Engagement Program for single-family residential customers
3. System Loss Reduction/Operational Enhancement Program
4. Enhanced Supplemental Rebate Program

These programs and other City water conservation efforts are discussed in Section 9.

The local portions of the City's water supply portfolio coming from groundwater are fairly fixed and not subject to fluctuation due to conditions outside the City's control.

These conditions include reductions in imported supply from drought, which is dependent to a large degree on the reliability of the State Water Project and Colorado River Aqueduct systems. The more City demands can be reduced through conservation, the more reliable the City's portfolio will be since a permanent demand reduction will directly reduce the need for imported water, thus reducing the degree of reliance on that source.

6.8.5 Continued Imported Water Supply from Metropolitan

Imported water purchased from Metropolitan is not a new water supply project; it has been the primary source of water for the City since 1970 and has been reliable for the most part. Metropolitan water is more cost-effective than the combined cost of pumping and treating groundwater for the City. Also, there are also limits to the amount of groundwater local groundwater basins can yield, even with the addition of more wells and expansion of the water treatment plant. Accordingly, imported water from Metropolitan is envisioned to remain the primary water supply source for the City.

6.8.6 City Staffing Enhancements

To help implement the recommended water supply portfolio, the City will augment current City staff levels over the next few years with new full-time positions. The new positions may include a Water Resources Manager, a Water Conservation Coordinator, three Engineering Project Managers, three Water Treatment Plant Operators, a Pump/Well Mechanic, a Pump Well/Electrician and a Water Distribution Operator.

6.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

The City obtains its water supply from two sources: imported surface water purchased from the Metropolitan Water District of Southern California (Metropolitan) and local groundwater extracted from the local Hollywood Groundwater Basin (Hollywood Basin). The imported water is treated by Metropolitan and the groundwater is treated at the City's water treatment plant before being distributed to the City's water system. Since 1996, imported water purchased from Metropolitan as accounted for 95 percent of the City's total water supply with the remainder coming from groundwater production.

Although Metropolitan's water supply has proven to be reliable and cost effective relative to local groundwater production over the years, the ongoing drought has increased the need for the City to develop additional water supply reliability. Accordingly, the City developed and are planning to implement three new water supply projects as an outgrowth of the City's Water Enterprise Plan (WEP) prepared in July 2015:

- Developing three new groundwater wells capable of producing a total of approximately 1,700 AFY (net production) in the unadjudicated portion of the Central Basin (Future Water Project). The implementation schedule anticipates that a Feasibility Study/Pilot Well Study could be completed by the end of 2017 with Final Design completed by June of 2019. Construction of the pipeline and

wells, treatment plant upgrade, and system testing could be completed by June of 2022.

- Rehabilitating the City's existing reverse osmosis water treatment plant to allow efficient treatment of water produced from two recently approved shallow groundwater wells and four existing City wells in the Hollywood Basin (Future Water Project). Assuming the design can be finalized by June 2015, well installation completed by January 2016, and one year of required testing completed by the California Department of Water Resources, the wells could be ready to supply water to the treatment plant as early as January 2017 (assuming the design and installation of the pipeline is done concurrently with well installation and testing).

- Participating in a regional water bank, allowing the City to access stored water during severe drought conditions (Future Water project). It will take at least two years to negotiate terms and conditions to join a water bank and make the initial purchase of banking water. It could take an additional three to five years to obtain low cost water to supply the bank.

The City currently does not receive any recycled water supply. If the existing West Basin recycled water system were to expand closer to the City in the future, then recycled water supply from West Basin could become more economically feasible. For this 2015 UWMP, future recycled water supply is not counted upon.

A summary of expected future water supply projects or programs for the City is shown in Table 6-7. The City's actual water supplies for 2015 and projected supplies for 2020 through 2040 are shown in Table 6-8 and Table 6-9, respectively.

6.10 CLIMATE CHANGE IMPACTS TO SUPPLY

Climate change impacts to Metropolitan water supplies and Metropolitan's activities related to climate change concerns are discussed in Section 4.6.

Table 6-7: Expected Future Water Supply Projects or Programs

Name	Joint Project with other agencies?		Description	Year Planned	Planned Year- Type	Expected Supply
Develop wells in La Brea Subarea of Central Basin	No	-	Develop 3 wells each producing 800 gpm	2022	All Year Types	1,700
Develop shallow wells in Hollywood Basin	No	-	Develop 2 wells each producing 200 gpm	2017	All Year Types	350
Participate in regional water bank	Yes	MWD	-	2022	Single-Dry Year	Unknown at this time

Table 6-8: Water Supplies — Actual

Water Supply	Additional Detail on Water Supply	2015	
		Actual Volume	Water Quality
Purchased or Imported Water	Treated Metropolitan water	10,389	Drinking Water
Well Production	Hollywood Basin; Treated at City Plant	43	Drinking Water
Total		10,432	

Table 6-9: Water Supplies — Projected

Water Supply	Additional Detail	Projected Water Supply				
		2020	2025	2030	2035	2040
		Volume[a]	Volume[a]	Volume[a]	Volume[a]	Volume[a]
Purchased or Imported Water	Treated Metropolitan water	9,104	7,482	7,562	7,744	7,728
Groundwater	Hollywood Basin	2,000	2,000	2,000	2,000	2,000
Groundwater	LBSA of Central Basin	-	1,700	1,700	1,700	1,700
Total		11,104	11,182	11,262	11,344	11,428

(a) Supply expected to be reasonable available

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7 WATER SUPPLY RELIABILITY ASSESSMENT

7.1 CONSTRAINTS ON WATER SOURCES AND RESPONSE PROGRAMS

Two of the most significant constraints on water supply for the City and for Southern California has been the drought that started in 2012 and has persisted into 2016, and Sacramento-San Joaquin River Delta ecosystem issues that affect imported water supply from the State Water Project. The water conditions that the region faced in 2015 were shaped by supply conditions and resource actions that occurred in the preceding years, including several extraordinary events, such as:

- Historic drought in California leading to record low contract supplies available from the State Water Project in 2014 (five percent of contract supplies) and in 2015 (20 percent of contract supplies);
- An extended 16 year drought in the Colorado River watershed that has decreased storage levels in Lake Mead and Lake Powell to 38 percent and 51 percent of capacity respectively at the end of November 2015 and keeping storage below surplus levels despite an ease in drought conditions in 2014 and 2015;
- Groundwater basins and local reservoirs dropping to very low operating levels due to record dry hydrology in Southern California;
- Restrictions of SWP deliveries by federal court orders due to endangered Delta smelt and salmon which resulted in the combined loss of approximately 3 MAF of SWP supplies between 2008 and 2014. These losses has impacted Metropolitan's ability to meet demands and refill regional storage;
- In 2014, Lake Oroville storage dropped within 10 TAF of its lowest operating levels since the historic drought of 1977;
- Supply availability in the Los Angeles Aqueduct system continues to be affected by both the drought and environmental mitigation efforts related to Owens Lake and the Lower Owens River.

7.1.1 Imported Surface Water

As reported in their 2015 UWMP, Metropolitan faces a number of challenges in providing adequate, reliable and high quality supplemental water supplies for southern California. One of those challenges is dry hydrologic conditions that can have a significant impact on Metropolitan's imported water supply sources.

The peak of the snowpack season traditionally occurs on April 1; however in 2015, the snowpack peaked in January at only 17 percent of the April 1 average measurement, resulting in the earliest and lowest snowpack peak in recorded history. The statewide snowpack was all but gone by April 1, 2015 and registered a record low of five percent of average for that day. This dry hydrology produced only 51 percent of average runoff for

the water year and consequently kept state reservoirs below average storage levels. As a result, Metropolitan only received 20 percent of its contract water supplies from the State Water Project in 2015.

In 2015, the Upper Colorado River Basin snowpack peaked in March at 76 percent of normal. Runoff for that basin measured 94 percent of normal due to above normal rainfall in May, June and July, which averted a Colorado River shortage conditions for 2016. This allowed Metropolitan to implement new water management programs and bolster supplies in 2015. The Colorado River, however, is experiencing a historic16-year drought causing total storage levels in that system to steadily decline increasing the likelihood of shortage in future years beyond 2016. The restrictions on water use generated a record demand for water-saving rebates and refocused efforts to increase development of local water resources.

These dry hydrologic conditions and reduced imported water supplies, have led to significant withdrawals from Metropolitan's storage reserves, including Diamond Valley Lake (DVL) and its groundwater banking and conjunctive use programs to meet scheduled water deliveries. During the 2007-2009 drought, Metropolitan withdrew a combined 1.2 MAF from storage reserves to balance supplies and demands. In 2014 alone, Metropolitan withdrew 1.1 MAF from dry-year storage to balance supplies and demands because of the historic low final SWP allocation in that year.

In addition, challenges such as the detection of the quagga mussel in the Metropolitan's CRA supplies and increasingly stringent water quality regulations to control disinfection byproducts exacerbate the water supply condition and underscore the importance of flexible and adaptive regional planning strategies

7.1.1.1 Colorado River Water Supply Reliability Actions, Projects and Programs

The Colorado River Basin has been experiencing a prolonged drought, where runoff above Lake Powell has been below average for twelve of the last sixteen years. Within those sixteen years, runoff in the Colorado River Basin above Lake Powell from 2000 through 2007 was the lowest eight- year runoff on record. While runoff returned to near normal conditions during 2008-2010, drought returned in 2012 with runoff in 2012 being among the four driest in history. During these drought conditions, Colorado River system storage has decreased to 50 percent of capacity.

Quagga mussels were discovered in January of 2007 in Lake Mead and rapidly spread downstream to the Lower Colorado River. The presence and spawning of quagga mussels in the Lower Colorado River and in reservoirs located in southern California poses an immediate threat to water and power systems serving more than 25 million people in the southwestern United States. Quagga mussels (Dreissena bugensis) is a related species to the better-known zebra mussels (Dreissena polymorpha) and indigenous to the Ukraine. They were introduced to the Great Lakes in the 1980s from fresh-water ballast of a transoceanic ship traveling from Eastern Europe. Although the introduction of these two species into drinking water supplies does not typically result in violation of drinking water standards, invasive mussel infestations can adversely impact aquatic environments and infrastructure. If unmanaged, invasive mussel infestations have been known to

severely impact the aquatic ecology of lakes and rivers; clog intakes and raw water conveyance systems; reduce the recreational and aesthetic value of lakes and beaches; alter or destroy fish habitats; and render lakes more susceptible to deleterious algae blooms.

Metropolitan's planning strategy recognized explicitly that program development would play an important part in reaching the target level of deliveries from the CRA. The implementation approach explored a number of water conservation programs with water agencies that receive water from the Colorado River or are located in close proximity to the CRA. Negotiating the QSA was a necessary first step for all of these programs. On October 10, 2003, after lengthy negotiations, representatives from Metropolitan, Imperial Irrigation District (IID), and Coachella Valley Water District (CVWD) executed the QSA and other related agreements. Parties involved also included San Diego County Water Authority (SDCWA), the California Department of Water Resources (DWR), the California Department of Fish and Wildlife, the U.S. Department of the Interior, and the San Luis Rey Settlement Parties. One of those related agreements was the Colorado River Water Delivery Agreement: Federal Quantification Settlement Agreement which specifies to which agencies water will be delivered under priorities 3a and 6a of the Seven Party Agreement during its term.

Metropolitan has identified a number of programs that could be used to achieve the regional long-term development targets for the CRA. Metropolitan has entered into or is exploring agreements with a number of agencies.

Imperial Irrigation District / Metropolitan Water District Conservation Program

Under agreements executed in 1988 and 1989, Metropolitan has funded water efficiency improvements within IID's service area in return for the right to divert the water conserved by those investments. Under this program, IID implemented a number of structural and non-structural measures, including the lining of existing earthen canals with concrete, constructing local reservoirs and spill-interceptor canals, installing non-leak gates, and automating the distribution system. Other implemented programs include the delivery of water to farmers on a 12-hour rather than a 24-hour basis and improvements in on-farm water management through the installation of drip irrigation systems. Through this program, IID has conserved an additional 105 TAF per year on average upon completion of program implementation. Execution of the QSA and amendments to the 1988 and 1989 agreements resulted in changes in the availability of water under the program, extending the term to 2078 if the term of the QSA extends through 2077 and guaranteeing Metropolitan at least 85 TAF per year. The remainder of the conserved water is available to CVWD when needed.

Palo Verde Land Management, Crop Rotation, and Water Supply Program

In May 2004, Metropolitan's Board authorized a 35-year land management, crop rotation, and water supply program with PVID. Under the program, participating farmers in PVID are paid to reduce their water use by not irrigating a portion of their land. A maximum of 29 percent of the lands within the Palo Verde Valley can be hallowed in any given year. Under the terms of the QSA, water savings within the PVID service area are made

available to Metropolitan. This program provides up to 133 TAF of water to be available to Metropolitan in certain years. In 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, and 2014 approximately 108.7, 105.0, 72.4, 94.3, 120.2, 116.3, 122.2, 73.7, 32.8, and 43.0 TAF of water, respectively, were saved and made available to Metropolitan. In March 2009, Metropolitan and PVID entered into a one-year supplemental Wallowing program within PVID that provided for the Wallowing of additional acreage, with savings of 24.1 TAF in 2009 and 32.3 TAF in 2010.

Southern Nevada Water Authority and Metropolitan Storage and Interstate Release Agreement

SNWA has undertaken extraordinary water conservation measures to maintain its consumptive use within Nevada's basic apportionment of 300 TAB. The success of the conservation program has resulted in unused basic apportionment for Nevada. As SNWA expressed interest in storing a portion of the water with Metropolitan, the agencies, along with the United States and the Colorado River Commission of Nevada, entered into a storage and interstate release agreement in October 2004. Under the agreement, additional Colorado River water supplies are made available to Metropolitan when there is space available in the CRA to receive the water. SNWA will have stored approximately 330,000 acre—feet with Metropolitan through 2015. SNWA is not expected to call upon Metropolitan to return water until after 2019.

Lower Colorado Water Supply Project

In March 2007, Metropolitan, the City of Needles, and the IJSBR executed a Lower Colorado Water Supply Project contract. Under the contract, Metropolitan receives, on an annual basis, Lower Colorado Water Supply Project water unused by Needles and other entities adjacent to the river that do not have rights or have insufficient rights to use Colorado River water. The water supply for the project comes from groundwater wells located along the All-American Canal. A portion of the payments made by Metropolitan to Needles are placed in a trust fund for potentially acquiring a new water supply for the Project should the groundwater pumped from the project's wells become too saline for use. In 2014, Metropolitan received 6.1 TAF from this project and is projected to receive 5.8 TAF in 2015.

Lake Mead Storage Program

In May 2006, Metropolitan and the IJSBR executed an agreement for a demonstration program that allowed Metropolitan to leave conserved water in Lake Mead that Metropolitan would otherwise have used in 2006 and 2007. USBR would normally make unused water available to other Colorado River water users, so the program included a provision that water left in Lake Mead must be conserved through extraordinary conservation measures and not simply be water that was not needed by Metropolitan in the year it was stored. This extraordinary conservation was accomplished through savings realized under the Palo Verde Land Management, Crop Rotation and Water Supply Program. Through the two-year demonstration program, Metropolitan created

44.8 TAF of "Intentionally Created Surplus" (ICS) water. In December 2007, Metropolitan entered into agreements to set both the rules under which ICS water is developed, stored in, and delivered from Lake Mead. The amount of water stored in Lake Mead, created through extraordinary conservation, that is available for delivery in a subsequent year is reduced by a one-time deduction of five percent resulting in additional system water in storage in the lake, and an annual evaporation loss of three percent, beginning in the year following the year the water is stored. Metropolitan created ICS water in 2009, 2010, 2011, and 2012 and withdrew ICS water in 2008, 20a 3, and 2014. As of January 1, 2015, Metropolitan had a total of 61.8 TAF of Extraordinary Conservation ICS water in Lake Mead.

The December 2007 federal guidelines concerning the operation of the Colorado River system reservoirs provided the ability for agencies to create "System Efficiency ICS" through the development and funding of system efficiency projects that save water that would otherwise be lost from the Colorado River. To that end, in 2008 the Central Arizona Water Conservation District (CAWCD), SNWA, and Metropolitan contributed funds for the construction of the Drop 2 (Brock) Reservoir by the USBR. The purpose of the Drop 2 (Brock) Reservoir is to increase the capacity to regulate deliveries of Colorado River water at Imperial Dam reducing the amount of excess flow downstream of the dam by approximately 70 TAF annually. In return for its $25 million net contribution toward construction, operation, and maintenance, 100 TAF of water that was stored in Lake Mead was assigned to Metropolitan as System Efficiency ICS. Through 2014, Metropolitan has diverted 35 TAF of this amount, with 65 TAF remaining in storage.

In 2009, Metropolitan entered into an agreement with the United States, SNWA, the Colorado River Commission of Nevada, and CAWCD to have USBR conduct a one-year pilot operation of the Yuma Desalting Plant at one-third capacity. The pilot project operated between May 2010 and March 2011 and provided data for future decision making regarding long-term operation of the Plant and developing a near-term water supply. Metropolitan's contribution toward plant operating costs secured 24.4 TAF of System Efficiency ICS which was stored in Lake Mead as of January 1, 2015.

Quagga Mussel Control Program

The presence and spawning of quagga mussels in the lower Colorado River from Lake Mead through Lake Havasu poses a threat to Metropolitan and other Colorado River water users due to the potential to continuously seed water conveyance systems with mussel larvae. Chlorination is the most frequently used means to control mussel larvae entering water systems.

Metropolitan developed the Quagga Mussel Control Program (QMCP) in 2007 to address the long term introduction of mussel larvae into the CRA from the lower Colorado River which is now heavily colonized from Lake Mead through Lake Havasu. The QMCP consists of surveillance activities and control measures. Surveillance activities are conducted annually alongside regularly scheduled 2-3 week long CRA shutdowns. Control activities consist of continuous chlorination at the outlet of Copper Basin Reservoir (5 miles into the aqueduct), a mobile chlorinator for control of mussels on a

quarterly basis at outlet towers and physical removal of mussels from the trash racks at Whitsett Intake Pumping Plant in Lake Havasu. Since 2007, the CRA has had scheduled 2 to 3 week-long shutdowns each year for maintenance and repairs which provide the opportunity for direct inspections for mussels and the additions benefit of desiccating quagga mussels. Recent shutdown inspections have demonstrated that the combined use of chlorine and regularly scheduled shutdowns effectively control mussel infestation in the CRA since only few and small mussels have been found during these inspections.

In addition, Metropolitan has appropriated $9.55 million to upgrade chlorination facilities in the aqueduct and at two additional locations in its system, the outlets of Lakes Mathers and Skinner. It is likely that additional upgrade costs will be incurred for these facilities. Chemical control (chlorination) at Copper Basin Reservoir, Lake Mathers, and the Lake Skinner Outlet costs approximately $3.0-3.2 million per year depending on the amount of Colorado River water conveyed through the aqueduct.

Achievements to Date

Metropolitan has developed a number of supply and conservation programs to increase the amount of supply available from the CRA. However, other users along the River have rights that will allow their water use to increase as their water demands increases. The Colorado River faces long-term challenges of water demands exceeding available supply with additional uncertainties due to climate change. Because Metropolitan holds the lowest priority rights in California during a normal Lake Mead storage condition, future supply available could decrease

7.1.1.2 State Water Project Supply Reliability Actions, Projects and Programs

Much of the SWP water supply passes through the San Francisco-San Joaquin Bay-Delta (Bay-Delta). The SWP consists of a series of pump stations, reservoirs, aqueducts, tunnels, and power plants operated by DWR. This statewide water supply infrastructure provides water to 29 urban and agricultural agencies throughout California. More than two-thirds of California's residents obtain some of their drinking water from the Bay-Delta system.

The Bay-Delta's declining ecosystem, caused by a number of factors that include agricultural runoff, predation of native fish species, urban and agricultural discharge, changing ecosystem food supplies, and overall system operation, has led to reduction in water supply deliveries. SWP delivery restrictions due to regulatory requirements resulted in the loss of about 1.5 MAF of supplies to Metropolitan from 2008 through 2014, reducing the likelihood that regional storage can be refilled in the near-term. Operational constraints will likely continue until a long-term solution to the problems in the Bay-Delta is identified and implemented.

In April 2015, the Brown Administration announced California WaterFix, as well as a separate ecosystem restoration effort called California EcoRestore. Together, the California WaterFix and California EcoRestore will make significant contributions

toward achieving the coequal goals of providing a more reliable water supply for California and protecting, restoring and enhancing the Delta ecosystem established in the Sacramento-San Joaquin Delta Reform Act of 2009. In addition to enhancing the Delta Ecosystem there are a number major actions, projects, and programs Metropolitan has undertaken to improve SWP reliability.

The Bay Delta Conservation Plan

The Bay Delta Conservation Plan (BDCP) was prepared through a collaboration of state, federal, and local water agencies, state and federal fish agencies, environmental organizations, and other interested parties. At the outset of the BDCP process, a planning agreement was developed and executed among the participating parties and a Steering Committee was formed. The BDCP identified a set of conservation measures including water conveyance improvements and restoration actions to contribute to the recovery of endangered and sensitive species and their habitats in California's Sacramento-San Joaquin Delta. The BDCP was formulated to contribute to the state's co-equal goals of water supply reliability and ecosystem restoration.

Lead agencies for the EIR/EIS were the California Department of Water Resources, the USBR, the United States Fish and Wildlife Service, and National Oceanic and Atmospheric Administration's National Marine Fisheries Service, in cooperation with the California Department of Fish and Game, the United States Environmental Protection Agency and the United States Army Corps of Engineers. Metropolitan served on the steering committee. DWR and USBR are the lead agencies for the California WaterFix.

In order to select the most appropriate elements of the final conservation plan, the BDCP considered a range of options for accomplishing these goals using information developed as part of an environmental review process. Potential habitat restoration and water supply conveyance options included in the BDCP were assessed through an Environmental Impact Report (EIR)/Environmental Impact Statement (EIS). The BDCP planning process and the supporting EIR/EIS process is being funded by state and federal water contractors. The First Administrative Draft BDCP was released in March 2012, a Second Administrative Draft BDCP and EIR/S was released in March 2012 and the Public Draft BDCP and EIR/S was released December 2013. Each of the above draft documents were released to the public. The official public comment draft was released in December 2013.

A new permitting approach and associated new alternatives to the BDCP were announced in April 2015. The California WaterFix and California EcoRestore would be implemented under a different Endangered Species Act permitting process. 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. DWR and USBR serve as lead agencies for the California WaterFix. The new water conveyance facilities included in Alternative 4 (the BDCP) would be constructed and operated under the California WaterFix. Proposes changes to the design of the water conveyance facilities reduce the overall environmental/construction impacts to the environment, minimize disruptions to local communities, and increase long term operational and cost benefits.

Some of the engineering improvements configuration improvements would include moving the tunnel alignment away from local communities and environmentally sensitive areas. The elimination of pumping plants, reduction of permanent power lines and power use, and the reconfiguration of intake and pumping facilities sediment basins and reconfiguration/relocation of the construction staging sites in the North Delta will lessen construction and longer term operational impacts. If implemented, these would result in reduced environmental and construction impacts and increase improved long-term operational and cost benefits.

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

As part of the new alternatives and the state's proposed project, the regulatory approach to obtaining state and federal endangered species compliance is shifting from the BDCP Habitat Conservation Plan/Natural Community Conservation Plan strategy to an approach that contemplates a Biological Opinion pursuant to Federal ESA Section 7 and a State 2081 Permit. This approach as well as the proposed revision to the new water facilities and ecosystem restoration actions is evaluated in the partially Recirculated Draft EIR/EIS released in July 2015. The deadline for comments is October 2015.

The State Water Resources Control Board (SWRCB) is continuing its phased review and update of the 2006 Water Quality Control Plan (WQCP) for the Bay-Delta. The first phase focuses on the southern Delta salinity objectives for the protection of agriculture, San Joaquin River flow objectives for the protection of fish and wildlife, and a program of implementation for achieving those objectives. The second phase considers the comprehensive review of the other elements of the Bay-Delta WQCP, including but not limited to Sacramento River and Delta outflow objectives.

Metropolitan has been collaborating with water users and other stakeholders to develop sound science and technical analyses in support of the WQCP review process, including sharing results in technical forums and publishing findings in peer-reviewed scientific journals. Metropolitan has been meeting with Board members and staff to share findings as new science and analyses are developed and to encourage close coordination between BDCP and WQCP updates.

Monterey Amendment

The Monterey Amendment originated from disputes between the urban and agricultural SWP contractors over how contract supplies are to be allocated in times of shortage. In 1994, in settlement discussions in Monterey, the contractors and DWR reached an agreement to settle their disputes by amending certain provisions the long-term water supply contracts. These changes, known as the Monterey Amendment, altered the water

allocation procedures such that both shortages and surpluses would be shared in the same manner for all contractors, eliminating the prior "agriculture first" shortage provision. In turn, the agricultural contractors agreed to permanently transfer 130 TAF to urban contractors and permanently retire 45 TAF of their contracted supply. The amendment facilitated several important water supply management practices including ground water banking, voluntary water marketing, and more flexible and efficient use of SWP facilities such as borrowing from Castaic Lake and Lake Perris and using carryover storage in San Luis Reservoir to enhance dry-year supplies. It also provided for the transfer of DWR land to the Kern County Water Agency for development of the Kern Water Bank. The Monterey Amendment was challenged in court, and the original Environmental Impact Report (EIR) invalidated. Following a settlement, DWR completed a new EIR and concluded the CEQA review in May 2010.

However, the project has been challenged again in a new round of lawsuits. Central Delta Water Agency, South Delta Water Agency, California Water Impact Network, California Sportfishing Protection Alliance, and the Center For Biological Diversity filed a lawsuit against DWR in Sacramento County Superior Court challenging the validity of the EIR under CEOA and the validity of underlying agreements under a reverse validation action (the "Central Delta I" case). These same plaintiffs filed a reverse validation lawsuit against the Kern County Water Agency in Kern County Superior Court ("Central Delta II"). This lawsuit targets a transfer of land from Kern County Water Agency to the Kern Water Bank, which was completed as part of the original Monterey Agreement. The third lawsuit is an EIR challenge brought by Rosedale-Rio Bravo Water Storage District and Buena Vista Water Storage District against DWR in Kern County Superior Court ("Rosedale"). The Central Delta II and Rosedale cases were transferred to Sacramento Superior Court, and the three cases were consolidated for trial.

In January 2013, the Court ruled that the validation cause of action in Central Delta I was time-barred by the statute of limitations. On October 2, 2014, the court issued its final rulings in Central Delta I and Rosedale, holding that DWR must complete a limited scope remedial CEQA review addressing the potential impacts of the Kern Water Bank. However, the court's ruling also allows operation of the State Water Project to continue under the terms of the Monterey Agreement while the remedial CEQA review is prepared and leaves in place the underlying project approvals while DWR prepares the remedial CEQA review. The Central Delta II case was stayed pending resolution of the Central Delta I case. The plaintiffs have appealed the decision.

SWP Terminal Storage

Metropolitan has contractual rights to d5 TAF of flexible storage at Lake Perrin (East Branch terminal reservoir) and 154 TAF of flexible storage at Castaic Lake (West Branch terminal reservoir). This storage provides Metropolitan with additional options for managing SWP deliveries to maximize yield from the project. Over multiple dry years, it can provide Metropolitan with 73 TAF of additional supply. In a single dry year like 1977, it can provide up to 219 TAF of additional supply to Southern California.

Yuba Dry Year Water Purchase Program

In December 2007, Metropolitan entered into an agreement with DWR providing for Metropolitan's participation in the Yuba Dry Year Water Purchase Program between Yuba County Water Agency and DWR. This program provides for transfers of water from the Yuba County Water Agency during dry years through 2025.

Desert Water Agency/Coachella Valley WD SWP Table A Transfer

Under the transfer agreement, Metropolitan transferred 100 TAF of its SWP Table A contractual amount to Desert Water Agency/CVWD (DWCV). Under the terms of the agreement, DWCV pays all SWP charges for this water, including capital costs associated with capacity in the California Aqueduct to transport this water to Perris Reservoir, as well as the associated variable costs. The amount of water actually delivered in any given year depends on that year's SWP allocation. Water is delivered through the existing exchange agreements between Metropolitan and DWCV, under which Metropolitan delivers Colorado River supplies to DWVC equal to the SWP supplies delivered to Metropolitan. While Metropolitan transferred 100 TAF of its Table A amount, it retained other rights, including interruptible water service; its full carryover amounts in San Luis Reservoir; its full use of flexible storage in Castaic and Perris Reservoirs; and any rate management credits associated with the 100 TAF.

In addition, Metropolitan is able to recall the SWP transfer water in years in which Metropolitan determines it needs the water to meet its water management goals. The main benefit of the agreement is to reduce Metropolitan's SWP fixed costs in wetter years when there are more than sufficient supplies to meet Metropolitan's water management goals, while at the same time preserving its dry-year SWP supply. In a single critically dry-year like 1977, the call-back provision of the entitlement transfer can provide Metropolitan about 5 TAF of SWP supply. In multiple dry years like 1990-1992, it can provide Metropolitan about 26 TAF of SWP supply.

Desert Water Agency/Coachella Valley WD Advance Delivery Program

Under this program, Metropolitan delivers Colorado River water to the Desert Water Agency and CVWD in advance of the exchange for their SWP Contract Table A allocations. In addition to their Table A supplies, Desert Water Agency and CVWD, subject to Metropolitan's written consent, may take delivery of SWP supplies available under Article 21 and the Turn-back Pool Program. By delivering enough water in advance to cover Metropolitan's exchange obligations, Metropolitan is able to receive Desert Water Agency and CVWD's available SWP supplies in years in which Metropolitan's supplies are insufficient without having to deliver an equivalent amount of Colorado River water. This program allows Metropolitan to maximize delivery of SWP and Colorado River water in such years.

Desert Water Agency/Coachella Valley WD Other SWP Deliveries

Since 2008, Metropolitan has provided Desert Water Agency and CVWD written consent to take delivery of non-SWP supplies separately acquired by each agency from the SWP

facilities. These deliveries include water acquired from the Yuba Dry Year Water Purchase Program and the 2009 Drought Water Bank. Metropolitan has also consented to:

- 10 TAF of exchange deliveries to CVWD for non-SWP water acquired from the San Joaquin Valley from 2008 through 2010,
- 36 TAF of exchange deliveries to Desert Water Agency for non-SWP water acquired from the San Joaquin Valley from 2008 through 2015, and
- 16.5 TAF of exchange deliveries to CVWD from groundwater storage of Kern River flood flows or SWP water delivered from Kern County Water Agency provided by Rosedale Rio Bravo Water Storage District from 2012 through 2035.

7.1.1.3 Central Valley/State Water Project Storage and Transfer Programs

Metropolitan increases the reliability of supplies received from the California Aqueduct by developing flexible SWP storage and transfer programs. Over the years, Metropolitan has developed numerous voluntary SWP storage and transfer programs, to secure additional dry-year water supplies.

Metropolitan has a long history of managing the wide fluctuations of SWP supplies from year to year by forming partnerships with Central Valley agricultural districts along the California Aqueduct, as well as with other Southern California SWP Contractors. These partnerships allow Metropolitan to store its State Water Project (SWP) supplies during wetter years for return in future drier years. Some programs also allow Metropolitan to purchase water in drier years for delivery via the California Aqueduct to Metropolitan's service area.

In addition, the SWP storage and transfer programs have served to demonstrate the value of partnering, and increasingly, Central Valley agricultural interests see partnering with Metropolitan as a sensible business practice beneficial to their local district and regional economy.

Metropolitan is currently operating several SWP storage programs that serve to increase the reliability of supplies received from the California Aqueduct. Metropolitan is also pursuing a new storage program with Antelope Valley-East Kern Water Agency, which is currently under development. In addition, Metropolitan pursues SWP water transfers on an as needed basis. Table 3-3 lists the expected yields from these storage and transfer programs. Figure 3-3 shows the location of Metropolitan's statewide groundwater banking programs.

Semitropic Storage Program

Metropolitan has a groundwater storage program with Semitropic Water Storage District located in the southern part of the San Joaquin Valley. The maximum storage capacity of the program is 350 TAF. The specific amount of water Metropolitan can store in and subsequently expect to receive from the programs depends upon hydrologic conditions, any regulatory requirements restricting Metropolitan's ability to export water for

storage, and the demands placed on the Semitropic Program by other program participants. In 2014, Metropolitan amended the program to increase the return yield by an additional 13.2 TAF per year. The minimum annual yield available to Metropolitan from the program is currently 34.7 TAF, and the maximum annual yield is 236.2 TAF, depending on the available unused capacity and the State Water Project allocation. During wet years, Metropolitan has the discretion to use the program to store portions of its SWP water that are in excess of the amounts needed to meet Metropolitan's service area demand. In Semitropic, the water is delivered to district farmers who use the water in-lieu of pumping groundwater. During dry years, the districts return Metropolitan's previously stored water to Metropolitan by direct groundwater pump—in return and the exchange of SWP supplies.

Arvin-Edison Storage Program

Metropolitan amended the groundwater storage program with Arvin-Edison Water Storage District in 2008 to include the South Canal Improvement Project. The project increases the reliability of Arvin-Edison returning higher water quality to the California Aqueduct. In addition, Metropolitan and Arvin-Edison often enter into annual operational agreements to optimize program operations in any given year. The program storage capacity is 350 TAF. The specific amount of water Metropolitan can expect to store in and subsequently receive from the programs depends upon hydrologic conditions and any regulatory requirements restricting Metropolitan's ability to export water for storage. The storage program is estimated to deliver 75 TAF. During wet years, Metropolitan has the discretion to use the program to store portions of its SWP supplies which are in excess of the amounts needed to meet Metropolitan's service area demand. The water can be either directly recharged into the groundwater basin or delivered to district farmers who use the water in-lieu of pumping groundwater. During dry years, the district returns Metropolitan's previously stored water to Metropolitan by direct groundwater pump-in return or by exchange of surface water supplies. In 2015, Metropolitan funded the installation of three new wells at a cost of $3 million that will restore the return reliability by 2.5 TAF per year. The funding will ultimately be recovered through credits against future program costs.

San Bernardino Valley Metropolitan Storage Program

The San Bernardino Valley Metropolitan Storage program allows for the purchase of a portion of San Bernardino Valley Metropolitan's SWP supply. The program includes a minimum purchase provision of 20 TAF and the option of purchasing additional supplies when available. This program can deliver between 20 TAF and 70 TAF in dry years, depending on hydrologic conditions. The expected delivery for a single dry year similar to 1977 is 20 TAF should supplies be available. The agreement with San Bernardino Valley Metropolitan also allows Metropolitan to store up to 50 TAF of transfer water for use in dry years. The agreement can be renewed until December 31, 2035.

San Gabriel Valley Metropolitan Exchange Program

The San Gabriel Valley Metropolitan program allows for the exchange of up to 5 TAF each year. For each acre-foot Metropolitan delivers to the City of Sierra Madre, a San

Gabriel Valley Metropolitan member agency, San Gabriel Valley Metropolitan provides two acre-feet to Metropolitan in the Main San Gabriel Basin, up to 5 TAF. The program provides increased reliability to Metropolitan by allowing additional water to be delivered to Metropolitan's member agencies Three Valleys Metropolitan and Upper San Gabriel Valley Metropolitan.

Antelope Valley—East Kern Water Agency Exchange and Storage Program

The Antelope Valley-East Kern Water Agency (AVEK) exchange and storage program provides Metropolitan with additional supplies and increased reliability. Under the exchange program, for every two acre-feet Metropolitan receives, Metropolitan returns one acre-foot to AVEK to improve its reliability. The exchange program is expected to deliver 30 TAF over ten years, with 10 TAF available in dry years. Under the program, Metropolitan will also be able to store up to 30 TAF in the AVEK's groundwater basin, with a dry year return capability of 10 TAF.

Kern-Delta Water District Storage Program

This groundwater storage program has 250 TAF of storage capacity. The program is capable of providing up to 50 TAF of dry-year supply. In 2015, Metropolitan funded the cross river pipeline that, when completed, will help improve Metropolitan's return reliability by reducing losses during exchanges. Water for storage can be either directly recharged into the groundwater basin or delivered to district farmers who use the water in-lieu of pumping groundwater. During dry years, the district returns Metropolitan's previously stored water to Metropolitan by direct groundwater pump-in return or by exchange of surface water supplies.

Mojave Storage Program

Metropolitan entered into a groundwater banking and exchange transfer agreement with Mojave Water Agency on October 29, 2003. This agreement was amended in 2011 to allow for the cumulative storage of up to 390 TAF. The agreement allows for Metropolitan to store water in on exchange account for later return. Through 2021, and when the State Water Project allocation is 60 percent or less, Metropolitan can annually withdraw the Mojave Water Agency's State Water Project contractual amounts in excess of a 10 percent reserve. When the State Water Project allocation is over 60 percent, the reserved amount for Mojave's local needs increases to 20 percent. Under a 100 percent allocation, the State Water Contract provides Mojave Water Agency 82.8 TAF of water.

Central Valley Transfer Programs

Metropolitan secures Central Valley water transfer supplies via spot markets and option contracts to meet its service area demands when necessary. Hydrologic and market conditions, and regulatory measures governing Delta pumping plant operations, will determine the amount of water transfer activity occurring in any year. Recent transfer market activity, described below, provides examples of how Metropolitan has secured water transfer supplies as a resource to fill anticipated supply shortfalls needed to meet Metropolitan's service area demands.

In 2003, Metropolitan secured options to purchase approximately 145 TAF of water from willing sellers in the Sacramento Valley during the irrigation season. These options protected against potential shortages of up to 650 TAF within Metropolitan's service area that might have arisen from a decrease in Colorado River supply or as a result of drier-than-expected hydrologic conditions. Using these options, Metropolitan purchased approximately 125 TAF of water for delivery to the California Aqueduct.

In 2005, Metropolitan, in partnership with seven other State Water Contractors, secured options to purchase approximately 130 TAB of water from willing sellers in the Sacramento Valley, of which Metropolitan's share was 113 TAF. Metropolitan also had the right to assume the options of the other State Water Contractors if they chose not to purchase the transfer water. Due to improved hydrologic conditions, Metropolitan and the other State Water Contractors did not exercise these

In 2008, Metropolitan, in partnership with seven other State Water Contractors, secured approximately 40 TAF of water from willing sellers in the Sacramento Valley, of which Metropolitan's share was approximately 27 TAF.

In 2009, Metropolitan, in partnership with eight other buyers, participated in a statewide Drought Water Bank, which secured approximately 74 TAF, of which Metropolitan's share was approximately 37 TAF.

In 2010, Metropolitan, in partnership with three other State Water Contractors, secured approximately 100 TAF of water from willing sellers in the Sacramento Valley, of which Metropolitan's share was approximately 88 TAF. Metropolitan also purchased approximately 18 TAF of water from Central Valley Project Contractors located in the San Joaquin Valley. In addition, Metropolitan entered into an unbalanced exchange agreement that resulted in Metropolitan receiving approximately 37 TAF.

In 2015, Metropolitan, in partnership with eight other State Water Contractors, secured approximately 20 TAF of water from willing sellers in 4he Sacramento Valley, of which Metropolitan's share was approximately 14 TAF.

In addition, Metropolitan has secured water transfer supplies under the Yuba Accord, which is a long-term transfer agreement. To date, Metropolitan has purchased approximately 165 TAF.

Finally, Metropolitan has secured water transfer supplies under the Multi-Year Water Pool Demonstration Program. In 2013 and 2015, Metropolitan secured 30 TAF and 1.3 TAF, respectively.

Metropolitan's recent water transfer activities demonstrated Metropolitan's ability to develop and negotiate water transfer agreements either working directly with the agricultural districts who are selling the water or through a statewide Drought Water Bank. Because of the complexity of cross-Delta transfers and the need to optimize the use of both CVP and SWP facilities, DWR and USBR are critical players in the water transfer process, especially when shortage conditions increase the general level of demand for transfers and amplify ecosystem and water quality issues associated with

through-Delta conveyance of water. Therefore, Metropolitan views state and federal cooperation to facilitate voluntary, market-based exchanges and sales of water as a critical component of its overall water transfer strategy.

Achievements to Date

Metropolitan has made rapid progress to date developing SWP storage and transfer programs. Most notably, Metropolitan has utilized approximately 457 TAF to supplement its SWP supplies during the recent 2012-2015 unprecedented drought. Of this total, approximately 325 TAF are from SWP storage program extractions in Semitropic, Arvin, Kern Delta, and Mojave; 57 TAF are from the San Bernardino and SGV Metropolitan programs; and 78 TAF of SWP transfer supplies were purchased from the SWC Buyers Group, Multi—Year Water Pool, and Yuba water purchase programs.

7.2 RELIABILITY BY TYPE OF YEAR

In their 2015 UWMP dated June 2016, Metropolitan estimated supply capability and projected demands for an average (normal) year based on an average of hydrologies for the years 1922-2012; for a single dry-year based on a repeat of the hydrology in the year 1977; and for multiple dry years based on a repeat of the hydrology of 1990-1992. These estimates were summarized in Tables 2-4, 2-5, and 2-6 of their 2015 UWMP, which are included in the Appendix D of this report for reference.

Table 2-4 summarizes the sources of supply for the single dry year (1977 hydrology), while Table 2-5 shows the region's ability to respond in future years under a repeat of the 1990-92 hydrology. Table 2-5 provides results for the average of the three dry-year series rather than a year-by-year detail because most of Metropolitan's dry-year supplies are designed to provide equal amounts of water over each year of a three-year period. These tables show that the region can provide reliable water supplies under both the single driest year and the multiple dry-year hydrologies. Table 2-6 reports the expected situation on the average over-all historic hydrologies from 1922 to 2012.

A summary of the information provided in Metropolitan Tables 2-4, 2-5, and 2-6 is shown in Table 7-1A. For each of these scenarios there is a projected surplus of supply in every forecast year. Projected supply surpluses, based on the capability of current supplies, range from 0.1 percent to 87 percent of projected demands. With the inclusion of supplies under development, potential surpluses range from 5 percent to 110 percent of projected demands. Metropolitan's supply capabilities were developed using the following assumptions:

7.2.1 Assumptions for Colorado River Aqueduct Supplies

Colorado River Aqueduct supplies include supplies that would result from existing and committed programs and from implementation of the Quantification Settlement Agreement (QSA) and related agreements. The QSA establishes the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Colorado River Water Management Programs are potentially

available to supply additional water up to the CRA capacity of 1.2 MAF on an as needed basis.

Table 7-1A: Metropolitan Supply Capability and Projected Demands (AFY)					
Single Dry Year MWD Supply Capability and Projected Demands (1977 Hydrology)					
Fiscal Year	**2020**	**2025**	**2030**	**2035**	**2040**
Capability of Current Supplies	2,584,000	2,686,000	2,775,000	2,905,000	2,941,000
Projected Demands	2,005,000	2,066,000	2,108,000	2,160,000	2,201,000
Projected Surplus	579,000	620,000	667,000	745,000	740,000
Projected Surplus %[a]	29%	30%	32%	34%	34%
Supplies under Development	63,000	100,000	316,000	358,000	398,000
Potential Surplus	642,000	720,000	983,000	1,103,000	1,138,000
Potential Surplus %[a]	32%	35%	47%	51%	52%
Multiple Dry Year MWD Supply Capability and Projected Demands (1990-1992 Hydrology)					
Fiscal Year	**2020**	**2025**	**2030**	**2035**	**2040**
Capability of Current Supplies	2,103,000	2,154,000	2,190,000	2,242,000	2,260,000
Projected Demands	2,001,000	2,118,000	2,171,000	2,216,000	2,258,000
Projected Surplus	102,000	36,000	19,000	26,000	2,000
Projected Surplus %[a]	5%	2%	1%	1%	0.1%
Supplies under Development	43,000	80,000	204,000	245,000	286,000
Potential Surplus	145,000	116,000	223,000	271,000	288,000
Potential Surplus %[a]	7%	5%	10%	12%	13%
Average Year MWD Supply Capability and Projected Demands (1922-2012 Hydrology)					
Fiscal Year	**2020**	**2025**	**2030**	**2035**	**2040**
Capability of Current Supplies	3,448,000	3,550,000	3,658,000	3,788,000	3,824,000
Projected Demands	1,860,000	1,918,000	1,959,000	2,008,000	2,047,000
Projected Surplus	1,588,000	1,632,000	1,699,000	1,780,000	1,777,000
Projected Surplus %[a]	85%	85%	87%	89%	87%
Supplies under Development	63,000	100,000	386,000	428,000	468,000
Potential Surplus	1,651,000	1,732,000	2,085,000	2,208,000	2,245,000
Potential Surplus %[a]	89%	90%	106%	110%	110%

(a) As a percentage of projected demand
Source – 2015 Metropolitan Urban Water Management Plan, June 2016

7.2.2 Assumptions for State Water Project Supplies

State Water Project (SWP) supplies are estimated using the 2015 SWP Delivery Capability Report distributed by DWR in July 2015. The 2015 Delivery Capability Report presents the current DWR estimate of the amount of water deliveries for current (2015) conditions and conditions 20 years in the future. These estimates incorporate restrictions on SWP and Central Valley Project (CVP) operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fisheries Service issued on December 15, 2008, and June 4, 2009, respectively.

Under the 2015 Delivery Capability Report with existing conveyance and low outflow requirements scenario, the delivery estimates for the SWP for 2020 conditions as percentage of Table A amounts, are 12 percent, equivalent to 230 TAF, under a single dry-year (1977) condition and 51 percent, equivalent to 975 TAF, under the long-term average condition.

In dry, below-normal conditions, Metropolitan has increased the supplies received from the California Aqueduct by developing flexible Central Valley/SWP storage and transfer programs.

Over the last two years under the pumping restrictions of the SWP, Metropolitan has worked collaboratively with the other contractors to develop numerous voluntary Central Valley/SWP storage and transfer programs. The goal of these storage/transfer programs is to develop additional dry-year supplies that can be conveyed through the California Aqueduct during dry hydrologic conditions and regulatory restrictions.

A key component of Metropolitan's water supply capability is the amount of water in Metropolitan's storage facilities. Storage is a major component of Metropolitan's dry-year resource management strategy. Metropolitan's likelihood of having adequate supply capability to meet projected demands, without implementing the Water Supply Allocation plan (WSAP), is dependent on its storage resources.

In developing the supply capabilities for the 2015 UWMP, Metropolitan assumed the current (2015) storage levels at the start of simulation and used the median storage levels going into each of the five-year increments based on the balances of supplies and demands. Under the median storage condition, there is an estimated 50 percent probability that storage levels would be higher than the assumption used, and a 50 percent probability that storage levels would be lower than the assumption used.

All storage capability figures shown in the 2015 UWMP reflect actual storage program conveyance constraints. It is important to note that under some conditions, Metropolitan may choose to implement the WSAP in order to preserve storage reserves for a future year, instead of using the full supply capability. This can result in impacts at the retail level even under conditions where there may be adequate supply capabilities to meet demands.

The basis of water year and the available supply as a percentage of average projected demand for average year, single-dry year and multiple-dry years are shown in Table 7-1.

The available supply as a percentage of average demand shown in Table 7-1 does not include Metropolitan-estimated surplus supplies as shown in Table 7-1A.

Table 7-1: Basis of Water Year Data

Year Type	Base Year	Available Supplies if Year Type Repeats % of Average Supply[a]
Average Year	1922 to 2012	100%
Single-Dry Year	1977	100%
Multiple-Dry Years 1st Year	1990 to 1992	100%
Multiple-Dry Years 2nd Year	1990 to 1992	100%
Multiple-Dry Years 3rd Year	1990 to 1992	100%

(a) Not including Metropolitan-estimated surplus supplies as shown in Table 7-1A.

7.3 SUPPLY AND DEMAND ASSESSMENT

As stated in CWC 10635(a):

Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional or local agency population projections within the service area of the urban water supplier.

Projected normal-year average-annual City supplies and demands as developed in Table 6-9 and Table 4-3, respectively, are shown in Table 7-2. City demands are estimated to increase by 5 percent during single dry-year and multiple dry-year supply scenarios. It should be noted that this is the same assumptions made in the Los Angeles Department of Water and Power's (LADWP) draft 2015 UWMP. Projected single-dry-year average-annual City supplies and demands are shown in Table 7-3. Projected multiple dry-year average-annual City supplies and demands are shown in Table 7-4.

As shown in Tables 7-3 and 7-4, increased City demands during single dry-year and multiple dry-year supply scenarios are projected to be met with imported water and groundwater supplies as shown in Table 7-4A with available Metropolitan surplus supplies as estimated in Table 7-1A.

7.4 REGIONAL SUPPLY RELIABILITY

The City has historically relied primarily on imported water supply, with groundwater production used as a secondary supply source. Although imported water has proven to be

reliable and cost effective relative to local groundwater production, and is projected to remain reliable as evidenced by the supplemental water supply sources being developed (see Section 7.1.1) and projected supply surpluses estimated (see Table 7-1A) by Metropolitan, the ongoing drought has increased the need for the City to develop additional water supply reliability through improved and increased groundwater production.

Table 7-2: Normal-Year Supply and Demand Comparison

	2020	2025	2030	2035	2040
Supply totals *(from Table 6-9)*	11,104	11,182	11,262	11,344	11,428
Demand totals *(from Table 4-3)*	11,104	11,182	11,262	11,344	11,428
Difference	0	0	0	0	0

Table 7-3: Single-Dry Year Supply and Demand Comparison

	2020	2025	2030	2035	2040
Supply totals	11,659	11,741	11,825	11,911	11,999
Demand totals	11,659	11,741	11,825	11,911	11,999
Difference	0	0	0	0	0

Table 7-4: Multiple Dry Years Supply and Demand Comparison

		2020	2025	2030	2035	2040
First year	Supply totals	11,659	11,741	11,825	11,911	11,999
	Demand totals	11,659	11,741	11,825	11,911	11,999
	Difference	0	0	0	0	0
Second year	Supply totals	11,659	11,741	11,825	11,911	11,999
	Demand totals	11,659	11,741	11,825	11,911	11,999
	Difference	0	0	0	0	0
Third year	Supply totals	11,659	11,741	11,825	11,911	11,999
	Demand totals	11,659	11,741	11,825	11,911	11,999
	Difference	0	0	0	0	0

Table 7-4A: Projected City Water Supplies						
Water Supply	Additional Detail	Projected Water Supply				
		2020	2025	2030	2035	2040
		Volume	Volume	Volume	Volume	Volume
Projected Normal-Year Supplies						
Purchased or Imported Water	Treated Metropolitan water	9,104	7,482	7,562	7,644	7,728
Groundwater	Hollywood Basin	2,000	2,000	2,000	2,000	2,000
Groundwater	LBSA of Central Basin	-	1,700	1,700	1,700	1,700
Total		11,104	11,182	11,262	11,344	11,428
Projected Single-Dry Year and Multiple-Dry -Year Supplies						
Purchased or Imported Water	Treated Metropolitan water	9,659	8,041	8,125	8,211	8,299
Groundwater	Hollywood Basin	2,000	2,000	2,000	2,000	2,000
Groundwater	LBSA of Central Basin	-	1,700	1,700	1,700	1,700
Total		11,659	11,741	11,825	11,911	11,999

Currently, the City's water treatment plant is undergoing major upgrades to insure that all groundwater capacity pumped from wells can be treated to high potable water quality standards.

Historically, the City has developed groundwater in the Hollywood Basin using deep groundwater wells completed into the San Pedro Formation. Shallow groundwater was not being captured by existing production wells. It is envisioned that two shallow, municipal-supply water wells near the existing treatment plant can be constructed, tested, and eventually supply water from the shallow zone groundwater system at a combined production of approximately 0.6 MGD (400 gpm).

The City has plans to develop groundwater from the La Brea Subarea (LBSA) of the unadjudicated portion of the Central Basin using three new production wells. The current estimate for production from the LBSA would be approximately 2,000 AFY. Preliminary

calculations indicate a requirement for three wells, each producing approximately 800 gpm. Approximately 23,000 feet of pipeline from the production wells back to the existing treatment plant will be required and the treatment plant will need to be expanded from its current capacity for finished total blended potable water of 2.35 MGD to 3.90 MGD.

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8 WATER SHORTAGE CONTINGENCY PLANNING

Water supplies may be interrupted or reduced by droughts, earthquakes, and power outages which hinder a water agency's ability to effectively deliver water. Drought impacts increase with the length of a drought, as supplies in reservoirs and other storage programs are depleted and water levels in groundwater basins decline. The ability to manage water supplies in times of drought or other emergencies is an important part of water resource management for a community. The following discussion presents the City's water shortage contingency planning.

8.1 STAGES OF ACTION

In 1992, the Beverly Hills City Council adopted an Emergency Water Conservation Ordinance (Ordinance 92-O-2139) updated in 2015 by Ordinance 15-O-2677, which establishes five stages of water shortage severity based on predicted or actual water supply reductions as shown in Table 8-1. The City implements certain initiatives to optimize water supply during water shortages or drought conditions. The City will manage water supplies to minimize the social and economic impacts of water shortages.

Table 8-1: Stages of Water Shortage Contingency Plan

Stage	Supply Reduction	Water Supply Condition
A	5%	A stage A shortage shall be declared when the city manager determines that a five percent (5%) reduction in potable water use is required
B	10%	A stage B shortage shall be declared when the city manager determines that a ten percent (10%) reduction in potable water use is required
C	20%	A stage C shortage shall be declared when the city manager determines that a twenty percent (20%) reduction in potable water use is required.
D	30%	A stage D shortage shall be declared when the city manager determines that a thirty percent (30%) or higher reduction in potable water use is required.
E	50%	A stage E shortage shall be declared when the city manager determines that a catastrophic interruption of potable water supply has occurred or is foreseen.

The Water Conservation Ordinance is designed to provide a minimum of up to 50 percent of normal supply during a severe or extended water shortage. The City's two potable water sources are local groundwater and imported deliveries through Metropolitan. Rationing stages may be triggered by a shortage in one source or a combination of sources, and shortages may trigger a stage at any time. In the event of a shortage, the City Manager will declare the appropriate water conservation stage by resolution.

8.2 PROHIBITIONS ON END USES

The City's priorities for making available water from highest to lowest are as follows:

1. Health and Safety including: consumption and sanitation for all water users; fire suppression; hospitals, emergency care, nursing and other convalescent homes and other similar health care facilities; shelters and water treatment
2. Institutions, including government facilities and schools such as public safety facilities, essential government operations, public pools and recreation areas
3. All non-essential commercial and residential water uses
4. Landscaped areas of significance, including parks, cemeteries, open spaces, government-facility landscaped areas and green belt areas
5. New water demand

The City has developed various restrictions and prohibitions on end uses for each of the five stages indicated in Table 8-1. These prohibitions and restrictions include the following type of areas where these prohibitions or restrictions would be imposed:

- Landscape Irrigation
- Commercial, Industrial, and Institutional
- Water Features and Swimming Pools
- Other

Table 8-2 presents the restrictions or prohibitions that would be implemented with each conservation stage. The City will also work in conjunction with Metropolitan to implement water shortage plans on a regional level.

8.3 PENALTIES, CHARGES, OTHER ENFORCEMENT OF PROHIBITIONS

In the event that the Emergency Water Conservation Plan is violated, the City reserves the right to impose penalties. Penalties will be imposed depending on the water conservation stage, as defined under City Municipal Code Section 9-4-304, and summarized in Table 8-2A.

Table 8-2A: Penalties and Fines for Violations in Each Conservation Stage

Conservation Stage	Monetary Fine	Possible Water Service Termination or Reduction	Imprisonment
A	No	No	No
B	Up to $100	No	No
C	Up to $500	No	No
D	Up to $1,000	Yes	No
E	Up to $1,000	Yes	Yes, 6 Months

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses

Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
A	Other	Voluntary reduction of water use by 10%	No
B	CII - Restaurants may only serve water upon request		No
B	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		Yes
B	Other	All users to reduce to 90% of baseline water use	Yes
C	Other	All restrictions and prohibitions of Stage B	Yes
C	Other	All users to reduce to 80% of baseline water use	Yes
D	Other	All restrictions and prohibitions of Stage C	Yes
D	Landscape - Limit landscape irrigation to specific days	Limit to specific dates and times	Yes
D	Pools - Allow filling of swimming pools only when an appropriate cover is in place		Yes
D	Water Features - Restrict water use for decorative water features, such as fountains		Yes
D	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		Yes
D	Other - Prohibit use of potable water for construction and dust control		Yes
D	Other - Prohibit use of potable water for washing hard surfaces		Yes
D	Other	All users to reduce to 70% of baseline water use	Yes
E	Other	All restrictions and prohibitions of Stage D	Yes
E	Landscape - Prohibit all landscape irrigation	Priority to health and safety needs of water utility customers. Subsequent water uses are prioritized to provide water supply first to maintain and expand commerce within the city, then to enhance the aesthetics of the environment, and then to facilitate construction activities.	Yes
E	Other	All users to reduce to 50% of baseline water use	Yes

8.4 CONSUMPTION REDUCTION METHODS

The City has developed a number of consumption reduction program methods that include:

- Public Information Campaign
- Customer Billing
- Frequency of Meter Reading
- Water Use Surveys
- Rebates or Giveaways of Plumbing Fixtures and Devices
- Rebates for Landscape Irrigation Efficiency
- Reduction of Water System Loss

Table 8-3 presents the various consumption reduction methods employed by the City.

Table 8-3: Consumption Reduction Methods by Conservation Stage

Conservation Stage	Consumption Reduction Methods	Additional Explanation or Reference
All Stages	Offer Water Use Surveys	The City's water surveys are aimed at developing residential customer water use efficiency for both landscape and indoor water use.
All Stages	Provide Rebates on Plumbing Fixtures and Devices	The City's residential, commercial, industrial, & institutional plumbing retrofit programs involve providing customers with water efficient plumbing devices such as low-flow showerheads, high-efficiency washing machines, and low flush toilets.
All Stages	Expand Public Information Campaign	These programs provides the public information to promote water conservation and water conservation-related benefits.
All Stages	Improve Customer Billing	Through this program, the City provides incentives to customers to use water efficiently.
All Stages	Reduce System Water Loss	System water audits, leak detection (PermaLog) and repair conducted by water operations/ maintenance staff; these programs aim at reducing water losses through a water agency's mains.
All Stages	Other	Water Conservation Coordinator - the City establishes a conservation coordinator who oversees the City's water conservation measures.
All Stages	Other	The City has deployed SMART timers and drip irrigation systems used in City landscaped areas to improve water use efficiency.

The following discussion presents the various categories and methods employed by the City to reduce overall demand within its service area.

8.4.1 Categories of Consumption Reduction Methods

The following are consumption reduction methods that have been undertaken by the City to reduce water demand within their service area:

Public Information Campaign

The City maintains a website titled BHsaves.org which provides information regarding:

- Methods to reduce water use;
- Watering restrictions;
- Fines and surcharges associated with violation of watering restrictions;
- Water rebates for installing certain water saving devices;
- Individual water metering monitoring; and
- Other frequently asked questions regarding water use and conservation

In addition, the City has hired a Water Conservation Coordinator to assist in the public information campaign to educate the public on water conservation. Moreover, the City has partnered with Metropolitan in school education outreach programs that provide information to children to learn the importance of water conservation.

Customer Billing

The City bills bi-monthly but has installed SMART water meters that allow individual residential customers to view their water usage on a daily basis through the City's website BHsaves.org.

Frequency of Meter Reading

The City employs an Advanced Metering Infrastructure (AMI). The AMI uses new Neptune Water Meters that are SMART meters that can detect a suspected leak if it is on the customer's property. The new water meters use a fixed network system where the water meter sends the water meter reading hourly to a Data Collection Unit. The Data Collection Unit calls into the network computer each morning around 2:00 A.M. These meters will determine if there is an apparent leak on the customer's property. If there is a continuous usage of water over a 24-hour period, the system will send out an alarm (noting the address) to the City's Customer Service Representative who can notify the customer that they have a suspected leak on their property.

Water Use Surveys

The City has developed water survey programs for both single and multi-family residential customers. The City's water surveys are aimed at developing residential customer water use efficiency for both landscape and indoor water use.

Rebates or Giveaways of Plumbing Fixtures and Devices

The City maintains a residential plumbing retrofit program that involves providing customers with rebates for water efficient plumbing devices such as low-flow showerheads, ultra-low flush toilets, high-efficiency washing machines, and rain-collection barrels.

Reduction of Water System Loss

The City regularly conducts water system audits, leak detection and repairs as part of its overall operations. These activities are conducted by water operations/maintenance staff, and are aimed at reducing water losses through the City's water mains.

The City maintains a Permalog Leak Detection System. Approximately 40 Permalog leak detection modules are placed on water valves in the distribution system. When they are placed in the valve well on the valve and activated, the modules will listen for leaks at approximately 2:00 am and if they detect a leak they will listen again an hour later. The information is stored on the modules memory and later retrieved with a lap top computer generally once a week. The 40 Permalogs are placed in an area or quadrant of the distribution system and will cover a large area. If no leak is detected over a period of one to two weeks, the modules are removed and relocated to another area. If a leak is discovered it will be scheduled for repair and the units left in place for another one to two weeks to see if any other leaks are detected before they are relocated.

Implementation of Drought Rate Structure or Surcharge

The City is in the process of developing a tiered rate pricing structure which is anticipated to incorporate drought rate structure or surcharge pricing into the overall rate structure. Current plans are to have approval of the new rate structure in 2016.

Other

In late 2015, the City hired a full time Water Conservation Coordinator that is responsible for the City's water conservation program including water system surveys, public education on water conservation and the overall water conservation efforts of the City.

In addition, the City has deployed SMART timers and drip irrigation systems for landscaped areas for many of the City-owned properties within the City's service area. Moreover, the City is revising its overall landscape strategy for the City's parks and

medians to incorporate water conservation methods using drought tolerant vegetation and upgrading water features including high-efficiency filters, sensors, pumps and other devices to reduce overall water loss.

8.5 DETERMINING WATER SHORTAGE REDUCTIONS

The City maintains water meters on all residential, commercial, industrial, and institutional uses within the service area. All meters are read on an hourly basis. Comparisons can be made from the previous month or previous year usage and this information is summarized in bi-monthly bills sent to the consumer. In addition, individual residential users can access information on their water usage through BHsaves.org website.

8.6 REVENUE AND EXPENDITURE IMPACTS

A reduction in water consumption could result in loss of revenues needed to maintain and operate the water system. The following actions will be implemented under such circumstances:

- Implement a conservation surcharge during drought periods to help offset a portion of revenue lost due to reduction of water sales
- Delay capital improvement projects
- Consider temporary increase of water rates to meet operation and maintenance costs

The City is in the process of developing and implementing a tiered water rate structure that will cover the total system costs of providing water to its customers and account for the impact of long-term conservation on revenue and reserves. The tiered water rate structure is anticipated to be in place sometime in 2016.

8.7 RESOLUTIONS OR ORDINANCE

The City's adopted Ordinance 15-O-2677 amending the City's municipal code regarding emergency water conservation provisions is included in the Appendix E.

8.8 CATASTROPHIC SUPPLY INTERRUPTION

The City of Beverly Hills is in the process of developing a Potable Water Emergency Response Plan (ERP) that will include a standardized response and recovery protocol to prevent, minimize, and mitigate injury and damage resulting from emergencies or disasters caused by man, natural, or of dependency/proximity origin.

The ERP also describes how the City of Beverly Hills will respond to potential threats or actual scenarios identified in the vulnerability assessment (VA), as well as additional

emergency response situations. Included in the ERP are specific action plans (APs) that will be used to respond to events and incidents. As part of the overall ERP planning process, the City has developed Planning Partnerships with other parties who have agreed to help the utility in an emergency situation. In addition, the City has developed Mutual Aid Agreements with both internal and external agencies and organizations in the event of a disaster or event that cause a catastrophic supply interruption.

The planning process also includes a vulnerability assessment and the development of Disaster Events or Scenarios and associated APs. The APs would include:

- Initiation and Notification Requirements
- Required Equipment
- Specific Activities that would be performed
    - Assess the problem
    - Isolation of the problem and fixing
    - Monitoring of the problem
    - Recovery from the problem and return to normal operations
    - Reporting of Findings

Since Metropolitan supplies a majority of the potable water to the City, it is important to understand the storage capability of Metropolitan and the emergency storage requirements that Metropolitan maintains. The following is a synopsis of Metropolitan's Emergency Storage Requirements.

Metropolitan's criteria for determining emergency storage requirements were established in the October 1991 Final Environmental Impact Report for the Eastside Reservoir, which is now named Diamond Valley Lake. They were again discussed in Southern California's 1996 Integrated Resources Plan and subsequent IRP Updates. Metropolitan's Board has approved both of these documents.

Emergency storage requirements are based on the potential of a major earthquake damaging the aqueducts that transport Southern California's imported water supplies (SWP, CRA, and Los Angeles Aqueduct). The adopted criteria assume that damage from such an event could render the aqueducts out of service for six months. Metropolitan's planning, therefore, is based on 100 percent reduction in its supplies for a period of six months.

Metropolitan's emergency planning is based on a greater shortage than required to safeguard the region from catastrophic loss of water supply and Metropolitan has made substantial investments in emergency storage. The emergency plan outlines that under such a catastrophe, interruptible service deliveries would be suspended and firm supplies to member agencies would be restricted by a mandatory cutback of 25 percent from normal-year demand levels. At the same time, water stored in surface reservoirs and groundwater basins under Metropolitan's interruptible program would be made available, and Metropolitan would draw on its emergency storage, as well as other available

storage. Metropolitan has reserved approximately half of Diamond Valley Lake storage to meet such an emergency, while the remainder is available for dry-year and seasonal supplies. In addition, Metropolitan has access to emergency storage at its other reservoirs, at the SWP terminal reservoirs, and in its groundwater conjunctive use storage accounts.

With few exceptions, Metropolitan can deliver this emergency supply throughout its service area via gravity, thereby eliminating dependence on power sources that could also be disrupted by a major earthquake. The Water Surplus and Drought Management (WSDM) Plan (MWD, 1999) shortage stages will guide Metropolitan's management of available supplies and resources during an emergency to minimize the impacts of the catastrophe.

Metropolitan has a long-standing policy to develop and maintain emergency storage reserves to ensure that Southern California has access to water during emergency conditions such as earthquakes and other disasters. Metropolitan's emergency storage planning criteria, codified in the 1991 Environmental Impact Report for Diamond Valley Lake, defined that the region should maintain adequate surface storage reserves to serve 75 percent of the firm retail demands for a six-month period. Further, it defined that these surface storage reserves should reside inside of the major earthquake fault lines that cross the SWP, CRA and Los Angeles Aqueduct (LAA). In 2015, approximately 650,000 acre-feet of storage is maintained in the major surface reservoirs in Southern California. Although these storage reserves are not part of the IRP resource portfolio, they serve to increase the overall water supply reliability and security for the people of the Metropolitan's service area.

Storage is a key component of water management. Storage enables the capture of surplus amounts of water in normal and wet climate and hydrologic conditions when it is plentiful for supply and environmental uses. Stored water can then be used in dry years and in conditions where augmented water supplies are needed to meet demands. Storage generally takes two forms: surface reservoirs and groundwater basin storage. Since 1990, Metropolitan has invested billions of dollars to develop both forms of storage. In total, Metropolitan has developed dry-year storage with a capacity of more than 5.5 million acre-feet, a thirteen fold increase in storage capacity available to manage regional water supplies. Some examples of storage resources that have been developed since 1990 include:

Surface Water Reservoirs

- Diamond Valley Lake (810,000 acre-feet)
- SWP Article 56 Carryover Storage (up to 200,000 acre-feet)
- Flexible Storage in Castaic Lake and Lake Perris (219,000 acre-feet)
- Intentionally-Created Surplus in Lake Mead (1.5 million acre-feet)

Groundwater Storage

- Member Agency Conjunctive Use Programs (210,000 acre-feet)

- Semitropic Storage Program (350,000 acre-feet)
- Arvin-Edison Storage Program (350,000 acre-feet)
- San Bernardino Metropolitan Storage Program (50,000 acre-feet)
- Kern Delta Water District Storage Program (250,000 acre-feet)
- Mojave Storage Program (390,000 acre-feet)

Table 8-3A shows the total storage capacity, aggregated put and take capacities (i.e., how much that can be "put" into storage, or taken out) and the projected 2015 end of year storage balance.

Table 8-3A: Metropolitan Storage Program Capacities & 2015 Balances (Acre Feet)

Element	Program Storage Capacity	Maximum Put Capacity	Maximum Take Capacity	2015 Estimated Ending Balance[a]
Central Valley and SWP	1,630,000	540,000	560,000	460,000
Colorado River	2,390,000	650,000	600,000	290,000
In-Region	1,300,000	900,000	940,000	190,000
Subtotal Dry-Year Storage	5,320,000	2,090,000	2,100,000	940,000
Emergency Storage	647,000	647,000	0	647,000
Total Storage	5,967,000	2,737,000	2,100,000	1,587,000
Source: Draft Metropolitan 2015 Integrated Resources Plan				

(a) Based on trend as of September 2015; May vary depending on demands and hydrologic conditions in any given future year.

City Emergency Connections

Lastly, the City of Beverly Hills has two emergency water supply connections with the City of Los Angeles' Department of Water and Power (LADWP). The metered connections have designed capacities of 25 cfs and 3.34 cfs. City staff must contact the City of Los Angeles to request the activation of either connection. Activation of the connection(s) is dependent upon and subject to the prior needs of the LADWP customers and availability of surplus water. In accordance with the water transfer agreement, both agencies are required to meet in the field at each connection and agree to the volumetric reading of the meter prior to activation.

Electrical Outages

Metropolitan has also developed contingency plans that enable it to deal with both planned and unplanned electrical outages. These plans include the following key points:

- In event of power outages, water supply can be maintained by gravity feed from Diamond Valley Lake, Lake Mathews, Castaic Lake, and Silverwood Lake.

- Maintaining water treatment operations is a key concern. As a result, all Metropolitan treatment plants have backup generation sufficient to continue operating in event of supply failure on the main electrical grid
- Valves at Lake Skinner (Riverside) can be operated by the backup generation at the Lake Skinner treatment plant
- Metropolitan owns mobile generators that can be transported quickly to key locations if necessary

8.9 MINIMUM SUPPLY NEXT THREE YEARS

Due to the natural replenishment of the Hollywood Basin coming from surface and subsurface flows (in addition to percolation from precipitation) and the approximately 78,000 AF of groundwater in storage, the Hollywood Basin has moderate dry season groundwater supply protection. Furthermore, since the City will continue to have access to imported water, the City may import water to meet demand, if necessary.

Imported water supplies, like groundwater, are subject to demand increases and reduced supplies during dry years. However, Metropolitan modeling in its draft 2015 UWMP, as referenced in Section 7, results in 100 percent reliability for full-service demands through the year 2040 for all climatic conditions. Based on the conditions described above, the City anticipates the ability to meet water demand for all climatic conditions for the near future.

The minimum water supply estimated for the City for the next three years is shown in Table 8-4.

Table 8-4: Minimum Supply Next Three Years (AFY)

	2016	2017	2018
Available Water Supply	10,566	10,700	10,835

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9 DEMAND MANAGEMENT MEASURES

The water conservation programs, also called demand management measures (DMMs), the City has implemented, is currently implementing, and plans to implement in order to meet its urban water use reduction targets are presented in this section.

The section of the California Water Code (CWC 10631) addressing DMMs was significantly modified in 2014, based on recommendations from the Independent Technical Panel (ITP) to the legislature. The ITP was formed by DWR to provide information and recommendations to DWR and the Legislature on new demand management measures, technologies and approaches to water use efficiency. In its report to the Legislature, the ITP recommended that the UWMP Act should be amended to simplify, clarify, and update the demand management measure reporting requirements. The ITP recommended, and the legislature enacted, streamlining the retail agency requirements from 14 specific measures to six more general requirements plus an "other" category.

CWC 10631

(f)(A) The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

i. Water waste prevention ordinances.
ii. Metering.
iii. Conservation pricing.
iv. Public education and outreach.
v. Programs to assess and manage distribution system real loss.
vi. Water conservation program coordination and staffing support.
vii. Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

9.1 DEMAND MANAGEMENT MEASURES FOR RETAIL AGENCIES

9.1.1 Water Waste Prevention Ordinances

A water waste ordinance explicitly states that the waste of water is to be prohibited. The ordinance may prohibit specific actions that waste water, such as excessive runoff from landscape irrigation, or use of a hose outdoors without a shut off nozzle. A water waste prevention ordinance is in place at all times and is not dependent upon a water shortage for implementation. However a water waste ordinance may include increasingly restrictive prohibitions that may be implemented in response to shortages.

The City does not have a water waste prevention ordinance at this time, but is currently in the process of developing one that will be adopted by the City.

9.1.1.1 Sustainability Plan

Although the City does not have an adopted water waste prevention ordinance, the City did approve a Sustainability Plan which recognizes water conservation as one of the strategies towards achieving a sustainable city. The Sustainability Plan establishes guiding principles and goals that the City will use to develop and implement programs that focus on sustainability. The Sustainability Plan also provides an implementation framework and suggests a means of prioritization to assure that the most effective policies and programs are implemented first.

The Sustainability Plan sets forth specific activities related to the overall process. Specifically, the Sustainability Plan calls for:

- *Development of an implementation and monitoring program* – This puts the Plan into action and is based on the goals, objectives, policies and framework provided.
- *Compilation of baseline information on City operations* – This provides information on how the City is currently performing and identifies areas of improvement.
- *Standardization of reporting* – This establishes a systematic means of providing information on program results.
- *Identification of Measures* – This provides a means of assessing success at reaching the sustainability goals.
- *Modification of City activities, operations and programs* – This facilitates a move in current City processes towards more sustainable options.
- *Initiation of new activities, operations and programs* – This allows the City to introduce new activities, operations and programs to further the sustainability goals.
- *Monitoring, periodically reporting and modifying City activities, operations and programs* – This provides a means of periodically ensuring that the City is progressing towards reaching the sustainability goals.

The Sustainability Plan addresses water conservation by indicating that *"Water is a precious and scarce resource in California."* As such, the Sustainability Plan has developed a goal, objective, and policies related to sustainability of water use in the City. Specifically:

Goal - Reduce water use while maintaining a garden-like quality in the City.

Objective - Use water efficiently and effectively while managing storm and waste water in a beneficial manner.

Policies

1. Minimize water consumption, particularly for landscaping through efficient irrigation and drought-tolerant landscaping.
2. Maximize the availability and use of alternative water sources to provide adequate water supplies for present uses and future growth.

3. Replenish groundwater to ensure its future availability and to filter storm water before entering local water bodies.
4. Maintain and improve dry and wet weather storm water runoff quality to protect local water bodies such as Ballona Creek and Santa Monica Bay.
5. Reduce the amount of dry and wet weather storm water runoff directly entering the storm water drainage system.
6. Minimize the adverse effects to water quality from the sanitary sewer system.

The City's process of sustainability is built on the concept that sustainability is an iterative process that requires regular and periodic evaluation at all levels. In this process, goals are set and existing policies, programs and actions are evaluated, modified and implemented. At an established future date, the programs and actions are then re-evaluated based on how well they have met the established goals. If the programs and actions are not meeting the City's goals, they can be modified or enhanced and re-implemented. This process is then repeated until the City's goals have been met.

For items related to water sustainability, the City is considering the following actions:

1. Adopt policies that promote the conservation of water resources, a reduction of potable water used for irrigation, and an overall reduction in the amount of storm water runoff directly entering the storm water drainage system.
2. Prepare and implement an integrated water resources plan that evaluates and plans for the use of water in City operations and communitywide. An integrated plan addresses all water issues in a unified manner to maximize water efficiency; maximize the use of alternative sources of water (recycled water, gray water, storm water, and groundwater that otherwise enters the storm water system due to the dewatering of subterranean structures); protect groundwater and the watershed, including receiving waters and Santa Monica Bay, and ensure that the City's water infrastructure is maintained in a manner that minimizes leakage and ensures adequate supply. As part of the plan, structure rates to encourage efficiency by charging more for higher, non-critical levels of consumption.
3. Explore alternative methods of managing storm water runoff in an effort to decrease the amount of runoff directly entering the storm water drainage system.
4. Strengthen the City's water efficiency standards for properties that are sold and new development projects for both landscape and interior water uses to require fixtures and strategies that exceed code requirements.
5. Update the City's Standard Urban Storm Water Mitigation Program (SUSMP) to ensure the quality of storm water runoff. The Plan should incorporate the Beverly Hills Storm Water System Plan, Street Tree Plan, and a broad array of strategies including catch basin filters, permeable surfaces, debris removal, and storm water capture and recharge on both public and private parcels.
6. Prepare and implement a Sanitary Sewer Management Plan that includes a preventative maintenance program, emergency spill response procedures, a

construction and restaurant inspection program, and pollution mitigation measures. Continue to inspect and upgrade the City's sewer infrastructure to minimize deficiencies and reduce leaks and contamination.

7. Continue appropriate water-related partnerships with, for example, the Beverly Hills Unified School District and the City of West Hollywood.
8. Ensure that all new and replacement water system infrastructure is sized to adequately meet the needs of current and future demand without being oversized or over-built.
9. Encourage the use and logical placement of native and drought-tolerant plants in landscaping to maintain and enhance the "garden quality of the City" while reducing overall water used for irrigation.

9.1.2 Metering

The City maintains water meters on all residential, commercial, industrial and municipal connections to the City's water distribution system. As part of the City's new water meter change out program, the City is employing an Advanced Metering Infrastructure (AMI). The following discussion presents an overview of the SMART meter program.

9.1.2.1 SMART Meters

The AMI uses new Neptune Water Meters that are SMART meters that can detect a suspected leak if it is on the residential property. The new water meters use a fixed network system where the water meter sends the water meter reading hourly to a Data Collection Unit. The Data Collection Unit calls into the network computer each morning around 2:00 A.M. These meters will determine if there is a leak on the customer's property. If there is a continuous usage of water over a 24-hour period the system will send out an alarm noting the address so the City's Customer Service Representative can notify the customer that they have a suspected leak on their property.

9.1.3 Conservation Pricing

The City currently uses a tiered water rate structure with higher water usage falling in higher price tiers. Single family and multi-family have a tiered water rate structure while commercial customers have a single tiered water rate.

9.1.4 Public Education and Outreach

The City recognizes the importance of conservation and the use of public education and outreach to convey information. Public education programs and messaging is continually being conveyed at various City events and public forums. Examples of events include:

- Farmer's Market
- Earth Day
- Team Beverly Hills
- Public Works Day

In addition, City staff has made numerous presentations to various community groups including but not limited to City Council presentations and Chamber of Commerce business partners. The City also promotes the drought tolerant landscaping classes to its customers and partners with Metropolitan Water District on such efforts. The City has also promoted rebate programs related to turf removal and water efficient devices. Moreover, the City has partnered with Metropolitan in school education outreach programs that provide information to children to learn the importance of water conservation. In past years, funding for conservation programs averaged about $30,000 per year. In 2015, the City expanded its efforts by spending approximately $737,000 on mailings, outreach materials, and supplementing rebate programs to promote conservation.

Additionally in 2015, the City launched a conservation web portal to promote conservation. The website titled BHsaves.org provides information regarding:

- Methods to reduce water use;
- Watering restrictions;
- Fines and surcharges associated with violation of watering restrictions;
- Water rebates for installing certain water saving devices;
- Individual water metering monitoring; and
- Other frequently asked questions regarding water use and conservation

The City will continue to use Public Education and outreach programs to convey water conservation information and updates.

9.1.5 Programs to Assess and Manage Distribution System Real Loss

The City uses the SMART water meter technology to proactively identify potential leaks and notifies water customers so they can repair leaks in a timely manner and minimize water loss. During FY15-16, the City earmarked funds for capital improvement projects to promote conservation. This includes the development and implementation of a system to detect and manage distribution system real loss. Approximately $182,000 was earmarked in FY2015-2016 for capital projects related to managing distribution system water loss.

The City has several systems to assess and manage the loss of water in the overall water distribution system and are described below:

9.1.5.1 Permalog System

The City maintains a Permalog Leak Detection System. Approximately 40 PermaLog leak detection modules are placed on water valves in the distribution system. When they are placed in the valve well on the valve and activated, the modules will listen for leaks at approximately 2:00 am and if they detect a leak they will listen again an hour later. The information is stored on the modules memory and later retrieved with a lap top computer generally once a week. The 40 PermaLogs are placed in an area or quadrant of the

distribution system and will cover a large area. If no leak is detected over a period of one to two weeks the modules will be removed and relocated to another area. If a leak is discovered it will be scheduled for repair and the units left in place for another one to two weeks to see if any other leaks are detected before they are relocated.

9.1.5.2 SMART Meters

In the City's new water meter change out program, the new Neptune Water Meters are SMART meters that can detect a leak. The new water meters use a fixed network system. This means the water meter sends the water meter reading hourly to a Data Collection Unit. Then the Data Collection Unit calls into the network computer each morning around 2:00 A.M. These meters will determine if there is a leak on the customer's property. If there is a continuous usage of water over a 24-hour period the system will send out an alarm noting the address so the City's Customer Service Representative can notify the customer that they have a suspected leak on their property.

9.1.6 Water Conservation Program Coordination and Staffing Support

As part of the City's long term strategy to improve the City's water system reliability and water conservation, the City recognized the need to have a person specifically devoted to conservation efforts. During FY15-16, the City established a Conservation Administrator position to develop, oversee and manage programs to help the City achieve its conservation goals.

9.2 IMPLEMENTATION OVER THE PAST FIVE YEARS

9.2.1 Water Waste Prevention Ordinances

A water waste prevention ordinance is in place at all times and is not dependent upon a water shortage for implementation. The City does not have a water waste prevention ordinance at this time, but is currently in the process of developing one that will be adopted by the City.

9.2.2 Metering

The City started instituting SMART meter technology in 2008. Water usage information collected via the SMART meter technology allowed the City to also develop an online tool for water customers to review and monitor their water usage with the goal to have water customers become more aware of their water usage and to encourage water conservation. The City earmarked $440,000 to upgrade approximately 11,000 meter transmitting units ("MTUs") with the project commencing in 2014 and expected completion date is 2016, which will result in water customers being able to see their water usage on an hourly basis and be notified of continuous usage, which may be a sign of a water leak. A designated Water Meter Technician is assigned to monitor and maintain this SMART meter system. A second Water Meter Technician position was approved during FY15-16 budget cycle to maintain the City's SMART water meter system.

9.2.3 Conservation Pricing

In 2015, the City embarked on a water rate analysis, with consideration given towards developing a water rate structure that would account for the City's long term water conservation goals, among other objectives.

9.2.4 Public Education and Outreach

In past years, funding for conservation programs averaged about $30,000 per year. In 2015, the City expanded its efforts by spending approximately $737,000 on mailings, outreach materials, and supplementing rebate programs to promote conservation.

9.2.5 Programs to Assess and Manage Distribution System Real Loss

During the period 2011-2015 the City replaced approximately 3.0 miles of pipeline annually at a cost of approximately $3 million/year, on average. In addition, the City earmarked funds for capital improvement projects to promote conservation for FY2015-2016. This includes the development and implementation of a system to detect and manage distribution system real loss. Approximately $182,000 was earmarked in FY2015-2016 for capital projects related to managing distribution system water loss.

9.2.6 Water Conservation Program Coordination and Staffing Support

During FY15-16, the City established a Conservation Administrator position to develop, oversee and manage programs to help the City achieve its conservation goals.

9.3 PLANNED IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

9.3.1 Water Waste Prevention Ordinances

The City does not have a water waste prevention ordinance at this time, but is currently in the process of developing one that will be adopted by the City.

9.3.2 Metering

The City will continue to use the SMART water meter technology to proactively identify potential leaks and notifies water customers so they can repair leaks in a timely manner and minimize water loss.

9.3.3 Conservation Pricing

The City is developing a rate structure to provide incentives to customers to use water efficiently, which is anticipated to be implemented in 2016.

9.3.4 Public Education and Outreach

The City will continue with the Public education programs and messaging is continually being conveyed at various City events and public forums. In addition, City staff will continue to attend and present water sustainability concepts through numerous presentations to various community groups including but not limited to City Council presentations and Chamber of Commerce business partners. The City will also continue

to promote the drought tolerant landscaping classes to its customers and partners with Metropolitan Water District.

The City will also continue to promote rebate programs related to turf removal and water efficient devices. Moreover, the City will continue to partner with Metropolitan in school education outreach programs that provide information to children to learn the importance of water conservation.

9.3.5 Programs to Assess and Manage Distribution System Real Loss

The City will continue to use the systems that it has operated to manage and minimize the loss of water in the overall water distribution system: Permalog System and Smart Meters. The continued monitoring and repair of leaks of the water distribution system will assist in minimizing the loss of water in the overall water distribution system.

9.3.6 Water Conservation Program Coordination and Staffing Support

The City will continue to add staff in support of their water conservation program.

9.4 MEMBERS OF THE CALIFORNIA URBAN WATER CONSERVATION COUNCIL

To conserve California's water resources, several public water agencies, and other interested parties of the California Urban Water Conservation Council (CUWCC) drafted the Memorandum of Understanding Regarding Urban Water Conservation (MOU) in 1991. The MOU establishes 14 Best Management Practices (BMPs) which are defined roughly as policies, programs, practices, rules, regulations, or ordinances that result in the more efficient use or conservation of water.

The 14 BMPs coincide with the original 14 Demand Management Measures (DMMs) defined in the UWMP Act. The BMPs were intended to reduce long-term urban demands from what they would have been without their implementation and are in addition to programs which may be instituted during occasional water supply shortages.

As signatory to the MOU, the City of Beverly Hills has committed to use good-faith efforts to implement the original 14 Demand Management Measures. In addition, the City has continued to work with the Metropolitan to increase the effectiveness of its DMM programs and educate children on the importance of water conservation.

Overall, the City's conservation efforts as a member of CUWCC have led to efficient water use. These measurements have been updated to include the most recent data and implementation schedule for the DMMs.

10 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

10.1 INCLUSION OF ALL 2015 DATA

The City's 2015 UWMP consists of water use and planning data for the entire year of 2015. The City is reporting on a 2015 calendar year basis.

10.2 NOTICE OF PUBLIC HEARING

The City will hold a public hearing prior to adopting the 2015 UWMP. The public hearing will provide an opportunity for the public to provide input to the plan before it is adopted. The City will consider all public input. There are two audiences to be noticed for the public hearing: 1) the public, and 2) the City of West Hollywood, which receive water supply from the City of Beverly Hills.

CWC 10642
...Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection...Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code...

Government Code 6066
Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

The City's public notice was sent out for public and City of Hollywood inspection the week of April 4, 2016. A copy of the public notice is included in Appendix F.

Table 10-1: Notification to Cities

City Name	60 Day Notice	Notice of Public Hearing
West Hollywood	Yes	Yes

10.3 PUBLIC HEARING AND ADOPTION

As part of the public hearing, the City will provide information on their baseline values, water use targets, and implementation plan required in the Water Conservation Act of 2009. The public hearing on the UWMP will take place before the adoption of the UWMP, which will allow the City the opportunity to modify the UWMP in response to

public input before adoption. The City will formally adopt the UWMP before submitting the UWMP to DWR. A copy of the City's adoption resolution is included in Appendix F.

10.4 PLAN SUBMITTAL

The City's 2015 UWMP will be submitted to DWR within 30 days of adoption and by July 1, 2016. UWMP submittal will be done electronically through WUEdata, an online submittal tool. After the UWMP has been submitted, DWR will review the plan and make a determination as to whether or not the UWMP addresses the requirements of the CWC. The DWR reviewer will contact the water supplier as needed during the review process. Upon completion of the Plan review, DWR will issue a letter to the agency with the results of the review.

No later than 30 days after adoption, the City will submit a CD or hardcopy of the adopted 2015 UWMP to the California State Library. No later than 30 days after adoption, the City will also submit a copy of the adopted 2015 UWMP to the City of West Hollywood, which can be an electronic copy.

10.5 PUBLIC AVAILABILITY

Not later than 30 days after filing a copy of its plan with DWR, the City will l make the plan available for public review during normal business hours by placing a copy of the UWMP at the front desk of the City's Public Works office, and by posting the UWMP on the City's website for public viewing.

10.6 AMENDING AN ADOPTED UWMP

If the City amends the adopted UWMP, each of the steps for notification, public hearing, adoption, and submittal will also be followed for the amended plan.

APPENDIX A

URBAN WATER MANAGEMENT PLANNING ACT

CALIFORNIA WATER CODE DIVISION 6
PART 2.6. URBAN WATER MANAGEMENT PLANNING

All California Codes have been updated to include the 2010 Statutes.

CHAPTER 1.	GENERAL DECLARATION AND POLICY	10610-10610.4
CHAPTER 2.	DEFINITIONS	10611-10617
CHAPTER 3.	URBAN WATER MANAGEMENT PLANS	
Article 1.	General Provisions	10620-10621
Article 2.	Contents of Plans	10630-10634
Article 2.5.	Water Service Reliability	10635
Article 3.	Adoption and Implementation of Plans	10640-10645
CHAPTER 4.	MISCELLANEOUS PROVISIONS	10650-10656

WATER CODE
SECTION 10610-10610.4

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact

on water management strategies and supply reliability.
(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:
(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.
(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.
(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

WATER CODE
SECTION 10611-10617

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. "Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city

and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

WATER CODE
SECTION 10620-10621

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water

supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

WATER CODE
SECTION 10630-10634

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.
(K) Conservation pricing.
(L) Water conservation coordinator.
(M) Water waste prohibition.
(N) Residential ultra-low-flush toilet replacement programs.
(2) A schedule of implementation for all water demand management measures proposed or described in the plan.
(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.
(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.
(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:
(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.
(2) Include a cost-benefit analysis, identifying total benefits and total costs.
(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.
(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.
(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.
(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.
(j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California,"

dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

(k) Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

10631.1. (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall

determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of

the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

10632. (a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.

(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic

sequence for the agency's water supply.

(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(6) Penalties or charges for excessive use, where applicable.

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(8) A draft water shortage contingency resolution or ordinance.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

(b) Commencing with the urban water management plan update due December 31, 2015, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's

service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

WATER CODE SECTION 10635

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

WATER CODE
SECTION 10640-10645

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630).

The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644. (a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section

10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

WATER CODE
SECTION 10650-10656

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the

"Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

Senate Bill No. 7

CHAPTER 4

An act to amend and repeal Section 10631.5 of, to add Part 2.55 (commencing with Section 10608) to Division 6 of, and to repeal and add Part 2.8 (commencing with Section 10800) of Division 6 of, the Water Code, relating to water.

[Approved by Governor November 10, 2009. Filed with Secretary of State November 10, 2009.]

LEGISLATIVE COUNSEL'S DIGEST

SB 7, Steinberg. Water conservation.

(1) Existing law requires the Department of Water Resources to convene an independent technical panel to provide information to the department and the Legislature on new demand management measures, technologies, and approaches. "Demand management measures" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

This bill would require the state to achieve a 20% reduction in urban per capita water use in California by December 31, 2020. The state would be required to make incremental progress towards this goal by reducing per capita water use by at least 10% on or before December 31, 2015. The bill would require each urban retail water supplier to develop urban water use targets and an interim urban water use target, in accordance with specified requirements. The bill would require agricultural water suppliers to implement efficient water management practices. The bill would require the department, in consultation with other state agencies, to develop a single standardized water use reporting form. The bill, with certain exceptions, would provide that urban retail water suppliers, on and after July 1, 2016, and agricultural water suppliers, on and after July 1, 2013, are not eligible for state water grants or loans unless they comply with the water conservation requirements established by the bill. The bill would repeal, on July 1, 2016, an existing requirement that conditions eligibility for certain water management grants or loans to an urban water supplier on the implementation of certain water demand management measures.

(2) Existing law, until January 1, 1993, and thereafter only as specified, requires certain agricultural water suppliers to prepare and adopt water management plans.

This bill would revise existing law relating to agricultural water management planning to require agricultural water suppliers to prepare and adopt agricultural water management plans with specified components on or before December 31, 2012, and update those plans on or before December

31, 2015, and on or before December 31 every 5 years thereafter. An agricultural water supplier that becomes an agricultural water supplier after December 31, 2012, would be required to prepare and adopt an agricultural water management plan within one year after becoming an agricultural water supplier. The agricultural water supplier would be required to notify each city or county within which the supplier provides water supplies with regard to the preparation or review of the plan. The bill would require the agricultural water supplier to submit copies of the plan to the department and other specified entities. The bill would provide that an agricultural water supplier is not eligible for state water grants or loans unless the supplier complies with the water management planning requirements established by the bill.

(3) The bill would take effect only if SB 1 and SB 6 of the 2009–10 7th Extraordinary Session of the Legislature are enacted and become effective.

The people of the State of California do enact as follows:

SECTION 1. Part 2.55 (commencing with Section 10608) is added to Division 6 of the Water Code, to read:

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION

CHAPTER 1. GENERAL DECLARATIONS AND POLICY

10608. The Legislature finds and declares all of the following:

(a) Water is a public resource that the California Constitution protects against waste and unreasonable use.

(b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.

(c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.

(d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.

(e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.

(f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.

(g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.

(h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

(i) Per capita water use is a valid measure of a water provider's efforts to reduce urban water use within its service area. However, per capita water use is less useful for measuring relative water use efficiency between different water providers. Differences in weather, historical patterns of urban and suburban development, and density of housing in a particular location need to be considered when assessing per capita water use as a measure of efficiency.

10608.4. It is the intent of the Legislature, by the enactment of this part, to do all of the following:

(a) Require all water suppliers to increase the efficiency of use of this essential resource.

(b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.

(c) Measure increased efficiency of urban water use on a per capita basis.

(d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.

(e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.

(f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.

(g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.

(h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.

(i) Require implementation of specified efficient water management practices for agricultural water suppliers.

(j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.

(k) Advance regional water resources management.

10608.8. (a) (1) Water use efficiency measures adopted and implemented pursuant to this part or Part 2.8 (commencing with Section 10800) are water conservation measures subject to the protections provided under Section 1011.

(2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an

administrative proceeding. This paragraph shall become inoperative on January 1, 2021.

(3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.

(b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

(c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.

(d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

Chapter 2. Definitions

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of

a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

(c) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(d) "Commercial water user" means a water user that provides or distributes a product or service.

(e) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

(f) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

(g) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

(h) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.

(i) "Institutional water user" means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

(j) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(k) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(*l*) "Process water" means water used for producing a product or product content or water used for research and development, including, but not limited to, continuous manufacturing processes, water used for testing and maintaining equipment used in producing a product or product content, and

water used in combined heat and power facilities used in producing a product or product content. Process water does not mean incidental water uses not related to the production of a product or product content, including, but not limited to, water used for restrooms, landscaping, air conditioning, heating, kitchens, and laundry.

(m) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050, that is used to offset potable demand, including recycled water supplied for direct use and indirect potable reuse, that meets the following requirements, where applicable:

(1) For groundwater recharge, including recharge through spreading basins, water supplies that are all of the following:

(A) Metered.

(B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.

(C) Treated to a minimum tertiary level.

(D) Delivered within the service area of an urban retail water supplier or its urban wholesale water supplier that helps an urban retail water supplier meet its urban water use target.

(2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution system constructed specifically for recycled water.

(n) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(o) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(p) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(q) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(r) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Chapter 3. Urban Retail Water Suppliers

10608.16. (a) The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020.

(b) The state shall make incremental progress towards the state target specified in subdivision (a) by reducing urban per capita water use by at least 10 percent on or before December 31, 2015.

10608.20. (a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

(2) It is the intent of the Legislature that the urban water use targets described in subdivision (a) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.

(b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its Internet Web site, and make written copies

available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with subdivision (*l*) of Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(j) An urban retail water supplier shall be granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

10608.24. (a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

(b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.

(c) An urban retail water supplier's compliance daily per capita water use shall be the measure of progress toward achievement of its urban water use target.

(d) (1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

(e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area, may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.

(f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.

(2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

10608.26. (a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

(b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.

(c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the United States Department of Defense military installation's requirements under federal Executive Order 13423.

(d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

(2) This part shall not be construed or enforced so as to interfere with the requirements of Chapter 4 (commencing with Section 113980) to Chapter 13 (commencing with Section 114380), inclusive, of Part 7 of Division 104 of the Health and Safety Code, or any requirement or standard for the protection of public health, public safety, or worker safety established by federal, state, or local government or recommended by recognized standard setting organizations or trade associations.

10608.28. (a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

10608.32. All costs incurred pursuant to this part by a water utility regulated by the Public Utilities Commission may be recoverable in rates subject to review and approval by the Public Utilities Commission, and may be recorded in a memorandum account and reviewed for reasonableness by the Public Utilities Commission.

10608.36. Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

10608.42. The department shall review the 2015 urban water management plans and report to the Legislature by December 31, 2016, on progress towards achieving a 20-percent reduction in urban water use by December 31, 2020. The report shall include recommendations on changes to water efficiency standards or urban water use targets in order to achieve

the 20-percent reduction and to reflect updated efficiency information and technology changes.

10608.43. The department, in conjunction with the California Urban Water Conservation Council, by April 1, 2010, shall convene a representative task force consisting of academic experts, urban retail water suppliers, environmental organizations, commercial water users, industrial water users, and institutional water users to develop alternative best management practices for commercial, industrial, and institutional users and an assessment of the potential statewide water use efficiency improvement in the commercial, industrial, and institutional sectors that would result from implementation of these best management practices. The taskforce, in conjunction with the department, shall submit a report to the Legislature by April 1, 2012, that shall include a review of multiple sectors within commercial, industrial, and institutional users and that shall recommend water use efficiency standards for commercial, industrial, and institutional users among various sectors of water use. The report shall include, but not be limited to, the following:

(a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.

(b) Evaluation of water demands for manufacturing processes, goods, and cooling.

(c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.

(d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.

(e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

10608.44. Each state agency shall reduce water use on facilities it operates to support urban retail water suppliers in meeting the target identified in Section 10608.16.

Chapter 4. Agricultural Water Suppliers

10608.48. (a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:

(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.

(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.

(3) Facilitate the financing of capital improvements for on-farm irrigation systems.

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.

(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.

(7) Construct and operate supplier spill and tailwater recovery systems.

(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.

(9) Automate canal control structures.

(10) Facilitate or promote customer pump testing and evaluation.

(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:

(A) On-farm irrigation and drainage system evaluations.

(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.

(C) Surface water, groundwater, and drainage water quantity and quality data.

(D) Agricultural water management educational programs and materials for farmers, staff, and the public.

(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.

(14) Evaluate and improve the efficiencies of the supplier's pumps.

(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

(e) The data shall be reported using a standardized form developed pursuant to Section 10608.52.

(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

(i) (1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

Chapter 5. Sustainable Water Management

10608.50. (a) The department, in consultation with the board, shall promote implementation of regional water resources management practices through increased incentives and removal of barriers consistent with state and federal law. Potential changes may include, but are not limited to, all of the following:

(1) Revisions to the requirements for urban and agricultural water management plans.

(2) Revisions to the requirements for integrated regional water management plans.

(3) Revisions to the eligibility for state water management grants and loans.

(4) Revisions to state or local permitting requirements that increase water supply opportunities, but do not weaken water quality protection under state and federal law.

(5) Increased funding for research, feasibility studies, and project construction.

(6) Expanding technical and educational support for local land use and water management agencies.

(b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.

Chapter 6. Standardized Data Collection

10608.52. (a) The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision (a) of Section 10608.28.

(b) At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24 and an agricultural water supplier's compliance with implementation of efficient water management practices pursuant to subdivision (a) of Section 10608.48. The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

Chapter 7. Funding Provisions

10608.56. (a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(b) On and after July 1, 2013, an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(d) Notwithstanding subdivision (b), the department shall determine that an agricultural water supplier is eligible for a water grant or loan even though the supplier is not implementing all of the efficient water management practices described in Section 10608.48, if the agricultural water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the efficient water management practices. The supplier may request grant or loan funds to implement the efficient water management practices to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(e) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community.

(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 10800), that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).

10608.60. (a) It is the intent of the Legislature that funds made available by Section 75026 of the Public Resources Code should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for grants to implement this part. In the allocation of funding, it is the intent of the

Legislature that the department give consideration to disadvantaged communities to assist in implementing the requirements of this part.

(b) It is the intent of the Legislature that funds made available by Section 75041 of the Public Resources Code, should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for direct expenditures to implement this part.

Chapter 8. Quantifying Agricultural Water Use Efficiency

10608.64. The department, in consultation with the Agricultural Water Management Council, academic experts, and other stakeholders, shall develop a methodology for quantifying the efficiency of agricultural water use. Alternatives to be assessed shall include, but not be limited to, determination of efficiency levels based on crop type or irrigation system distribution uniformity. On or before December 31, 2011, the department shall report to the Legislature on a proposed methodology and a plan for implementation. The plan shall include the estimated implementation costs and the types of data needed to support the methodology. Nothing in this section authorizes the department to implement a methodology established pursuant to this section.

SEC. 2. Section 10631.5 of the Water Code is amended to read:

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

SEC. 3. Part 2.8 (commencing with Section 10800) of Division 6 of the Water Code is repealed.

SEC. 4. Part 2.8 (commencing with Section 10800) is added to Division 6 of the Water Code, to read:

PART 2.8. AGRICULTURAL WATER MANAGEMENT PLANNING

CHAPTER 1. GENERAL DECLARATIONS AND POLICY

10800. This part shall be known and may be cited as the Agricultural Water Management Planning Act.

10801. The Legislature finds and declares all of the following:

(a) The waters of the state are a limited and renewable resource.

(b) The California Constitution requires that water in the state be used in a reasonable and beneficial manner.

(c) Urban water districts are required to adopt water management plans.

(d) The conservation of agricultural water supplies is of great statewide concern.

(e) There is a great amount of reuse of delivered water, both inside and outside the water service areas.

(f) Significant noncrop beneficial uses are associated with agricultural water use, including streamflows and wildlife habitat.

(g) Significant opportunities exist in some areas, through improved irrigation water management, to conserve water or to reduce the quantity of highly saline or toxic drainage water.

(h) Changes in water management practices should be carefully planned and implemented to minimize adverse effects on other beneficial uses currently being served.

(i) Agricultural water suppliers that receive water from the federal Central Valley Project are required by federal law to prepare and implement water conservation plans.

(j) Agricultural water users applying for a permit to appropriate water from the board are required to prepare and implement water conservation plans.

10802. The Legislature finds and declares that all of the following are the policies of the state:

(a) The conservation of water shall be pursued actively to protect both the people of the state and the state's water resources.

(b) The conservation of agricultural water supplies shall be an important criterion in public decisions with regard to water.

(c) Agricultural water suppliers shall be required to prepare water management plans to achieve conservation of water.

Chapter 2. Definitions

10810. Unless the context otherwise requires, the definitions set forth in this chapter govern the construction of this part.

10811. "Agricultural water management plan" or "plan" means an agricultural water management plan prepared pursuant to this part.

10812. "Agricultural water supplier" has the same meaning as defined in Section 10608.12.

10813. "Customer" means a purchaser of water from a water supplier who uses water for agricultural purposes.

10814. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of that entity.

10815. "Public agency" means any city, county, city and county, special district, or other public entity.

10816. "Urban water supplier" has the same meaning as set forth in Section 10617.

10817. "Water conservation" means the efficient management of water resources for beneficial uses, preventing waste, or accomplishing additional benefits with the same amount of water.

Chapter 3. Agricultural Water Management Plans

Article 1. General Provisions

10820. (a) An agricultural water supplier shall prepare and adopt an agricultural water management plan in the manner set forth in this chapter on or before December 31, 2012, and shall update that plan on December 31, 2015, and on or before December 31 every five years thereafter.

(b) Every supplier that becomes an agricultural water supplier after December 31, 2012, shall prepare and adopt an agricultural water management plan within one year after the date it has become an agricultural water supplier.

(c) A water supplier that indirectly provides water to customers for agricultural purposes shall not prepare a plan pursuant to this part without the consent of each agricultural water supplier that directly provides that water to its customers.

10821. (a) An agricultural water supplier required to prepare a plan pursuant to this part shall notify each city or county within which the supplier provides water supplies that the agricultural water supplier will be preparing the plan or reviewing the plan and considering amendments or changes to the plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice pursuant to this subdivision.

(b) The amendments to, or changes in, the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840).

Article 2. Contents of Plans

10825. (a) It is the intent of the Legislature in enacting this part to allow levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

(b) This part does not require the implementation of water conservation programs or practices that are not locally cost effective.

10826. An agricultural water management plan shall be adopted in accordance with this chapter. The plan shall do all of the following:

(a) Describe the agricultural water supplier and the service area, including all of the following:

(1) Size of the service area.

(2) Location of the service area and its water management facilities.

(3) Terrain and soils.

(4) Climate.

(5) Operating rules and regulations.
(6) Water delivery measurements or calculations.
(7) Water rate schedules and billing.
(8) Water shortage allocation policies.
(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:
(1) Surface water supply.
(2) Groundwater supply.
(3) Other water supplies.
(4) Source water quality monitoring practices.
(5) Water uses within the agricultural water supplier's service area, including all of the following:
(A) Agricultural.
(B) Environmental.
(C) Recreational.
(D) Municipal and industrial.
(E) Groundwater recharge.
(F) Transfers and exchanges.
(G) Other water uses.
(6) Drainage from the water supplier's service area.
(7) Water accounting, including all of the following:
(A) Quantifying the water supplier's water supplies.
(B) Tabulating water uses.
(C) Overall water budget.
(8) Water supply reliability.
(c) Include an analysis, based on available information, of the effect of climate change on future water supplies.
(d) Describe previous water management activities.
(e) Include in the plan the water use efficiency information required pursuant to Section 10608.48.

10827. Agricultural water suppliers that are members of the Agricultural Water Management Council, and that submit water management plans to that council in accordance with the "Memorandum of Understanding Regarding Efficient Water Management Practices By Agricultural Water Suppliers In California," dated January 1, 1999, may submit the water management plans identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of Section 10826.

10828. (a) Agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, may submit those water conservation plans to satisfy the requirements of Section 10826, if both of the following apply:
(1) The agricultural water supplier has adopted and submitted the water conservation plan to the United States Bureau of Reclamation within the previous four years.

(2) The United States Bureau of Reclamation has accepted the water conservation plan as adequate.

(b) This part does not require agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, to prepare and adopt water conservation plans according to a schedule that is different from that required by the United States Bureau of Reclamation.

10829. An agricultural water supplier may satisfy the requirements of this part by adopting an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) or by participation in areawide, regional, watershed, or basinwide water management planning if those plans meet or exceed the requirements of this part.

Article 3. Adoption and Implementation of Plans

10840. Every agricultural water supplier shall prepare its plan pursuant to Article 2 (commencing with Section 10825).

10841. Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan. After the hearing, the plan shall be adopted as prepared or as modified during or after the hearing.

10842. An agricultural water supplier shall implement the plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier.

10843. (a) An agricultural water supplier shall submit to the entities identified in subdivision (b) a copy of its plan no later than 30 days after the adoption of the plan. Copies of amendments or changes to the plans shall be submitted to the entities identified in subdivision (b) within 30 days after the adoption of the amendments or changes.

(b) An agricultural water supplier shall submit a copy of its plan and amendments or changes to the plan to each of the following entities:

(1) The department.

(2) Any city, county, or city and county within which the agricultural water supplier provides water supplies.

(3) Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.

(4) Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.

(5) Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.

(6) The California State Library.

(7) Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies.

10844. (a) Not later than 30 days after the date of adopting its plan, the agricultural water supplier shall make the plan available for public review on the agricultural water supplier's Internet Web site.

(b) An agricultural water supplier that does not have an Internet Web site shall submit to the department, not later than 30 days after the date of adopting its plan, a copy of the adopted plan in an electronic format. The department shall make the plan available for public review on the department's Internet Web site.

10845. (a) The department shall prepare and submit to the Legislature, on or before December 31, 2013, and thereafter in the years ending in six and years ending in one, a report summarizing the status of the plans adopted pursuant to this part.

(b) The report prepared by the department shall identify the outstanding elements of any plan adopted pursuant to this part. The report shall include an evaluation of the effectiveness of this part in promoting efficient agricultural water management practices and recommendations relating to proposed changes to this part, as appropriate.

(c) The department shall provide a copy of the report to each agricultural water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearing designed to consider the effectiveness of plans submitted pursuant to this part.

(d) This section does not authorize the department, in preparing the report, to approve, disapprove, or critique individual plans submitted pursuant to this part.

Chapter 4. Miscellaneous Provisions

10850. (a) Any action or proceeding to attack, review, set aside, void, or annul the acts or decisions of an agricultural water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(1) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(2) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 120 days after submitting the plan or amendments to the plan to entities in accordance with Section 10844 or the taking of that action.

(b) In an action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an agricultural water supplier, on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse

of discretion is established if the agricultural water supplier has not proceeded in a manner required by law, or if the action by the agricultural water supplier is not supported by substantial evidence.

10851. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part. This part does not exempt projects for implementation of the plan or for expanded or additional water supplies from the California Environmental Quality Act.

10852. An agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

10853. No agricultural water supplier that provides water to less than 25,000 irrigated acres, excluding recycled water, shall be required to implement the requirements of this part or Part 2.55 (commencing with Section 10608) unless sufficient funding has specifically been provided to that water supplier for these purposes.

SEC. 5. This act shall take effect only if Senate Bill 1 and Senate Bill 6 of the 2009–10 Seventh Extraordinary Session of the Legislature are enacted and become effective.

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APPENDIX B

DWR UWMP CHECKLIST ORGANIZED BY WATER CODE SECTION AND BY SUBJECT

(Appendix F from DWR UWMP Guidebook)

UWMP Checklist

This checklist is developed directly from the Urban Water Management Planning Act and SB X7-7. It is provided to support water suppliers during preparation of their UWMPs. Two versions of the UWMP Checklist are provided – the first one is organized according to the California Water Code and the second checklist according to subject matter. The two checklists contain duplicate information and the water supplier should use whichever checklist is more convenient. In the event that information or recommendations in these tables are inconsistent with, conflict with, or omit the requirements of the Act or applicable laws, the Act or other laws shall prevail.

Each water supplier submitting an UWMP can also provide DWR with the UWMP location of the required element by completing the last column of eitherchecklist. This will support DWR in its review of these UWMPs. The completed form can be included with the UWMP.

If an item does not pertain to a water supplier, then state the UWMP requirement and note that it does not apply to the agency. For example, if a water supplier does not use groundwater as a water supply source, then there should be a statement in the UWMP that groundwater is not a water supply source.

Checklist Arranged by Water Code Section

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	

10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of	System Supplies	Section 6.2.4	

	groundwater pumped by the urban water supplier for the past five years			
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	
10631(j)	Retail suppliers will include documentation that they have provided their wholesale	System Supplies	Section 2.5.1	

	supplier(s) – if any - with water use projections from that source.			
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	

10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	

10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	

Checklist Arranged by Subject

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management	Plan Preparation	Section 2.5.2	

	agencies, and relevant public agencies, to the extent practicable.			
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary	Baselines and Targets	Section 5.8.2	

	events, it shall provide the basis for, and data supporting the adjustment.			
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.4	
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	

10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	

10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	

10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	

10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	

APPENDIX C

AWWA WATER AUDIT WORKSHEETS

AWWA Free Water Audit Software v5.0

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This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targetting loss reduction levels

The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons below.

Please begin by providing the following information

Name of Contact Person:	Robert Brandom
Email Address:	Bob.Brandom@Psomas.com
Telephone (incl Ext.):	714-751-7373
Name of City / Utility:	City of Beverly Hills
City/Town/Municipality:	Beverly Hills
State / Province:	California (CA)
Country:	USA
Year:	2015
Start Date:	01/2015 Enter MM/YYYY numeric format
End Date:	12/2015 Enter MM/YYYY numeric format
Audit Preparation Date:	3/1/2016
Volume Reporting Units:	Acre-feet
PWSID / Other ID:	

The following guidance will help you complete the Audit

All audit data are entered on the ***Reporting Worksheet***

- Value can be entered by user
- Value calculated based on input data
- These cells contain recommended default values

Use of Option (Radio) Buttons: Pcnt: 0.25% Value:

Select the default percentage by choosing the option button on the left

To enter a value, choose this button and enter a value in the cell to the right

The following worksheets are available by clicking the buttons below or selecting the tabs along the bottom of the page

Instructions
The current sheet. Enter contact information and basic audit details (year, units etc)

Reporting Worksheet
Enter the required data on this worksheet to calculate the water balance and data grading

Comments
Enter comments to explain how values were calculated or to document data sources

Performance Indicators
Review the performance indicators to evaluate the results of the audit

Water Balance
The values entered in the Reporting Worksheet are used to populate the Water Balance

Dashboard
A graphical summary of the water balance and Non-Revenue Water components

Grading Matrix
Presents the possible grading options for each input component of the audit

Service Connection Diagram
Diagrams depicting possible customer service connection line configurations

Definitions
Use this sheet to understand the terms used in the audit process

Loss Control Planning
Use this sheet to interpret the results of the audit validity score and performance indicators

Example Audits
Reporting Worksheet and Performance Indicators examples are shown for two validated audits

Acknowledgements
Acknowledgements for the AWWA Free Water Audit Software v5.0

If you have questions or comments regarding the software please contact us via email at: wlc@awwa.org

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0
American Water Works Association
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Click to access definition
Click to add a comment

Water Audit Report for: City of Beverly Hills
Reporting Year: 2015 | 1/2015 - 12/2015

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ---------->

				Pcnt:	Value:	
Volume from own sources:	8	42,500	acre-ft/yr	7		acre-ft/yr
Water imported:	8	10,389.000	acre-ft/yr	8		acre-ft/yr
Water exported:	n/a	0.000	acre-ft/yr			acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 10,431.500 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: for help using option buttons below

				Pcnt:	Value:	
Billed metered:	8	9,803.000	acre-ft/yr			
Billed unmetered:	n/a	0.000	acre-ft/yr			
Unbilled metered:	n/a	0.000	acre-ft/yr			
Unbilled unmetered:	7	130.394	acre-ft/yr	1.25%		acre-ft/yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 9,933.394 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 498.106 acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		26.079	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	n/a	0.000	acre-ft/yr			acre-ft/yr
Systematic data handling errors:	7	24.508	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 50.586 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 447.520 acre-ft/yr

WATER LOSSES: 498.106 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 628.500 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	8	170.0	miles
Number of active AND inactive service connections:	8	10,752	
Service connection density:		63	conn /mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 8 | 65.0 psi

COST DATA

Total annual cost of operating water system:	8	$42,500,000	$/Year
Customer retail unit cost (applied to Apparent Losses):			$/1000 gallons (US)
Variable production cost (applied to Real Losses):			$/acre-ft

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

Add a grading value for 2 parameter(s) to enable an audit score to be calculated

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1. Customer retail unit cost (applied to Apparent Losses)
2. Variable production cost (applied to Real Losses)
3. Water Imported

APPENDIX D

SUPPLY CAPABILITY AND PROJECTED DEMANDS FOR SINGLE-DRY YEAR, MULTIPLE-DRY YEAR, AND AVERAGE CONDITIONS FROM DRAFT 2015 METROPOLITAN URBAN WATER MANAGEMENT PLAN

Table 2-4
Single Dry-Year
Supply Capability[1] and Projected Demands
Repeat of 1977 Hydrology
(Acre-feet per year)

Forecast Year	2020	2025	2030	2035	2040
Current Programs					
In-Region Supplies and Programs	693,000	774,000	852,000	956,000	992,000
California Aqueduct[2]	644,000	665,000	692,000	718,000	718,000
Colorado River Aqueduct					
Total Supply Available[3]	1,451,000	1,457,000	1,456,000	1,455,000	1,454,000
Aqueduct Capacity Limit[4]	*1,200,000*	*1,200,000*	*1,200,000*	*1,200,000*	*1,200,000*
Colorado River Aqueduct Capability	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Capability of Current Programs	**2,537,000**	**2,639,000**	**2,744,000**	**2,874,000**	**2,910,000**
Demands					
Total Demands on Metropolitan	1,731,000	1,784,000	1,826,000	1,878,000	1,919,000
IID-SDCWA Transfers and Canal Linings	274,000	282,000	282,000	282,000	282,000
Total Metropolitan Deliveries[5]	**2,005,000**	**2,066,000**	**2,108,000**	**2,160,000**	**2,201,000**
Surplus	**532,000**	**573,000**	**636,000**	**714,000**	**709,000**
Programs Under Development					
In-Region Supplies and Programs	43,000	80,000	118,000	160,000	200,000
California Aqueduct	20,000	20,000	198,000	198,000	198,000
Colorado River Aqueduct					
Total Supply Available[3]	155,000	125,000	75,000	25,000	25,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**63,000**	**100,000**	**316,000**	**358,000**	**398,000**
Potential Surplus	**595,000**	**673,000**	**952,000**	**1,072,000**	**1,107,000**

[1] Represents Supply Capability for resource programs under listed year type.
[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.
[3] Colorado River Aqueduct includes programs, IID-SDCWA transfer and exchange and canal linings conveyed by the aqueduct.
[4] Maximum CRA deliveries limited to 1.20 MAF including IID-SDCWA transfer and exchange and canal linings.
[5] Total deliveries are adjusted to include IID-SDCWA transfer and exchange and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

Table 2-5
Multiple Dry-Year
Supply Capability[1] and Projected Demands
Repeat of 1990-1992 Hydrology
(Acre-feet per year)

Forecast Year	2020	2025	2030	2035	2040
Current Programs					
In-Region Supplies and Programs	239,000	272,000	303,000	346,000	364,000
California Aqueduct[2]	712,000	730,000	743,000	752,000	752,000
Colorado River Aqueduct					
Total Supply Available[3]	1,403,000	1,691,000	1,690,000	1,689,000	1,605,000
Aqueduct Capacity Limit[4]	*1,200,000*	*1,200,000*	*1,200,000*	*1,200,000*	*1,200,000*
Colorado River Aqueduct Capability	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Capability of Current Programs	**2,151,000**	**2,202,000**	**2,246,000**	**2,298,000**	**2,316,000**
Demands					
Total Demands on Metropolitan	1,727,000	1,836,000	1,889,000	1,934,000	1,976,000
IID-SDCWA Transfers and Canal Linings	274,000	282,000	282,000	282,000	282,000
Total Metropolitan Deliveries[5]	**2,001,000**	**2,118,000**	**2,171,000**	**2,216,000**	**2,258,000**
Surplus	**150,000**	**84,000**	**75,000**	**82,000**	**58,000**
Programs Under Development					
In-Region Supplies and Programs	36,000	73,000	110,000	151,000	192,000
California Aqueduct	7,000	7,000	94,000	94,000	94,000
Colorado River Aqueduct					
Total Supply Available[3]	80,000	75,000	50,000	25,000	25,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**43,000**	**80,000**	**204,000**	**245,000**	**286,000**
Potential Surplus	**193,000**	**164,000**	**279,000**	**327,000**	**344,000**

[1] Represents Supply Capability for resource programs under listed year type.
[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.
[3] Colorado River Aqueduct includes programs, IID-SDCWA transfer and exchange and canal linings conveyed by the aqueduct.
[4] Maximum CRA deliveries limited to 1.20 MAF including IID-SDCWA transfer and exchange and canal linings.
[5] Total deliveries are adjusted to include IID-SDCWA transfer and exchange and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

Table 2-6
Average Year
Supply Capability[1] and Projected Demands
Average of 1922-2012 Hydrologies
(Acre-feet per year)

Forecast Year	2020	2025	2030	2035	2040
Current Programs					
In-Region Supplies and Programs	693,000	774,000	852,000	956,000	992,000
California Aqueduct[2]	1,760,000	1,781,000	1,873,000	1,899,000	1,899,000
Colorado River Aqueduct					
Total Supply Available[3]	1,468,000	1,488,000	1,484,000	1,471,000	1,460,000
Aqueduct Capacity Limit[4]	*1,200,000*	*1,200,000*	*1,200,000*	*1,200,000*	*1,200,000*
Colorado River Aqueduct Capability	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Capability of Current Programs	**3,653,000**	**3,755,000**	**3,925,000**	**4,055,000**	**4,091,000**
Demands					
Total Demands on Metropolitan	1,586,000	1,636,000	1,677,000	1,726,000	1,765,000
IID-SDCWA Transfers and Canal Linings	274,000	282,000	282,000	282,000	282,000
Total Metropolitan Deliveries[5]	**1,860,000**	**1,918,000**	**1,959,000**	**2,008,000**	**2,047,000**
Surplus	**1,793,000**	**1,837,000**	**1,966,000**	**2,047,000**	**2,044,000**
Programs Under Development					
In-Region Supplies and Programs	43,000	80,000	118,000	160,000	200,000
California Aqueduct	20,000	20,000	225,000	225,000	225,000
Colorado River Aqueduct					
Total Supply Available[3]	5,000	25,000	25,000	25,000	25,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**63,000**	**100,000**	**343,000**	**385,000**	**425,000**
Potential Surplus	**1,856,000**	**1,937,000**	**2,309,000**	**2,432,000**	**2,469,000**

[1] Represents Supply Capability for resource programs under listed year type.
[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.
[3] Colorado River Aqueduct includes programs, IID-SDCWA transfer and exchange and canal linings conveyed by the aqueduct.
[4] Maximum CRA deliveries limited to 1.20 MAF including IID-SDCWA transfer and exchange and canal linings.
[5] Total deliveries are adjusted to include IID-SDCWA transfer and exchange and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

APPENDIX E

ORDINANCE 15-O-2677 AMENDING CITY OF BEVERLY HILLS MUNICIPAL CODE REGARDING EMERGENCY WATER CONSERVATION PROVISIONS

AGENDA REPORT

Meeting Date: May 18, 2015

Item Number: D-7

To: Honorable Mayor & City Council

From: Laurence S. Wiener, City Attorney

Subject: AN ORDINANCE OF THE CITY OF BEVERLY HILLS AMENDING THE BEVERLY HILLS MUNICIPAL CODE REGARDING EMERGENCY WATER CONSERVATION PROVISIONS

Attachment: 1. Ordinance

RECOMMENDATION

Staff recommends that the City Council move to waive the full reading and adopt the ordinance, entitled "AN ORDINANCE OF THE CITY OF BEVERLY HILLS AMENDING THE EMERGENCY WATER CONSERVATION PROVISIONS."

INTRODUCTION

This ordinance amends the Municipal Code to allow the City Council to establish appropriate penalty surcharges related to the City's emergency water conservation stages so that such penalties are consistent with State law, and allows the City Council to modify by resolution any of the requirements contained in the stages of water conservation if it is in the best interests of the City or, if needed, to comply with any State Water Board regulations.

DISCUSSION

At its meeting of May 5, 2015, the City Council conducted a first reading and introduced the ordinance.

FISCAL IMPACT

Implementation of any penalty surcharges, changes to water rate structure, or water conservation efforts will impact the City's water revenues. Impacts on revenues will be included in the study and brought back to the City Council for consideration when completed.

Laurence S. Wiener, City Attorney

Attachment 1

ORDINANCE NO. 15-O- _____

AN ORDINANCE OF THE CITY OF BEVERLY HILLS AMENDING THE BEVERLY HILLS MUNICIPAL CODE REGARDING EMERGENCY WATER CONSERVATION PROVISIONS

THE CITY COUNCIL OF THE CITY OF BEVERLY HILLS HEREBY ORDAINS AS FOLLOWS:

Section 1. The City Council hereby amends and restates Section 9-4-302 ("GENERAL PROHIBITION; APPLICABILITY") of Article 3 ("EMERGENCY WATER CONSERVATION PLAN") of Chapter 4 ("WATER REGULATIONS") of Title 9 ("BUILDING AND PROPERTY HEALTH AND SAFETY REGULATIONS") of the Beverly Hills Municipal Code to read as follows:

"9-4-302: GENERAL PROHIBITION; PENALTY SURCHARGE; APPLICABILITY:

A. No person shall use or permit the use of water from the city for residential, commercial, industrial, governmental, or any other purposes in violation of any provision of this article or in an amount in excess of the use that is permitted by the water conservation stages defined below.

B. A penalty surcharge may be assessed for water usage contrary to the provisions of this Article or any water conservation measure adopted by the City Council in an amount set by resolution of the City Council.

C. The provisions of this article shall apply to all persons, customers and property served by the city of Beverly Hills, public works department - utilities division wherever situated."

Section 2. The City Council hereby amends and restates Section 9-4-303 ("DECLARATION OF WATER CONSERVATION STAGES") of Article 3 ("EMERGENCY WATER CONSERVATION PLAN") of Chapter 4 ("WATER REGULATIONS") of Title 9 ("BUILDING AND PROPERTY HEALTH AND SAFETY REGULATIONS") of the Beverly Hills Municipal Code to read as follows:

"9-4-303: DECLARATION OF WATER CONSERVATION STAGES:

A. Water conservation stages shall be determined by the amount of water available or the potential for water interruption. The city manager shall monitor the supply and demand for water by customers. When the city manager finds that the guidelines for initiation of any stage, as set forth in this article, have been satisfied, he or she shall recommend to the city council that a resolution to declare the appropriate water conservation stage be adopted.

B. The city council may modify by resolution any of the requirements contained in the stages of water conversation set forth in Section 9-4-304 if the City Council determines that the modification is in the best interests of the city or is appropriate to promote compliance with any regulation mandated by the State Water Board.

C. The resolution by the city council implementing or terminating conservation stages shall be published within ten (10) days after its adoption at least once in a newspaper of general circulation within the city and the implementing resolution shall be posted in at least three (3) public places and shall continue to be posted until such time as the restrictions of each stage are repealed by resolution of the city council.

D. Except as otherwise may be provided by this article or a resolution adopted by the city council, any prohibitions on the use of water shall become effective immediately upon publication in a newspaper of general circulation within the city. Except as otherwise may be provided by a resolution adopted by the city council, any provisions requiring a percentage reduction in the use of water shall become effective at the first full billing period commencing on or after the date of such publication."

Section 3. The City Council hereby amends and restates Section 9-4-304 ("REQUIREMENTS FOR WATER CONSERVATION STAGES") of Article 3 ("EMERGENCY WATER CONSERVATION PLAN") of Chapter 4 ("WATER REGULATIONS") of Title 9 ("BUILDING AND PROPERTY HEALTH AND SAFETY REGULATIONS") of the Beverly Hills Municipal Code to read as follows:

"9-4-304: REQUIREMENTS FOR WATER CONSERVATION STAGES:

A. Stage A Requirements:

1. A stage A shortage shall be declared when the city manager determines that a five percent (5%) reduction in potable water use is required.

2. Stage A compliance shall consist of voluntary implementation of water conservation elements including, without limitation, reduced irrigation, no washdown of paved areas except to alleviate immediate fire or sanitation hazards, reduced operation of nonrecycling fountains, notification of hotel and restaurant patrons of water conservation goals, serving of water at restaurants only upon request and use of reclaimed water for construction purposes.

B. Stage B Requirements:

1. A stage B shortage shall be declared when the city manager determines that a ten percent (10%) reduction in potable water use is required.

2. Stage B compliance elements shall include the following mandatory elements:

a. Restaurants shall serve water upon request only;

b. All public restrooms in the city and private bathrooms in hotels shall notify patrons and employees of water conservation goals;

c. Plumbing and irrigation leaks shall be repaired as soon as practicable. The city may issue notices to repair visible leaks;

d. Except for single-family and multi-family residential users in tier 1 who will remain in tier 1 for the next billing cycle, all users shall reduce water usage to ninety percent (90%) of the amount in the baseline period as determined by the city council.

3. Violation by any person of the stage B mandatory requirements shall constitute an infraction and, upon conviction, shall be punished by a fine not to exceed one hundred dollars ($100.00). The violation of each element, and each separate violation thereof, shall be deemed a separate offense, and shall be punished accordingly.

C. Stage C Requirements:

1. A stage C shortage shall be declared when the city manager determines that a twenty percent (20%) reduction in potable water use is required.

2. Stage C compliance elements shall include the following mandatory elements:

a. Restaurants shall serve water upon request only;

b. All public restrooms in the city and private bathrooms in hotels shall notify patrons and employees of water conservation goals;

c. Plumbing and irrigation leaks shall be repaired as soon as practicable. The city may issue notices to repair visible leaks;

d. Except for single-family and multi-family residential users in tier 1 who will remain in tier 1 for the next billing cycle, all users shall reduce water usage to eighty percent (80%) of the amount in the baseline period as determined by the city council.

3. Violation by any person of the stage C mandatory requirements shall constitute a misdemeanor and, upon conviction, shall be punished by a fine not to exceed five hundred dollars ($500.00). Water supply through irrigation water services may be terminated for continued excessive use. The violation of each element, and each separate violation thereof, shall be deemed a separate offense, and shall be punished accordingly.

D. Stage D Requirements:

1. A stage D shortage shall be declared when the city manager determines that a thirty percent (30%) or higher reduction in potable water use is required.

2. Stage D compliance elements shall include the following mandatory elements:

a. Restaurants shall serve water upon request only;

b. All public restrooms in the city and private bathrooms in hotels shall notify patrons and employees of water conservation goals;

c. Plumbing and irrigation leaks shall be repaired as soon as practicable. The city may issue notices to repair visible leaks;

d. Landscape irrigation shall be restricted to selected days and times as determined by the city manager, unless such irrigation uses reclaimed wastewater;

e. Refilling of swimming pools, spas or ponds shall be prohibited unless required for health or safety reasons;

f. Operation of water fountains shall be prohibited unless the water is recirculated;

g. Exterior washdown of buildings and washdown of vehicles shall be prohibited, unless:

(1) The washing is done on the immediate premises of a commercial car wash or commercial service station or with reclaimed wastewater; or

(2) The health, safety and welfare of the public is contingent upon frequent vehicle cleaning, such as the cleaning of garbage trucks and vehicles to transport food and perishables;

h. Water usage from fire hydrants shall be limited to firefighting, related activities or other activities necessary to maintain the public health, safety and welfare;

i. Except for single-family and multi-family residential users in tier 1 who will remain in tier 1 for the next billing cycle, users shall reduce water usage to seventy percent (70%) of the amount in the baseline period as determined by the city council.

3. Violation by any person of the stage D mandatory requirements shall constitute a misdemeanor and, upon conviction, shall be punished by a fine not to exceed one thousand dollars ($1,000.00). Continued excessive use may result in termination of water supply through irrigation water services and/or restriction of water supply through domestic meters. The violation of each element, and each separate violation thereof, shall be deemed a separate offense, and shall be punished accordingly.

E. Stage E Requirements:

1. A stage E shortage shall be declared when the city manager determines that a catastrophic interruption of potable water supply has occurred or is foreseen.

2. The city manager shall have emergency water allocation authority in the case of a stage E declaration. This authority shall include the authority to interrupt service to any property or city service zone in order to provide the maximum water supply for human health and safety needs.

3. In allocating water, the city manager shall give first priority to health and safety needs of water utility customers. Subsequent water uses are prioritized to provide water supply first to maintain and expand commerce within the city, then to enhance the aesthetics of the environment, and then to facilitate construction activities.

4. Violation by any person of the stage E emergency water conservation regulations shall constitute a misdemeanor and, upon conviction, shall be punished by a fine not to exceed one thousand dollars ($1,000.00) and six (6) months in jail. Continued excessive use may result in termination of water supply through irrigation water services and/or restriction of water supply through domestic meters. The violation of each element, and each separate violation thereof, shall be deemed a separate offense, and shall be punished accordingly."

Section 4. The City Council hereby amends and restates Section I-3-306 ("CONTENT OF COMPLIANCE ORDER") of Article 3 ("ADMINISTRATIVE PENALTIES") of Chapter 3 ("CODE VIOLATIONS") of Title I ("GENERAL PROVISIONS") of the Beverly Hills Municipal Code to read as follows:

"1-3-306: CONTENT OF COMPLIANCE ORDER:

A compliance order shall contain all of the following information:

A. The date and location of the violation and the approximate time the violation occurred.

B. The city code section violated and a description of the violation.

C. The action required to correct the violation and the date by which such action must be completed. Except for orders to comply with Article 3 ("EMERGENCY WATER CONSERVATION PLAN") of Chapter 4 ("WATER REGULATIONS") of Title 9 ("BUILDING AND PROPERTY HEALTH AND SAFETY REGULATIONS") of this Code, the date for compliance shall not be less than twenty (20) days from the date the compliance order is served.

D. The consequences of failing to correct the violation, including a description of the administrative hearing procedure and appeal process.

E. The time period after which administrative fines will begin to accrue if there is no compliance with the order.

F. The amount of the fine that will be imposed if there is no compliance with the order.

G. The name and signature of the citing official. "

Section 5. Severability. If any section, subsection, subdivision, sentence, clause, phrase, or portion of this Ordinance or the application thereof to any person or place, is for any reason held to be invalid or unconstitutional by the final decision of any

court of competent jurisdiction, the remainder of this Ordinance shall remain in full force and effect.

Section 6. Publication. The City Clerk shall cause this Ordinance to be published at least once in a newspaper of general circulation published and circulated in the city within fifteen (15) days after its passage in accordance with Section 36933 of the Government Code, shall certify to the adoption of this Ordinance and shall cause this Ordinance and the city Clerk's certification, together with proof of publication, to be entered in the Book of Ordinances of the Council of this city.

Section 7. Effective Date. This Ordinance shall go into effect and be in full force and effect at 12:01 a.m. on the thirty-first (31st) day after its passage.

Adopted:
Effective:

_____
JULIAN A. GOLD, M.D.
Mayor of the City of
Beverly Hills, California

ATTEST:

_____(SEAL)
BYRON POPE
City Clerk

Approved as to form:

LAURENCE S. WIENER
City Attorney

Approved as to content:

_____
MAHDI ALUZRI
Interim City Manager

APPENDIX F

60-DAY NOTICE, NOTICE OF PUBLIC HEARING AND RESOLUTION FOR PLAN ADOPTION

Vince Damasse, Water Resources Manager
Department of Public Works Services

April 5, 2016

Oscar Delgado
Director of Public Works, City of West Hollywood
8300 Santa Monica Blvd.
West Hollywood, CA 90069

RE: CITY OF BEVERLY HILLS 2015 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Oscar Delgado,

This letter serves as notification that the City of Beverly Hills is currently updating its Urban Water Management Plan (UWMP) in accordance with the Urban Water Management Planning Act of the California Water Code. The Act requires urban water suppliers supplying more than 3,000 acre feet of water annually or providing water to more than 3,000 customers to update their UWMP every five years.

A draft of the City's 2015 UWMP will be available for review prior to the public hearing, which is tentatively scheduled for June 7, 2016. Please contact us if you would like to have a draft sent to you when available or the draft will be available for viewing on the City's website at http://www.beverlyhills.org.

A subsequent letter was sent regarding public hearing date change to June 6, 2016.

If you would like more information or have any questions, please contact me at (310) 285-2491 or via email at vdamasse@beverlyhills.org.

Sincerely,

Vince Damasse, Water Resources Manager
Department of Public Works Services

cc: Stephanie DeWolfe, Director of Community Development
David DeGrazia, Planning Manager

Published May 19, 2016 in Beverly Hills Weekly

NOTICE OF PUBLIC HEARING

The Council of the City of Beverly Hills, at its regular meeting to be held on **Monday, June 6, 2016, at 7:00 p.m.**, in the Council Chambers of City Hall, 455 N. Rexford Drive, Beverly Hills, California, will hold a public hearing to consider review comments and adoption of:

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BEVERLY HILLS ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN

The City of Beverly Hills is currently updating its Urban Water Management Plan (UWMP) in accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 et seq). The Act requires urban water suppliers supplying more than 3,000 acre feet of water annually or providing water to more than 3,000 customers to update their UWMP every five years.

A draft of the City's 2015 Urban Water Management Plan is available on the City's website at http://beverlyhills.org/living/utilities/waterservices/urbanwatermanagementplan/. If you would like more information or have any questions, please contact **Vince Damasse, Water Resources Manager at (310) 285-2491** or via email at **vdamasse@beverlyhills.org.**

Copies of the UWMP report are available for review in the Office of the City Clerk, Room 290, 455 N. Rexford Drive, Beverly Hills, California. Any interested person may attend the meeting and be heard. Written comments may also be submitted and should be addressed to the City Council, c/o City Clerk, 455 N. Rexford Drive, Beverly Hills, California, 90210. The comments should be received prior to the hearing date. If you need more information, please contact **Vince Damasse at (310) 285-2491.**

Please note that if you challenge the Council's action in regard to this matter in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City, either at or prior to the public hearing.

BYRON POPE, MMC
City Clerk

Published May 20, 2016 in Beverly Hills Courier

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Please note that if you challenge the Council's action in regard to this matter in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City, either at or prior to the public hearing.

BYRON POPE, MMC, City Clerk

[City Council Resolution adopting UWMP to be included after Public Hearing]

APPENDIX G

POPULATION TOOL DATA FOR SBX7-7 CALCULATION

WUEdata - Beverly Hills City Of

Sign Out

Please print this page to a PDF and include as part of your UWMP submittal.

Confirmation Information

Generated By	Water Supplier Name	Confirmation #	Generated On
Caitlin Bishop	Beverly Hills City Of	5093198478	3/14/2016 11:05:56 AM

Boundary Information

Census Year	Boundary Filename	Internal Boundary ID
1990	WEST_HOLLYWOOD.kml	828
2000	WEST_HOLLYWOOD.kml	828
2010	WEST_HOLLYWOOD.kml	828

Baseline Period Ranges

10 to 15-year baseline period

Number of years in baseline period: 10

Year beginning baseline period range: 1996

Year ending baseline period range[1]: 2005

5-year baseline period

Year beginning baseline period range: 2003

Year ending baseline period range[2]: 2007

[1] The ending year must be between December 31, 2004 and December 31, 2010.

[2] The ending year must be between December 31, 2007 and December 31, 2010.

Persons-Per-SF Connection and Persons-Per-MF/GQ Connection

	Census Block Group Level			Census Block Level						
Year	Population in SF Housing	Total Population	% Population in SF Housing	Service Area Population	Population in SF Housing (calculated)	Population in MF/GQ Housing (calculated)	# SF Connections	# MF/GQ Connections	Persons per SF Connection	Persons per MF/GQ Connection
1990	1,819	7,464	24.37%	7,488	1,825	5,663			2.03	11.58
1991	-	-	-	-	-	-	-	-	2.03	11.58
1992	-	-	-	-	-	-	-	-	2.03	11.58
1993	-	-	-	-	-	-	-	-	2.03	11.58
1994	-	-	-	-	-	-	-	-	2.03	11.58
1995	-	-	-	-	-	-	-	-	2.03	11.58
1996	-	-	-	-	-	-	-	-	2.03	11.58
1997	-	-	-	-	-	-	-	-	2.03	11.58
1998	-	-	-	-	-	-	-	-	2.03	11.58
1999	-	-	-	-	-	-	-	-	2.03	11.58
2000	1,895	8,181	23.16%	8,042	1,863	6,179			2.03	11.58
2001	-	-	-	-	-	-	-	-	2.03	11.58
2002	-	-	-	-	-	-	-	-	2.03	11.58
2003	-	-	-	-	-	-	-	-	2.03	11.58
2004	-	-	-	-	-	-	-	-	2.03	11.58
2005	-	-	-	-	-	-	-	-	2.03	11.58
2006	-	-	-	-	-	-	-	-	2.03	11.58
2007	-	-	-	-	-	-	-	-	2.03	11.58
2008	-	-	-	-	-	-	-	-	2.03	11.58
2009	-	-	-	-	-	-	-	-	2.03	11.58
2010	1,513	7,770	19.47%	8,064	1,570	6,494	773	561	2.03	11.58
2015	-	-	-	-	-	-	-	-	2.03 *	11.58 *

Population Using Persons-Per-SF Connection and Persons-Per-MF/GQ Connection

Year		# SF Connections	# MF/GQ Connections	Persons per SF Connection	Persons per MF/GQ Connection	SF Population	MF/GQ Population	Total Population
10 to 15 Year Baseline Population Calculations								
Year 1	1996			2.03	11.58			
Year 2	1997			2.03	11.58			
Year 3	1998			2.03	11.58			
Year 4	1999			2.03	11.58			
Year 5	2000			2.03	11.58			
Year 6	2001			2.03	11.58			
Year 7	2002			2.03	11.58			
Year 8	2003			2.03	11.58			
Year 9	2004			2.03	11.58			
Year 10	2005			2.03	11.58			
5 Year Baseline Population Calculations								
Year 1	2003			2.03	11.58			
Year 2	2004			2.03	11.58			
Year 3	2005			2.03	11.58			
Year 4	2006			2.03	11.58			
Year 5	2007			2.03	11.58			
2015 Compliance Year Population Calculations								
2015		773	561	2.03 *	11.58 *	1,570	6,494	8,064

Hide Print Confirmation

QUESTIONS / ISSUES? CONTACT THE WUEDATA HELP DESK

Water Service Area Population Estimates

Year	Population		
	Beverly Hills[1]	West Hollywood Portion[2]	Water Service Area
1990	31,971	7,488	
1991	31,799	7,543	
1992	31,945	7,599	
1993	32,020	7,654	
1994	32,096	7,710	
1995	32,369	7,765	
1996	32,327	7,820	40,147
1997	32,480	7,876	40,356
1998	32,711	7,931	40,642
1999	33,035	7,987	41,022
2000	33,655	8,042	41,697
2001	34,155	8,044	42,199
2002	34,370	8,046	42,416
2003	34,595	8,049	42,644
2004	34,690	8,051	42,741
2005	34,567	8,053	42,620
2006	34,308	8,055	42,363
2007	34,210	8,057	42,267
2008	34,028	8,060	42,088
2009	34,084	8,062	42,146
2010	34,109	8,064	42,173
2011	34,172	8,129	42,301
2012	34,366	8,193	42,559
2013	34,557	8,258	42,815
2014	34,693	8,322	43,015
2015	34,833	8,387	43,220

[1] Population for City of Beverly Hills from Census and DOF.
[2] Population for portion of West Hollywood within Water Service Area from Population Tool for Census years (yellow highlighted) and pro-rated in between. 2015 population for portion of West Hollywood based on overall West Hollywood percentage growth from DOF and pro-rated between 2010 and 2015.