



The City of San Diego

Report to the City Council

DATE ISSUED: May 16, 2016 REPORT NO: 16-046

ATTENTION: Honorable Council President Sherri Lightner and Members of the City Council

SUBJECT: 2015 Urban Water Management Plan

REFERENCE: 1) Resolution Number R-309610 of the City Council accepting the Agreement between the City of San Diego and CDM Smith, Inc., for the Consultant to provide Services to the City preparing the 2015 Urban Water Management Plan, adopted May 20, 2015.
2) Resolution Number R-306896 of the City Council accepting the 2010 Urban Water Management Plan, adopted June 28, 2011.

REQUESTED ACTION:

Adopt the 2015 Urban Water Management Plan in fulfillment of the May 2015 Council action regarding the 2015 UWMP

STAFF RECOMMENDATION:

Approve the Requested Action

EXECUTIVE SUMMARY OF ITEM BACKGROUND:

The State of California requires urban water providers serving more than 3,000 acre-feet per year (AFY) of water or 3,000 urban connections to prepare an Urban Water Management Plan (UWMP) every five years (in years ending with "0" and "5"). A recent Amendment to the Act that was adopted in 2014 included extension of the submittal date from December 31, 2015, to July 1, 2016, (Assembly Bill (AB) 2067).

For an urban water supplier to be eligible for any water management grant or loan administered by DWR, the agency must have a current UWMP on file that has been determined by DWR to be compliant. The City of San Diego (City) presents this 2015 UWMP to meet the State of California's requirements under the California Water Code and comply with the Act as administered by the California Department of Water Resources (DWR).

In addition, the City has developed this 2015 UWMP not only to meet regulatory requirements of the Act, but also to serve as an overarching water resources document for the City's residents, businesses, interest groups, and public officials. This plan provides information on the City's current and future water demands and supplies, discusses the water resources challenges that the City faces, and summarizes the major water resources initiatives that the City has proactively taken to ensure a safe, reliable water supply for its water customers.

Purpose

The City has continually and proactively invested in its water supply system to maintain a reliable water supply for residents and businesses for over 100 years. UWMPs have been required by DWR to promote long-term water resource planning and assure that adequate supplies are available to meet future demands in the State. For the 2010 UWMP cycle, the California Water Code was amended to include mandated compliance to reduce per capita water demands by 20% by 2020 (20 x 2020), with an interim reduction target in 2015.

In addition, UWMPs are identified as key source documents for these verifications. In compliance with Senate Bills (SB) 610 and 221 requiring counties and cities to consider the availability of adequate water supplies for certain new large developments, and to have written verification of sufficient water supply to serve them by the completion of a water supply assessment preparation of environmental documents for compliance with the California Environmental Quality Act (CEQA). The water supply assessment demonstrates the water supplier has sufficient water supplies to meet the projected water demands of the project for the next 20 years.

Changes since the 2010 UWMP

Since completion of the 2010 UWMP, the City has continued to take steps as shown below to ensure that its customers have a reliable, cost-effective, and environmentally sensitive water supply.

- Development and participation in strategic water resources plans that guide future investments in local water resources, such as:
 - City's 2012 Long-Range Water Resources Plan.
 - City's 2012 Recycled Water Study.
 - Participation in San Diego County Integrated Regional Water Management Program.
- Developing local water resources to increase the reliability of its water system, which include:
 - Advancement of San Diego's Pure Water Program (Pure Water).
 - Two groundwater projects: (1) Joint Partnership with Sweetwater Authority-Expansion of the Richard A. Reynolds Brackish Groundwater Desalination Facility; and (2) San Vicente and El Capitan Municipal Supply Wells/San Vicente and El Capitan Seepage Recovery, which are currently under evaluation and development.
 - Continuing to implement water conservation measures.

By the year 2035, the City's population and economic growth is projected to increase water demands by more than 26% compared to 2010 levels. With the City importing 86% of its water on average from 2011-2015, the City must continually examine the reliability and risk elements associated with imported water, and with its own local supplies.

Water Demand

Planning for future water supply requires an understanding of past water use and the factors that influence future water use over time. The water service area is comprised of retail water

sales that are provided to water customers in the City proper area, as well as wholesale water deliveries made to other communities outside the City proper area.

In July 2015, the City developed its Update of Long-Term Water Demand Forecast, which is used for water supply planning and development of the City’s water capital improvement program. The long-term water demand forecast is derived from econometric models of residential and non-residential water use that account for explanatory factors such as weather, income, price of water, economy, drought, and passive (or code/ordinance based) conservation. Demographic data is provided by San Diego Association of Governments (SANDAG) using the 2050 Regional Growth Forecast Update, Series 13.

Recently water demands for the City have been greatly suppressed due to mandatory water use restrictions and public education that were put in place by the City as a result of the current, extreme drought. Because of these suppressed demands, the City developed near-term water use projections for its Cost of Service Study (2015). These short-term water use projections are used for setting water rates and were much lower than the long-term water demand forecast. Thus, a method was developed to bridge the gap between the short-term water use projections and long-term water demand forecast (see Figure 1). With the behavioral and structural changes, the City expects that water demands will not rebound to 2008 levels for at least 10 to 15 years after the restrictions are lifted, based on projected population growth, normal weather patterns, and economic development.

Figure 1: City’s Total Baseline Potable Water Demand Forecast¹

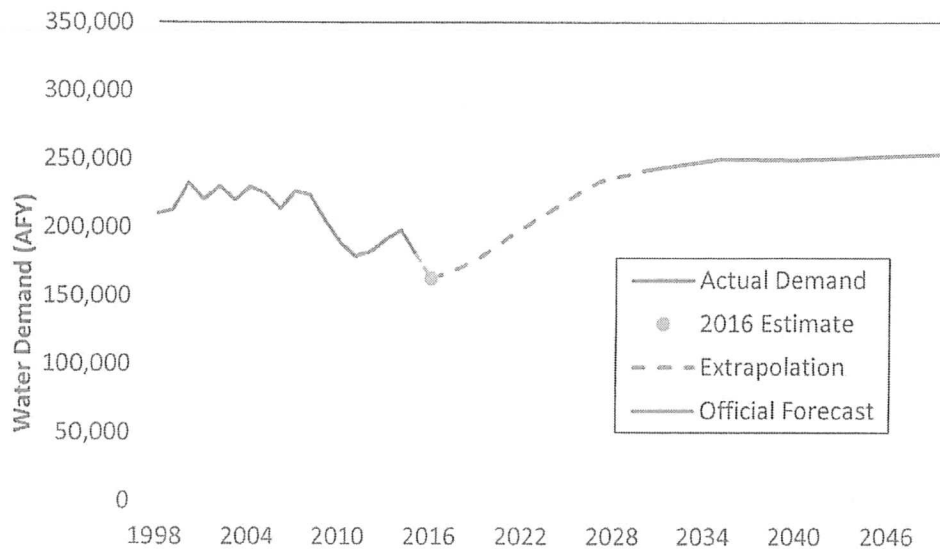


Table 1 presents water demand projections by retail billing water sector through 2040, under normal weather conditions. These demand projections include passive conservation and estimates of water savings from changes in the price of water. Cumulative sector demands are forecasted to increase over the projection period of 2020 to 2040. The declines in

¹ Baseline potable Water Demand includes retail water sales, non-revenue water and does not include wholesale & recycled water)

residential water use from 2035 to 2040 are a result of increases in water use efficiency due to plumbing codes and landscape ordinances (passive conservation).

Table 1 City's Historical and Projected Water Demand

Use	Water Demand (AFY)						
	2010	2015	2020	2025	2030	2035	2040
Retail Potable Water Sales	177,368	168,120	168,340	202,191	223,962	231,528	230,980
Wholesale Potable Water Sales	11,493	10,229	11,745	14,106	15,453	15,759	15,821
Non-Revenue Water	12,593	13,274	15,660	18,809	18,020	18,613	18,576
Sub-Total (Potable)	201,454	191,623	195,745	235,106	257,435	265,900	265,377
Recycled Water (Non-Potable)	7,951	8,195	13,650	13,650	13,650	13,650	13,650
Total Demand	209,405	199,818	209,395	248,756	271,085	279,550	279,027

Future active water conservation was estimated by SDCWA for its member agencies based on the continuation of its incentive and rebate programs, which is summarized in Table 2.

This table shows the impact of this future active conservation on the overall demand forecast for the City.

Table 2 Impact of Future Active Water Conservation on City's Water Demand Forecast

Use	Water Demand (AFY)					
	2015	2020	2025	2030	2035	2040
Total Baseline Water Demand ¹	199,818	209,395	248,756	271,085	279,550	279,027
Less Future Active Water Conservation ²		8,906	6,718	6,245	5,802	5,619
Net Water Demand³		200,489	242,038	264,840	273,748	273,408

1. Includes retail water sales, wholesale water sales, non-revenue water, and recycled water demands from Table 4-6.
2. Estimated by SDCWA for its member agencies.
3. Represents difference between total baseline water demand and future active water conservation.

Per Capita Water Use Baselines and Targets

As mentioned above, the California Water Conservation Act of 2009, SBX7-7, requires water agencies to reduce per capita water use by 20% by the year 2020 (20 x 2020). In the 2010 UWMP, the City was required to develop a baseline per capita water use and set a per capita water use target for 2015 and 2020. For the 2015 UWMP, the City is required to adjust the baseline and target per capita water use, and compare 2015 per capita water use with set targets. Water use is typically discussed based on per capita use and is presented in gallons per capita daily (GPCD).

Interim Target Compliance: As SBX7-7 required that the retail water suppliers must meet their 2015 interim urban water target by December 31, 2015, to be eligible for funding opportunities with DWR. The City's 2015 average per capita water use was 122 GPCD, which is below the 2015 Interim Target of 157 GPCD, thus the City is currently in compliance.

2020 Target: The City has currently achieved the 2020 target of 142 GPCD. However, the prolonged drought and mandatory water use restrictions imposed by the City have clearly contributed to major reductions in per capita water use. If the drought eases and water use restrictions are lifted, there is the potential for water use trends to rebound. The City will remain vigilant in reviewing per capita water use in the interim period before 2020, to ensure it remains on track.

System Water Supplies

Existing Supplies: The City's current water supplies that are verifiable consists of:

- Local surface water – capture of local runoff from rainfall within seven of its nine surface reservoirs;
- Recycled water for non-potable water use;
- Limited local groundwater; and
- Water purchased from SDCWA.

Purchased water from SDCWA is the largest portion of the City's overall water supply, accounting for about 86% on average from 2011-2015. In FY 2015, a significant drought year, purchased water from SDCWA accounted for 93% of the City's total water supply as the availability of local surface water was lower than normal.

Future Supplies: Expected future projects include those that the City is pursuing that are not ready to be designated as verifiable supplies. Because of the constraints on imported water supplies, as well as anticipated climate change impacts, the City has continued to develop additional local water supplies to reduce its reliance on imported water and improve overall reliability. As mentioned above, to improve supply reliability through a diversified water supply approach, the 2012 Long-Range Water Resources Plan (LRWRP) recommended moving forward with implementation strategies including additional water conservation, potable reuse (i.e., Pure Water), groundwater supply development, and rainwater harvesting using an adaptive management process and reassess risk triggers concurrent with the City's UWMP schedule (2020, 2025, 2030, 2035, & so on).

As such, the City has moved forward with the advancement of the City's Pure Water Program. Pure Water will provide a reliable drinking water supply that is locally controlled and drought-proof. A long-term goal of 83 million gallons per day (mgd) is slated for 2035, and would constitute approximately one-third of San Diego's future drinking water supply. Pure Water is a future source and is not included as a firm supply source in this 2015 UWMP in fulfillment of the definitions in the DWR's 2015 UWMP guidelines.

Demand Management Measures

Water conservation consists of reducing demands and controlling loss in an effort to meet the 20 x 2020 demand targets and alleviate the burden resulting from the current drought. Many of the City's conservation programs have achieved desirable water savings and are helping to ensure that residential water usage meets forecast savings. The City is a member of the California Urban Water Conservation Council (CUWCC), and has filed its Best Management Practice (BMP) Retail Coverage Report with CUWCC for 2011, 2012, 2013, and 2014 (BMP Report). The 2014 BMP Report has several areas of focus, including Operation Practice, Water Loss Control, Metering with Commodity, Retail Conservation Pricing, Public Outreach, and School Education Programs. The 2014 BMP Report indicates that the City is on track for foundational BMPs for urban water efficiency. The City's filing of the 2014 BMP

Report meets the requirements set forth by the DWR and complies with the Water Conservation Bill of 2009, SBX7-7.

To estimate the water conservation savings attributable to the Water\$mart program, SDCWA used a water conservation evaluation tool developed by the Alliance for Water Efficiency to project water savings by demand side management measure for its member agencies, including the City. Table 3 presents a summary of the projected water savings from these measures.

Table 3 Projected Active Water Conservation Savings for City

Demand Side Management Measures	Water Conservation Savings (AFY)			
	2015	2020	2030	2040
Single-Family Water Surveys	67	-	-	-
Single-Family ULF Toilet Vouchers, Rebates, Community Based Dist.	2,036	1,354	598	102
Single-Family High Efficiency Toilets	238	194	100	-
Single-Family High Efficiency Clothes Washers	1,305	550	-	-
Single-Family Turf Removal/Replacement	456	387	-	-
Single-Family Landscape Irrigation Control Efficiency	61	5	-	-
Misc. Residential Programs (e.g., SF rain barrels, MF irrigation controls)	132	71	-	-
CII High Efficiency Toilets	29	24	16	-
CII Turf Removal/Replacement	5,196	427	-	-
CII Landscape Efficiency (weather based controllers, sprinkler nozzles)	968	355	-	-
CII Process/Cooling Towers/Other Indoor	3,306	22	17	-
Total Savings from Measures Implemented in 2015	13,793	3,389	731	102
Continuation of Measures¹		5,517	5,517	5,517
Total Future Active Conservation²		8,906	6,248	5,620

Note: ULF = ultra-low flush; SF = single family; MF = multi family; CII = commercial/institutional/industrial

Water Supply Reliability Assessment

As required by the Act, a water supply reliability assessment must compare future water demands and verifiable water supplies under multiple hydrologic conditions. As such water reliability assessment was analyzed for the following scenarios:

- Normal Year Water Demand to Supply Comparison
- Single-Dry Year Water Demand to Supply Comparison (hydrological dry year 1990)
- Multiple Dry Year Water Demand to Supply Comparison (historical hydrological years 1990 through 1992)

Table 4 shows the comparison of demands and supplies at five-year increments, out to 2040 for normal year analysis.

Table 4 Normal Year Demand vs Supply for City

Normal Year Demands/Supplies	Demand and Supplies (AFY)				
	2020	2025	2030	2035	2040
Water Demand (with wholesale and conservation)	200,489	242,038	264,840	273,748	273,408
Local Water Supplies					
Recycled Water (City service area only)	13,650	13,650	13,650	13,650	13,650
Local Surface Supply	22,900	22,800	22,700	22,600	22,500
Groundwater	500	3,100	3,100	3,100	3,100
Sub-Total Local Supplies	37,050	39,550	39,450	39,350	39,250
Water Supply from SDCWA (purchased water)	163,439	202,488	225,390	234,398	234,158
Total City Water Supplies	200,489	242,038	264,840	273,748	273,408
Estimated Water Shortages	0	0	0	0	0

Factors Resulting in Inconsistency in Supply: As required by the Act, a UWMP must summarize the factors that can cause inconsistencies in water supplies. For the City, these factors depend on the supply source and can include hydrologic variability (e.g., prolonged droughts), regulatory issues, legal constraints, water quality, and climate change. Due to the ongoing drought, Metropolitan Water District (MWD) instituted its allocation plan to its member agencies, which resulted in an overall cut in its deliveries by 15% (starting July 1, 2015). This decision has significant impacts on the City. In addition, the State Water Resources Control Board (SWRCB) has instituted statewide mandatory conservation targets as a result of the drought, with the City's target being a reduction of 16% of its 2013 water use for Fiscal Year 2016. The SWRCB's new target for the City until October 31, 2016, is a reduction of 8% of its 2013 water use. The SWRCB is anticipated to issue revised rules based on the Governor's mandate that would apply through January 2017. The SWRCB is scheduled to consider these revised rules on May 18, 2016.

Cost of Future Water Supplies: The cost of the City's planned and potential local water supply projects are expected to be less than the projected cost of SDCWA supplied water.

Water Quality: At each of the City's three water treatment plants, the City has consistently met health-based drinking water standards set by the US EPA and the SWRCB Division of Drinking Water. The water quality of surface water is lower in Total Dissolved Solid (TDS) than imported water. Implementation of the City's Pure Water Program would improve the overall TDS of the City's water supply, because of the application of advanced treatment measures that remove TDS.

Climate Change

Addressing climate change impacts for the 2015 UWMP is voluntary and not required by DWR. However, since imported water and local surface water is very sensitive to changes in climate, the City determined it would be valuable to include this section in its 2015 UWMP particularly when considering investments in local water supplies, understanding the potential impacts of climate change on existing City water supplies is important.

For the 2015 UWMP, a long-term water supply simulation model, developed for the City's 2012 LRWRP, was modified to estimate climate change impacts. The model demonstrates that climate change is expected to reduce water supply and increase future water demand. Hence the City will need a strategy to meet a diminished supply combined with a future escalating demand.

Pure Water is a program that would be highly resilient to climate change. Local groundwater could be expanded through desalination and conjunctive use. In addition to potential local supply projects considered by the City, the SDCWA has implemented a number of regional supply projects such as Carlsbad Desalination Plant to increase supply reliability. Together, these local and regional water supply projects and long-range planning programs can mitigate many of the potential impacts of climate change.

Water Shortage Contingency Plan

Due to increasing strain caused by California's ongoing drought, the City must be prepared for potential constraints on its imported water supply. The 2015 UWMP examines the City's contingency plans if it had to declare a water emergency or enact more stringent restrictions on water use. The City encourages its residents to use water wisely at all times, and the San Diego Municipal Code formalizes the City's Water Shortage Contingency Plan in Chapter 6, Article 7, Division 38, Emergency Water Regulations, specifying water use restrictions that are in effect at all times, and authorize the City to determine and declare water shortages and water shortage emergencies in its service area.

The City maintains an accessible emergency water supply that could provide an uninterrupted supply of water to the City's water treatment facilities, should the supply of imported water be interrupted. The management of reservoirs is guided by the City of San Diego Council Policy 400-04, which outlines the City's Emergency Water Storage Policy. The policy mandates that the City store sufficient untreated water in active, available storage to meet six-tenths of the normal annual (7.2 months) City and its contractor's water demand requirements, exclusive of conservation. The City has a seasonally fluctuating emergency storage requirement, generally peaking in April and reaching its minimum in October. This seasonally fluctuating requirement makes a portion of the required emergency storage capacity available for impounding or seasonal storage.

CONCLUSION

Since the adoption of the 2010 UWMP, the City has continued to prepare for the future by investigating water supply options and developing a long-term water supply approach designed to meet San Diego's water needs for the next 25 years. By adopting the 2015 UWMP, the City will fulfill the DWR requirement to promote long-term water resource planning and assure that adequate supplies are available to meet future demands in the City.

CITY STRATEGIC PLAN GOAL(S)/OBJECTIVE(S):

Goal # 3: Create and sustain a resilient and economically prosperous City

Objective # 2: Increase water independence

Objective # 3: Diversify and grow the local economy

Objective # 4: Prepare and respond to climate change

FISCAL CONSIDERATIONS:


No cost

EQUAL OPPORTUNITY CONTRACTING INFORMATION (if applicable):
None

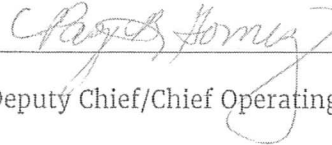
PREVIOUS COUNCIL and/or COMMITTEE ACTIONS:
This item will be going to Environmental Committee prior to docketing.

COMMUNITY PARTICIPATION AND OUTREACH EFFORTS:
As part of the adoption of the 2015 UWMP, the City will conduct presentations that will provide an overview of the City's 2015 UWMP to the Public Utilities Department Independent Rates Oversight Committee on May 16, 2016, and to the Environment Committee on May 26, 2016. The City also provided written notification to all of the Cities within the County of San Diego of its intent to adopt a 2015 UWMP.

KEY STAKEHOLDERS AND PROJECTED IMPACTS:
This action is an initiative to comply with the requirements of Urban Water Management Act ratified by California State Water Code Sections §10608–10656. Compliant plans are then submitted to Department of Water Resources (DWR) for staff review. A summary of the completed plans is then submitted to the California Legislature by DWR. As an initiative to meet DWR reporting requirements, City water rate payers are the primary stakeholders. In addition, City staff, regional water agencies and the water industry will use this plan as a water resources planning tool to understand the City's water planning and to ensure a safe and adequate water supply over a 25-year planning horizon.



Originating Department



Deputy Chief/Chief Operating Officer

Attachment: A. 2015 Urban Water Management Plan – Public Draft