

March 15, 2017

Attention: Imported Water Committee

Comparison of Metropolitan Water District's and its Member Agencies' 2015 Urban Water Management Plans. (Presentation)

Purpose

This memo forwards a Water Authority-commissioned report comparing MWD water demand projections included in its 2015 Urban Water Management Plan (UWMP)¹ to projected demand for MWD water as reported in MWD member agencies' 2015 Urban Water Management Plans (UWMPs). As more and more MWD member agencies and sub-agencies have increased water conservation and developed local water supplies, and as MWD is proposing to spend billions of dollars to develop new water supply projects, it is imperative that MWD coordinate closely with its member agencies in making its own demand projections to avoid expansion of existing supplies or development of additional water supplies that may not be needed,² wasting ratepayer dollars and potentially stranding costs. It is also necessary for rate-setting purposes that MWD understand and articulate as part of its planning processes what is causing it to incur costs, including expanded or additional water supply development costs, based on the demand profiles and characteristics of individual member agencies.

Background

Urban water suppliers of a certain size are required to prepare UWMPs and update them every five years under the California Urban Water Management Planning Act (Act). The UWMPs are used to demonstrate that urban water supplies can provide a reliable water supply over a 20-year horizon.³ By statute, the Department of Water Resources (DWR) required the 2015 UWMPs to be submitted by July 1, 2016. When water agencies last updated their UWMPs in 2010, the Water Authority commissioned a report (2010 GHA report) comparing MWD water demand projections as forecasted in its 2010 UWMP to the demand for MWD water projected by MWD member agencies in their 2010 plans. The 2010 GHA report found MWD member agencies' cumulative projected demands on MWD are lower than MWD's forecasted demand for MWD water. The 2010 report also found, based on MWD's own data, that the forecasted demand for MWD water had declined generally in both MWD's 2005 and 2010 UWMP updates.

¹ In past years, MWD titled its Urban Water Management Plan as a *Regional* Urban Water Management Plan, but eliminated the word *Regional* from the title of its 2015 UWMP. The UWMP Act contains certain provisions how wholesale and retail agencies may, and under certain circumstances must, coordinate provision of information (e.g., §10620(d)(2) and §10631(k)), but MWD does not appear to follow these provisions, at least in how information is being reported. Water Code §10631(k) provides that urban water suppliers that rely on a wholesale agency for a source of water "shall" provide data to the wholesale agency, and, that the wholesale agency "shall" provide information to the retail water supplier; however, as described in the 2015 GHA report, MWD does not use the same information as presented by its member agencies to ensure consistency between wholesale and retail agencies. DWR's *2015 Urban Water Management Plans Guidebook for Urban Water Suppliers* (March 2016) provides for *Regional* Urban Water Management Plans and reporting (page 2-5 *et seq.*), but requires such regional agencies to conduct a cooperative planning and reporting process consistent with the provisions of the UWMP Act. MWD does not follow this process.

² One of the important objectives of reporting under the UWMP Act is to ensure the efficient use of available supplies with "lower incremental costs than expanded or additional water supplies" (§10631(g)).

³ Section 10635 of the California Water Code calls for water suppliers to project water supplies and water use "over the next 20 years." Some agencies report projected supplies and demands over a 25-year horizon.

In 2015, the Water Authority again retained the services of Gordon Hess and Associates, Inc., (GHA), to summarize major elements of each MWD member agency's 2015 UWMP and to compare the aggregate of those plans to MWD's 2015 UWMP forecasts. GHA findings are set forth in the attached 2015 GHA report, which includes an overview of data obtained from each MWD member agency's UWMP, including current and projected water supplies and demand information, and population forecasts. The report also presents the cumulative demand on MWD as stated in member agencies' UWMPs and compares that to MWD's 2015 UWMP forecasts of demand for MWD water under normal, single-dry-year, and multiple-dry year hydrologic conditions. Lastly, the report compares demand projections for MWD water described in MWD's 2015 UWMP to its previous UWMPs. The commissioned report is not intended to be a comprehensive summary of each MWD member agency's UWMP or future planning, nor was it tasked to review the many other UWMPs filed by urban water suppliers that are not MWD member agencies, but have completed plans per statutory requirements, including other cities, utilities, and agencies within MWD's service area. Many of these agencies also have plans to develop local water supplies to reduce demand for imported water that may not be captured in either MWD member agencies' or MWD's plans.

Discussion

GHA's analysis found that MWD's 2015 UWMP demand projections for MWD water are materially greater than those cumulatively reported by member agencies in their UWMPs under all hydrologic conditions evaluated.⁴ The 2015 GHA report also found that in addition to overestimating member agencies' demand for MWD water under all hydrologic conditions, MWD's 2015 UWMP includes MWD's plans to develop additional water supplies that will significantly exceed even MWD's own projections of member agencies' demand for MWD water while expanding demand management programs. The 2015 GHA report further pointed out that MWD's 2015 UWMP does not account for a recycling project that MWD is currently considering, which could annually produce 168,000 acre-feet of supplies for groundwater replenishment. The cumulative effect of MWD overdeveloping supplies and demand management programs could result in stranding hundreds of thousands of acre-feet of new supplies⁵ and the billions of dollars spent to support these supply developments. Moreover, MWD's plan to overdevelop supplies is occurring at the same time the state is in the process of imposing regulations that would further mandate water use reductions, which would further curtail demand for MWD water.

Overestimation of Member Agencies' Demand for MWD Water

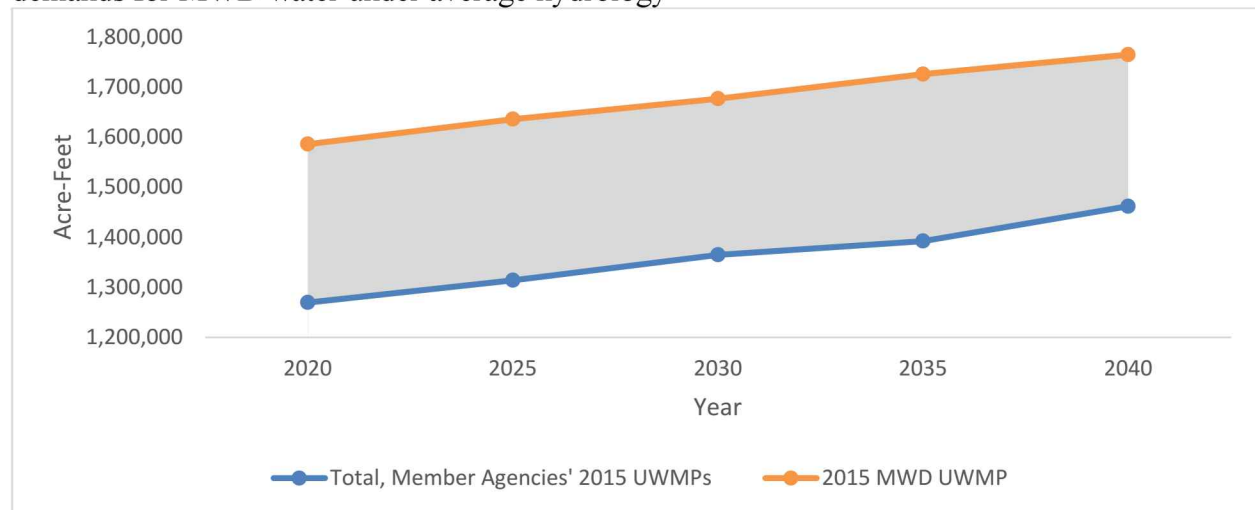
The overestimation of member agencies' demand for MWD water between MWD's 2015 UWMP and its member agencies' plans is most dramatic for forecasts under average hydrologic conditions. The 2015 GHA report found that, under average hydrology, MWD's 2015 UWMP projects demand for MWD water will be greater than the demand reported in its member agencies' 2015 UWMPs by more than 300,000 acre-feet in all years from 2020 to 2040 (see Figure 1). One potential reason for the different projections is MWD ignored 90 percent of its member agencies' local projects and programs listed in Appendix 5 of its UWMP, even though they are in advanced planning stages (fully designed with appropriated funds or "EIR/EIS

⁴ Figures 5 through 7 of 2015 GHA report.

⁵ The potential over-development ranges from more than 440,000 acre-feet in multi-dry years hydrology to between 1.3 million and 2.4 million acre-feet of stranded supplies under single-dry and average year hydrologic conditions, respectively.

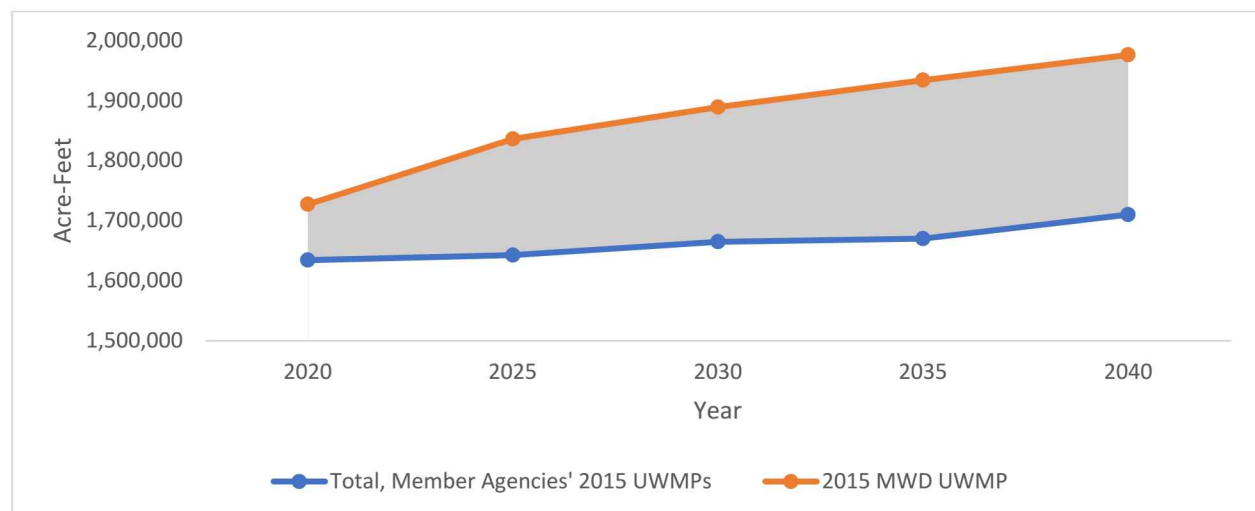
certified”).⁶ Although MWD’s 2015 UWMP identifies more than 30 member agency local supply projects and programs in advanced planning stages, only 20,000 acre-feet out of the more than 205,000 acre-feet of these supply yields are included in MWD’s 2015 UWMP forecasts of demand for MWD water.

Figure 1. Comparison of MWD’s 2015 UWMP and member agencies’ 2015 UWMPs projected demands for MWD water under average hydrology



The difference in demand forecasts are nearly as pronounced under the multiple-dry-year scenario, with differences ranging from more than 92,000 acre-feet in 2020, and growing to more than 266,000 acre-feet in 2040 (see Figure 2).

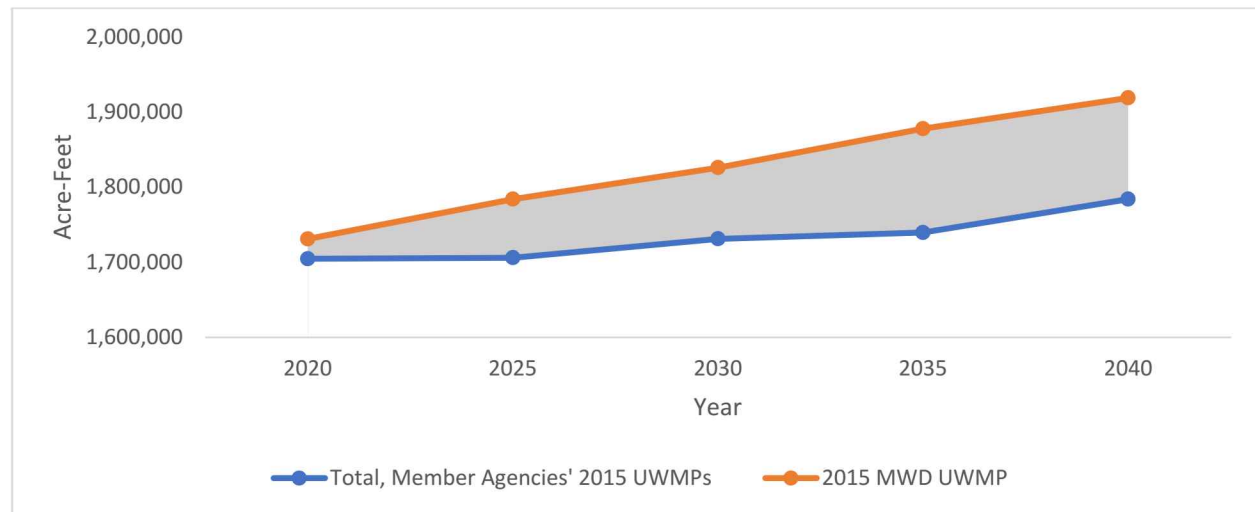
Figure 2. Comparison of MWD’s 2015 UWMP and member agencies’ 2015 UWMPs projected demands for MWD water under multiple-dry-year hydrology



⁶ Under the Water Authority’s 2015 UWMP criteria, such projects would be listed and counted as “verifiable” under state law.

Even in a single-dry-year scenario, when member agency demand for MWD water would see the highest increase, the member agencies' project lower demand for MWD water, ranging from more than 26,000 acre-feet in 2020, to approximately 135,000 acre-feet in 2040 (see Figure 3).

Figure 3. Comparison of MWD's 2015 UWMP and member agencies' 2015 UWMPs projected demands for MWD water under single-dry-year hydrology



Under the Act, agencies are required to include a description of all water supply projects and programs that may be undertaken by the urban water supplier to meet the total projected water use, including an estimate with regard to the implementation timeline for each project or program.⁷ The Water Authority includes in its UWMP projects and programs that it or its member agencies have identified as achieving a level of certainty in their planning and implementation, or “verifiable” projects with substantial evidence and documentation supporting implementation and supply utilization. Verifiable supplies are included in water supply assessments and verifications, prepared by retail water agencies, that are used by cities and counties in their land use decisions regarding available water supplies for growth under Senate Bill 610 and Senate Bill 221. MWD, however, used an unusually restrictive standard in its 2015 UWMP by including only agency projects and programs that already existed or were under construction at the time its report was prepared. This appears to be inconsistent with Water Code requirements.⁸

Another factor that may account for MWD's forecast of higher demand for MWD water is that its 2015 UWMP substantially reduces projected member agencies' groundwater production. Referencing only the “ongoing drought,” MWD's 2015 UWMP reduces groundwater production projections compared to its 2005 and 2010 UWMPs by up to 140,000 acre-feet; and, it does so at the same time it projects an increase in the amount of active groundwater replenishment recharge. MWD applies its assumption about the impact of 2015 drought conditions for the entire 25-year planning horizon, projecting that even with increased replenishment from active recharge, the region's groundwater production would remain reduced.⁹

⁷ Water Code §10631.

⁸ Water Code sections 10610.2, 10620, 10631, 10633, and 10635.

⁹ The total replenishment demand as forecasted by MWD increased by 106,000 to 108,000 acre-feet under average hydrology, including increased demand for MWD water for replenishment by 61,000 to 63,000 acre-feet over the

Other Factors that Could Drive MWD's Demand Even Lower

The 2015 GHA report noted other factors that are not accounted for and that could further reduce future demand for MWD water, including:

Long-term water use efficiency standards -- in response to Governor Brown's Executive Order B-37-16, state agencies are currently developing long-term water use efficiency standards, which were not accounted for in the 2015 UWMPs.

Revised population forecasts -- Many of the UWMP demand forecasts are based on 2012 population projections from regional planning agencies, which recently provided updated projections showing lower population growth. The revised population forecasts foreshadow that retail demand may be lower than forecasted in the plans and would further reduce demand for MWD water.

Supply Development and Demand Management Actions Beyond Demonstrated Need

Using data provided in MWD's 2015 UWMP for existing supply and storage programs, MWD's own data shows it will be able to meet the demand for MWD water forecasted in its UWMP throughout the planning horizon (through 2040). Without clear demonstrated need for additional supplies or demand management programs at the MWD level, MWD continues with plans to develop more supply development and demand management programs, including:

New supply development and demand management programs -- Under multiple-dry-year hydrology, MWD's 2015 UWMP describes plans to develop 119,000 acre-feet of new supply programs¹⁰ and additional demand management programs to reduce demand for MWD water by 173,000 acre-feet by 2040.¹¹

Additional recycled water program -- MWD is currently considering developing a new recycled water program with the Los Angeles County Sanitation Districts. The 2015 GHA report noted that MWD's UWMP does not include this project that, if implemented, would produce 168,000 acre-feet annually of additional recycled water for groundwater replenishment purposes.¹²

If developed, MWD's additional programs and projects' costs or other MWD costs could become stranded because, according to MWD's UWMP, its existing capabilities will meet all projected demands under all hydrologic conditions evaluated in the plans. This risk of stranded investments is similar to MWD's experience in its treated water program, in which MWD is now seeking to impose fixed charges to recover stranded costs resulting from the over-development of treatment capacity and other changed circumstances.

planning horizon when comparing the 2015 UWMP to the 2010 plan. Combined, the reduction in groundwater production and increased replenishment demand, has a net effect "storing" almost 200,000 acre-feet in the groundwater basins annually from 2020 through 2040.

¹⁰ Includes 94,000 acre-feet on the State Water Project system (mainly through California WaterFix) and 25,000 acre-feet on the Colorado River (through additional fallowing programs).

¹¹ MWD's UWMP indicates it will further reduce projected demands for MWD water through "aggressive implementation of the state's Model Water Efficient Landscape Ordinance" by 2040.

¹² MWD projects this program's capital cost may be as much as \$3 billion and will be entirely paid for by MWD ratepayers.

Summary

Ratepayers' financial resources are not limitless. As MWD member agencies and sub-agencies continue to seek their ratepayers' support to increase rates to become more self-sufficient by expanding water conservation and developing local water supplies, it is imperative that MWD coordinate closely with its member agencies on its demand projection for MWD water. This coordination will ensure MWD supports its own member agencies' plans and avoids unnecessary expansion of existing, or development of additional MWD supplies, preventing stranded investments while preserving ratepayer financial capacity for local supply development.

Overall, the 2015 GHA report found that MWD's 2015 UWMP plan forecasts higher demand for MWD water than the cumulative MWD water demands reported in the member agencies' UWMPs. Further, MWD's 2015 UWMP forecasts that its existing programs and projects have the supply capability¹³ to meet these demand projections under all hydrologic conditions evaluated in the plan. The 2015 GHA report provides data that strongly suggest MWD's potential investment of billions of dollars in new projects will not be supported by future MWD water sales and could lead to the over-development of more than 400,000 acre-feet of MWD water annually when demand management actions are factored in.

Moreover, the 2015 GHA report's analysis indicates that demand for MWD water may be even lower than projected due to exclusion of local supply projects in advanced planning stages that are being implemented, the state's long-term water use efficiency standards, and lower population growth. If MWD develops new programs as described and MWD's sales are lower than projected, MWD would be forced to: significantly raise water rates; impose new, or raise existing fixed charges; raise property taxes; or create additional means to collect revenues from its member agencies.

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Attachment 1: Comparison of Metropolitan Water District Urban Water Management Plan
Projected Demand for MWD Water with its Member Agencies' UWMP Projected
Demand for MWD Water by Gordon Hess & Associates, Inc.

¹³ Includes MWD's existing storage and supply programs.

**COMPARISON OF:
METROPOLITAN WATER DISTRICT'S
2015 URBAN WATER MANAGEMENT
PLAN PROJECTED DEMAND
FOR MWD WATER**

**WITH ITS
MEMBER AGENCIES' 2015 UWMP
PROJECTED DEMAND FOR MWD WATER**

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Appendix A- Metropolitan Water District Urban Water Management Plan Tables 2-4 to 2-6 Supply Capability and Projected Demands in Single Dry-Year, Multiple Dry-Year, and Average-Year Hydrologies

Appendix B- Summary of Member Agency Urban Water Management Plan Demands on Metropolitan

Appendix C- Member Agency Data from Urban Water Management Plans (Separate File)

Appendix D- List of Local Projects by Planning Stage Compiled from MWD's UWMP Appendix 5

Overview and Purpose

Urban water suppliers providing more than 3,000 acre-feet of supply or serving more than 3,000 urban connections are required by the California Urban Water Management Planning Act to update their Urban Water Management Plan (UWMP) and submit a complete version to the California Department of Water Resources (DWR) every five years. Each supplier was required to file its 2015 plan with DWR by July 1, 2016. The plans are intended to serve as a long-term planning document for the supplier to project water demand, and, based on that projected demand, ensure a reliable water supply for the City, water district or region it serves.¹

The Metropolitan Water District of Southern California (Metropolitan or MWD) was created by the Legislature to provide supplemental imported water supplies to all or portions of six southern California counties: Ventura, Los Angeles, Orange, San Bernardino, Riverside and San Diego. Metropolitan is a water wholesaler with no retail customers, providing treated and untreated water to its member agencies. Metropolitan consists of 26 member agencies, including 14 cities, 11 municipal water districts, and one county water authority. Depending on available local water supplies, each of Metropolitan's 26 member agencies delivers to its customers a combination of local groundwater, surface water, recycled water, desalinated seawater, and imported water purchased from Metropolitan or other sources. Roughly 40 percent of the total water supply projected to be used in Metropolitan's service area, to meet the varying service demands of each of Metropolitan's 26 member agencies, will come from Metropolitan, therefore Metropolitan's plans and reliability of its supplies play a major role in the reliability of the member agencies' overall water supplies.

Metropolitan's 2015 Urban Water Management Plan² (Metropolitan's UWMP or MWD-UWMP) used its 2015 Integrated Resources Plan (IRP) as a source document and as a result, the MWD-UWMP is consistent with Metropolitan's IRP. One notable difference however, is that the IRP focuses only on "average" water year demands to the year 2040, whereas the MWD-UWMP, as required by law, considers "average," "single dry-year," and "multiple dry-year" conditions in five-year increments through 2040. Member agency Urban Water Management Plans, like Metropolitan's UWMP, examines water supplies and demands to the year 2040 in the same five-year increments in the same weather year types.

Metropolitan's UWMP does not discuss the water supply development projects of its member agencies, unless the member agency project relates to one of Metropolitan's water demand or supply management plans³. For this and other reasons, assumptions about the future demand for MWD water at the member agency level can be materially different from what Metropolitan has assumed in its UWMP. These differences are exacerbated because, even within this limitation, Metropolitan only accounts for member agency local projects that currently existed or were under-construction at the

¹ Urban Water Management Planning Act, §10610.2(b).

² In past years, Metropolitan titled its Urban Water Management Plan as a *Regional* Urban Water Management Plan, however, the 2015 Urban Water Management Plan dropped the word "Regional" from the title.

³ Metropolitan 2015 Urban Water Management Plan at Page ES-1

time Metropolitan filed its 2015 UWMP. Metropolitan and its member agencies also make different assumptions about the reliability of existing local supplies and the likelihood of success of planned and proposed future local water supplies and water conservation. Taken as a whole, these differences can, and do, lead to substantially different projected demand for Metropolitan water by its member agencies as compared to Metropolitan projections.

The San Diego County Water Authority (SDCWA) retained the services of Gordon Hess and Associates, Inc. (GHA, Inc.) to summarize and assess major elements of each Metropolitan member agency UWMP and compare the aggregate of those plans to Metropolitan's UWMP.

This report provides an overview of data as reported in each Metropolitan member agency UWMP, including current water demand, supply sources, and population. In addition, each member agency's UWMP projected future demand, population, and supply sources are presented. This report is not intended to be a comprehensive summary or evaluation of each member agency's UWMP, but rather, an overview and comparison of certain key data, as reported, relative to future water demands on Metropolitan.

This report also compares the cumulative demand for Metropolitan water, as included in the member agency plans, to Metropolitan's UWMP forecast of demand for Metropolitan water under average, single dry-year, and multiple dry-year conditions. It is difficult to replicate Metropolitan's UWMP projections because it does not provide any data supporting its projections by individual member agency. However, in a few cases, the member agency UWMP points out and compares its own forecast of demand for Metropolitan water with the demand Metropolitan has assumed and included in its UWMP.

Finally, this report compares Metropolitan's 2015 UWMP demand projections with those contained in prior UWMPs prepared by Metropolitan.

Background

The California Urban Water Management Planning Act requires all urban water suppliers of a certain size in the state to prepare UWMPs and update them every five years. Since plans were last prepared in 2010, major amendments were made to the UWMP Act, including:

- The deadline for water suppliers to submit their 2015 UWMPs was set to July 1, 2015.
- Distributions system loss must be quantified for the most recent 12-month period available for the 2015 plan, and for each of the five years preceding future UWMP updates. A water system balance method must be used.
- Water use projections may display and account for water savings estimated to result from adopted codes, standards, ordinances, or land use plans as available to the agency's service area.
- An enhanced description of water demand management measures implemented over that past five years.

- Wholesale water suppliers must include a description of metering, public education and outreach, water conservation program coordination and other demand management measures.
- Voluntary reporting of energy used for water production, transportation, storage, treatment and distributions.
- Specific submittal requirements.

The 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 Delta legislation package, and seeks to achieve a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. Additionally, Water Code Sections 10910 through 10914 and Government Code Sections 65867.5, 66455.3, and 66473.7 (commonly referred to as SB 610 and SB 221) amended state law to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 requires that the water purveyor of the public water system prepare a water supply assessment to be included in the environmental documentation of certain large proposed projects. SB 221 requires affirmative written verification from the water purveyor of the public water system that sufficient water supplies are available for certain large residential subdivisions of property prior to approval of a tentative map. Urban Water Management Plans are required to contain documentation on the existing and planned water supplies being developed by the water provider that can be used in preparing the water supply assessments and written verifications required under state law. UWMPs are also required to demonstrate implementation of demand management measures in order to avoid unnecessary expansion or addition of water supplies. Specific documentation on Metropolitan's supplies can be found in its Urban Water Management Plan.

Methodology and Source Documents

This analysis is based upon publicly available information including Metropolitan's 2010 and 2015⁴ Urban Water Management Plans and the 2010 and final 2015 Urban Water Management Plans of its member agencies. Most member agency UWMPs show available supplies and projected demands to the year 2040 in the three weather scenarios, but in one case, the supplies and demands were listed to 2035 only⁵. In this case, this analysis assumed 2040 supply and demand as the same as 2035 supply and demand. This analysis also uses data contained in Metropolitan's Integrated Water Resources Plan 2015 Update, particularly Appendix 5 that lists local projects in various stages of development, from existing to conceptual.

The principal focus of this report is on demand for Metropolitan water as determined by the member agencies themselves. In most cases, this number is a specific line item in the member agency UWMPs. If it was not a line item in the UWMP, then the projected Metropolitan demand was calculated from total water demand, taking into consideration references, statements, and other information contained in the UWMP regarding the member agency's use of its local water supply. Reference locations for

⁴ http://www.mwdh2o.com/PDF_About_Your_Water/2.4.2_Regional_Urban_Water_Management_Plan.pdf

⁵ While most agencies carry UWMP supply and demand forecasts to 2040, a 20-year forecast to 2035 is permissible.

supply and demand information within the UWMPs are noted on each Member Agency UWMP Data Sheet (Appendix C).

Metropolitan’s UWMP does not disclose how its total demand is calculated based on the individual demand profile and characteristics of its member agencies. In order to replicate this and in turn be able to compare Metropolitan’s projections to those of its member agencies, data from Metropolitan’s website (Sales Model 25⁶) was analyzed and used to determine Metropolitan’s assumption about each of its member agency’s average-year demands on Metropolitan. Cumulatively, this data, developed for Metropolitan’s 2015 Integrated Resources Plan (2015 IRP) and UWMP, tracks extremely well (within 0.1 to 0.2 percent overall) with Metropolitan’s total projected demands as shown in its UWMP, when adjusted for San Diego County Water Authority water transfers.⁷ Any reference in this report to Metropolitan’s UWMP demand for an individual member agency is demand developed from Sales Model 25 data. Table 1 shows the close correlation between Metropolitan’s Sales Model 25 and its UWMP demand on Metropolitan:

Table 1- Comparison of Metropolitan Sales Model 25 Analysis Data to the MWD-UWMP Demands on MWD in Acre-Feet

Metropolitan UWMP					
	2020	2025	2030	2035	2040
Consumptive Use	1,415,000	1,468,000	1,509,000	1,558,000	1,597,000
Seawater Barrier	5,000	2,000	2,000	2,000	2,000
Replenishment	166,000	166,000	166,000	166,000	166,000
Total UWMP	1,586,000	1,636,000	1,677,000	1,726,000	1,765,000

Metropolitan Sales Model 25					
	2020	2025	2030	2035	2040
Consumptive Use	1,418,370	1,469,551	1,510,638	1,559,542	1,599,118
Seawater Barrier	4,637	2,050	2,050	2,050	2,020
Replenishment	166,283	166,281	166,260	166,275	166,227
Total, S. Model 25	1,589,290	1,637,882	1,678,948	1,727,867	1,767,395

Difference Between MWD-UWMP Demand on Metropolitan and Sales Model 25 Demand on Metropolitan (Acre-Feet)

	2020	2025	2030	2035	2040
Difference, AF	3,290	1,882	1,948	1,867	2,395
Difference, %	0.21%	0.12%	0.12%	0.11%	0.14%

⁶

[http://www.mwdh2o.com/pdf%202016%20background%20materials%20part%202/Sales%20Model%2025d1%202015%20IRP%20and%20UWMP%20\(DRAFT\).xlsx](http://www.mwdh2o.com/pdf%202016%20background%20materials%20part%202/Sales%20Model%2025d1%202015%20IRP%20and%20UWMP%20(DRAFT).xlsx)

⁷ Metropolitan incorrectly classifies SDCWA’s water transfers in its 2015 IRP as an “MWD Consumptive Use,” but in its UWMP it correctly classifies these water transfers as a SDCWA local water supply.

This report also uses, for comparison purposes, 2010 UWMPs prepared by MWD and its member agencies. A summary of these plans can be found in a 2010 report prepared by GHA, Inc.⁸ The 2010 report compares Metropolitan member agencies 2010 UWMP cumulative demand for Metropolitan water to Metropolitan's 2010 UWMP demand projections, similar to this report for the 2015 MWD UWMP and member agency UWMPs.

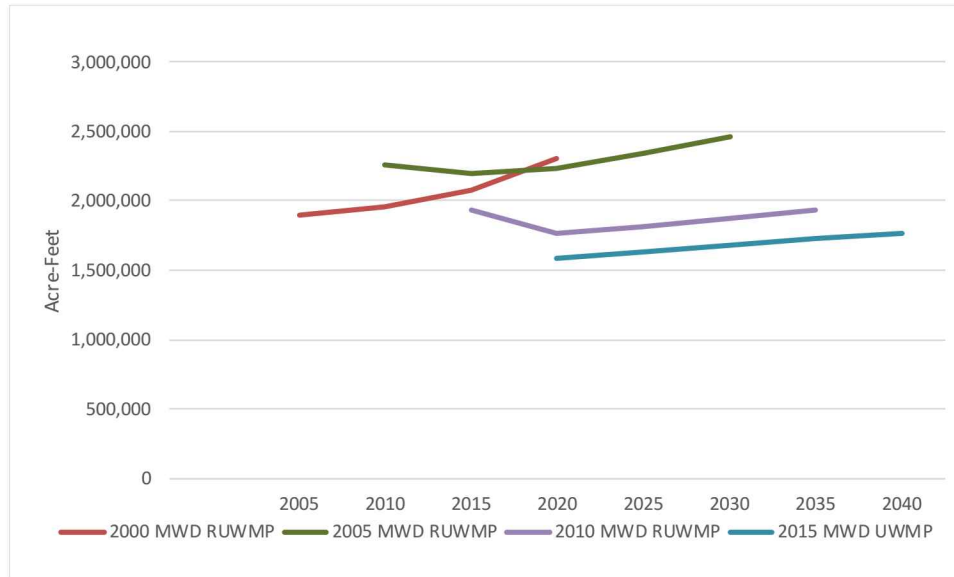
Metropolitan's Urban Water Management Plans, Past and Present

After the drought of 1987-1992, Metropolitan was confronted with substantially changed conditions relating to its two sources of imported water, namely, the Colorado River and State Water Project.⁹ An integrated resource planning process was undertaken and Metropolitan's first Integrated Resources Plan (IRP) was adopted in 1996. The plan recognized that the region's future water supply reliability would increasingly depend more on water resource investments and conservation measures by both Metropolitan and its member agencies. The IRP included demand management, imported supply augmentation and local supply development by Metropolitan's member agencies. Metropolitan based its 2000 UWMP on its IRP. Metropolitan's IRP was updated in 2004, 2010 and 2015 and its UWMP was updated in 2005, 2010, and 2015. Both the IRP and UWMP project lower future demand for Metropolitan water. There are several reasons for this, including increased conservation, changing population and demographics and increased local supply development. Figure 1 shows this consistent trend toward reduced demand for Metropolitan water:

⁸ <http://www.mwdfacts.com/wp-content/uploads/2013/10/2011-12-GHA-Comparison-of-UWMP.pdf>

⁹ A full explanation of Metropolitan's changed water supply conditions is beyond the scope of this paper, however, Metropolitan was facing the loss of surplus water on the Colorado River and environmental constraints were beginning to reduce availability of its available State Water Project supplies.

Figure 1- Total Average-Year MWD Demand



The 2015 Metropolitan UWMP projects average year demand to be no more than 90% of Metropolitan's 2010 UWMP. Metropolitan's projected demands during a single dry-year and multiple dry-years decreased even more. Table 2 shows that Metropolitan's 2015 UWMP projects demand for Metropolitan water will be reduced by 9.5 to 15.7% of 2010 UWMP projections in each of the five-year increments of the UWMP and in all (average, single dry-year, and multiple dry-year) scenarios:

Table 2- Metropolitan UWMP Comparisons

Decreased Demand on MWD, Average Year in Acre-Feet

	2020	2025	2030	2035	2040
2010 UWMP	1,763,000	1,808,000	1,873,000	1,931,000	
2015 UWMP	1,586,000	1,636,000	1,677,000	1,726,000	1,765,000
Difference, AF	-177,000	-172,000	-196,000	-205,000	
Difference, %	-10.0%	-9.5%	-10.5%	-10.6%	

Decreased Demand on MWD, Single Dry-Year in Acre-Feet

	2020	2025	2030	2035	2040
2010 UWMP	1,992,000	2,025,000	2,080,000	2,146,000	
2015 UWMP	1,731,000	1,784,000	1,826,000	1,878,000	1,919,000
Difference, AF	-261,000	-241,000	-254,000	-268,000	
Difference, %	-13.1%	-11.9%	-12.2%	-12.5%	

Decreased Demand on MWD, Multiple Dry-Years in Acre-Feet

	2020	2025	2030	2035	2040
2010 RWMP	2,049,000	2,106,000	2,16,3000	2,223,000	
2015 UWMP	1,727,000	1,836,000	1,889,000	1,934,000	1,976,000
Difference, AF	-322,000	-270,000	-274,000	-289,000	
Difference, %	-15.7%	-12.8%	-12.7%	-13.0%	

Like Metropolitan's lower UWMP forecasts, the cumulative member agencies' forecasted Metropolitan demand in the 2015 UWMPs is less than the demand forecasted in member agencies' 2010 UWMPs.

The downward trend in the demand for Metropolitan water as presented in its respective UWMPs would be even greater, had Metropolitan accounted for pending local water supply development and conservation planned by its member agencies. In 2010 and 2015 Metropolitan included only existing local projects and projects under construction in its UWMP¹⁰. Metropolitan calculates its demand as the difference between total retail demand within the service area less available local supplies; thus, less local supply availability would result in the appearance of greater demand for Metropolitan water. In addition, Metropolitan assumed a substantial reduction of groundwater production under average conditions, while also projecting an increase in the sale of MWD water for groundwater replenishment. Its IRP cites current drought conditions as one reason for this long-term decrease in average groundwater production¹¹. The following table shows how Metropolitan's estimate of groundwater production changed between its 2005 UWMP and its current 2015 UWMP, and the resulting increase in demand for Metropolitan water for groundwater replenishment:

¹⁰ 2010 UWMP: "The local supply projections presented in demand tables for the 2010 UWMP include existing projects that are currently producing water and projects that are under construction. The total local supplies presented in the 2010 UWMP also include Los Angeles Aqueduct deliveries and non-Metropolitan water supplies imported by member agencies from sources outside of Metropolitan service area." Page ES-3:

http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Metropolitan%20Water%20District%20of%20Southern%20California/Met%20UWMP_2010.pdf

2015 UWMP: "The local supply projections presented in demand tables for the 2015 UWMP include existing projects that are currently producing water, projects that are under construction, and Metropolitan's IRP local supply targets included as programs under development. The total local supplies presented in the 2015 UWMP also include Los Angeles Aqueduct deliveries and non-Metropolitan water supplies imported by or exchanged with member agencies from sources outside of Metropolitan's service area." Page ES-3:

http://www.mwdh2o.com/PDF_About_Your_Water/2.4.2_Regional_Urban_Water_Management_Plan.pdf

¹¹ MWD 2015 IRP Update, pages 3.0 and 3.17

Table 3- Comparison of Estimated Groundwater Production and Estimated Demand for MWD Water for Replenishment

	2005 MWD UWMP (Acre-Feet)	2010 MWD UWMP (Acre-Feet)	2015 MWD UWMP (Acre-Feet)	Difference, 2005 to 2015 (Acre-Feet)
2030 Average Hydrology				
Groundwater Production	1,442,000	1,431,000	1,301,000	(141,000)
MWD Replenishment Demand	177,000	104,000	166,000	(11,000)
2030 Dry-Year Hydrology				
Groundwater Production	1,430,000	1,423,000	1,302,000	(128,000)
MWD Replenishment Demand	145,000	106,000	166,000	21,000
2030 Multiple Dry-Years				
Groundwater Production	1,431,000	1,397,000	1,302,000	(129,000)
MWD Replenishment Demand	137,000	104,000	166,000	29,000

Metropolitan's UWMP also describes a potential groundwater recharge program being considered in conjunction with the Los Angeles County Sanitation Districts. It has an agreement with the district to develop a demonstration project that could lead to a project that treats up to 150 million gallons per day (168,000 acre-feet per year) of wastewater for groundwater recharge in the Los Angeles and Orange County areas. Neither the project nor its potential yield are factored into Metropolitan's water supply or demand projections.

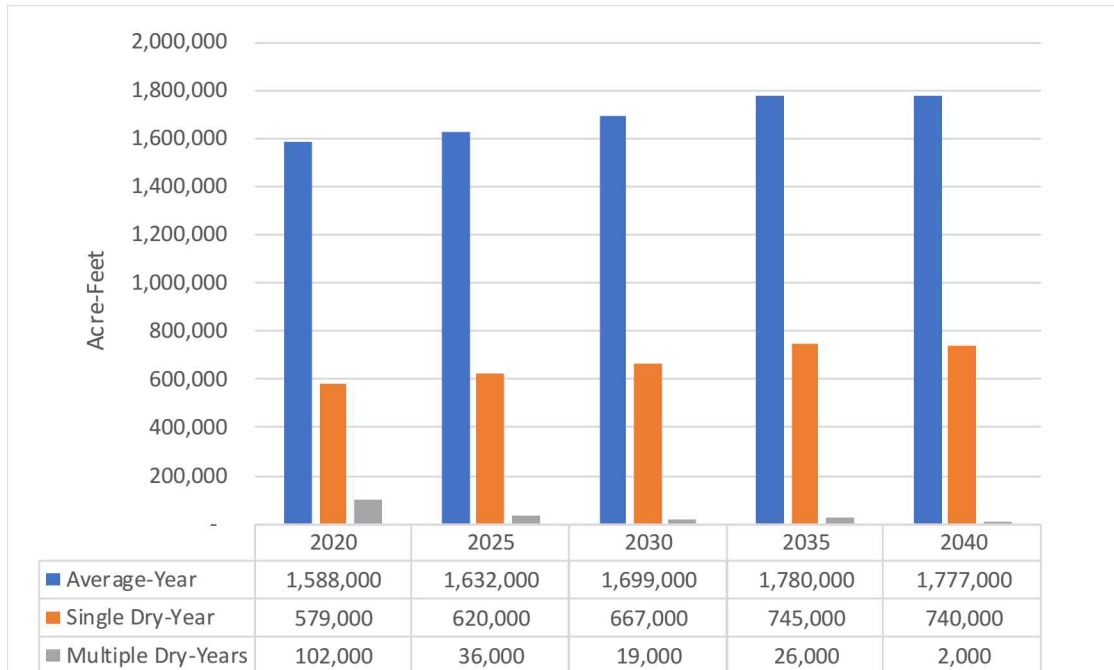
Metropolitan's UWMP Supply Capability and Projected Demand

All MWD member agencies prepared UWMPs using DWR guidelines and included a discussion of demographics, available water supplies and quality, regional and local water supply programs, low income household water use, overall water supply and demands, demand management, reliability planning and emergency contingency planning. Most agencies cited and depended upon data contained in the MWD UWMP as the basis for their respective conclusions that sufficient (or even surplus) imported water supplies exist to meet each agency's future demand for imported water from Metropolitan.

Tables 2-4 to 2-6 in Metropolitan's UWMP¹² show its estimated surplus supply capability in average, single dry-year, and multiple dry-years, with the "Capability of Current Program" and are summarized as follows:

¹² MWD 2015 Urban Water Management Plan, Tables 2-4 to 2-6, pages 2-15 to 2-17- See Appendix A of this report.

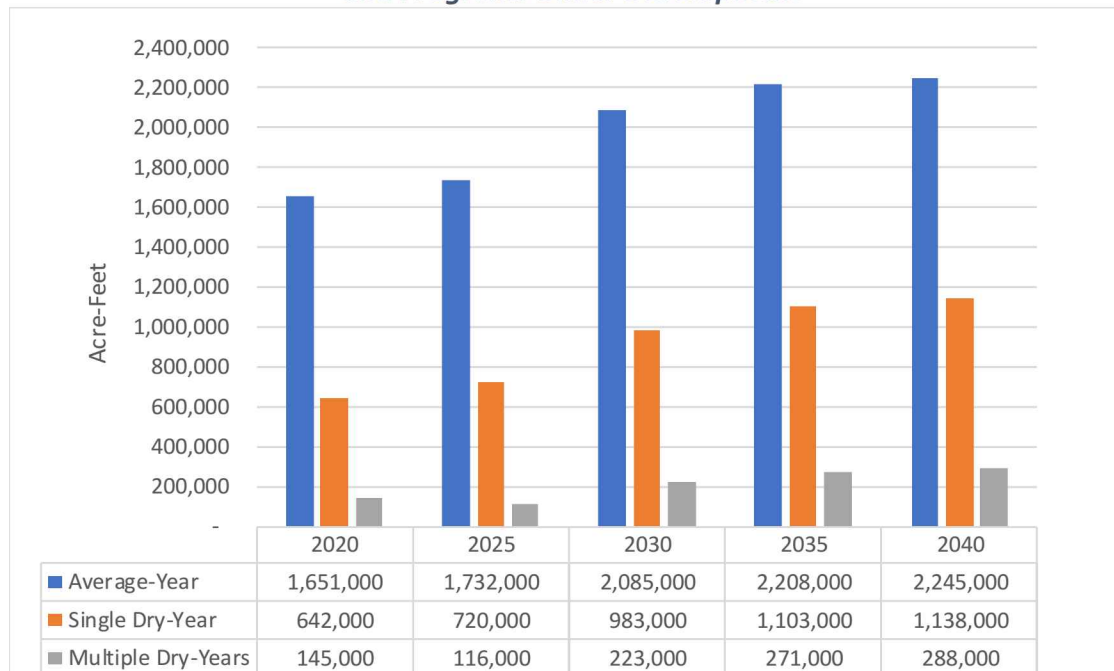
Figure 2- MWD's Estimated Surplus Supply with Current Programs



The above projections of surplus supply capability under all planning scenarios and years assume a full Colorado River Aqueduct (1.25 MAF), but do not include implementation of permanent or even interim Bay-Delta conveyance projects.

Metropolitan also estimated how much its surplus supply capability would increase if programs now under development are added to its supply, including additional in-region storage and related programs, California Water Fix, and additional Colorado River supplies. In the "Programs Under Development" scenario, Metropolitan assumes that additional Colorado River supplies would replace some current programs already in place and that the Colorado River Aqueduct would remain full:

Figure 3- MWD's Estimated Surplus Supply with Current Programs and Programs Under Development



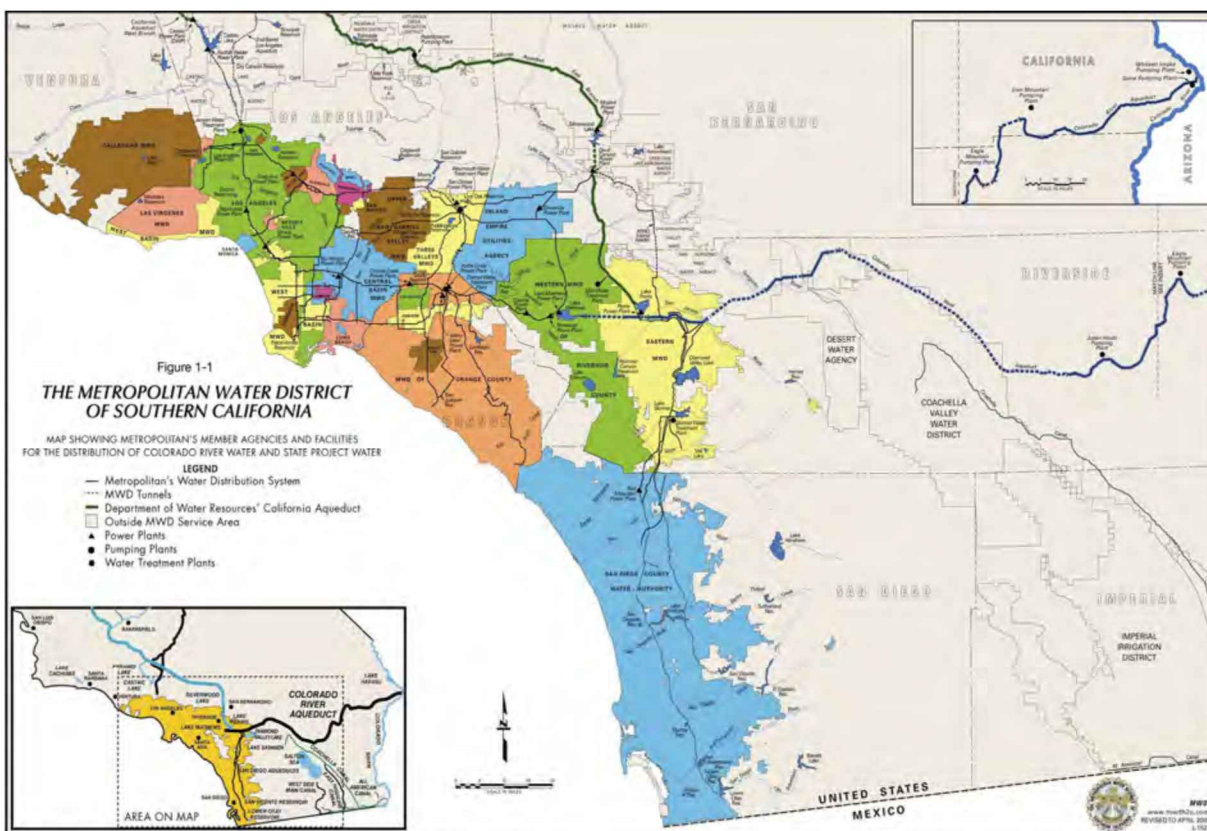
MWD Member Agencies' Urban Water Management Plans

Each of MWD's 26 member agencies delivers to its customers a combination of local water supplies, including groundwater, local surface water, recycled water, seawater desalination and imported water purchased from MWD and other sources. Some member agencies provide retail water service, while others are wholesalers. For some member agencies, MWD supplies all the water used within that agency's service area, while others obtain varying amounts of imported water from MWD to supplement local supplies, particularly during dry years. Member agencies' local supply comes from local wells, local surface water, recycling and desalination. Two agencies receive imported water from sources other than MWD: The City of Los Angeles brings imported water from the eastern Sierra Nevada mountains through its Los Angeles Aqueduct; and the San Diego County Water Authority (SDCWA) wheels water it has purchased from the Imperial Irrigation District and conserved water from the All-American and Coachella Canal lining projects through MWD's Colorado River Aqueduct and other MWD facilities. Member agencies also implement conservation programs that reduce current or avoid future increased demand for Metropolitan water. Throughout Metropolitan's service area, approximately 250 retail water suppliers directly serve the population. Metropolitan's member agencies serve residents in 152 cities and 89 unincorporated communities. Table 4 lists the member agencies by county and type of service provided and Figure 4, from Metropolitan's 2010 UWMP, shows the geographical area served by Metropolitan's 26 member agencies:

Table 4- MWD's Member Agencies and Type of Water Service Provided

County and Member Agency	Type of Water Service
Los Angeles County	
Beverly Hills, City of	Retail
Burbank, City of	Retail
Central Basin Municipal Water District	Wholesale
Compton, City of	Retail
Foothill Municipal Water District	Wholesale
Glendale, City of	Retail
Las Virgenes Municipal Water District	Retail
Long Beach, City of	Retail
Los Angeles, City of	Retail
Pasadena, City of	Retail
San Fernando, City	Retail
San Marino, City	Retail
Santa Monica, City	Retail
Three Valleys Municipal Water District	Wholesale
Torrance, City of	Retail
Upper San Gabriel Valley Municipal Water District	Wholesale
West Basin Municipal Water District	Wholesale
Orange County	
Anaheim, City of	Retail
Fullerton, City of	Retail
Municipal Water District of Orange County	Wholesale
Santa Ana, City of	Retail
Riverside County	
Eastern Municipal Water District	Retail and Wholesale
Western Municipal Water District	Retail and Wholesale
San Bernardino County	
Inland Empire Utilities Agency	Wholesale
San Diego County	
San Diego County Water Authority	Wholesale
Ventura County	
Calleguas Municipal Water District	Wholesale

Figure 4- MWD Service Area and Member Agencies



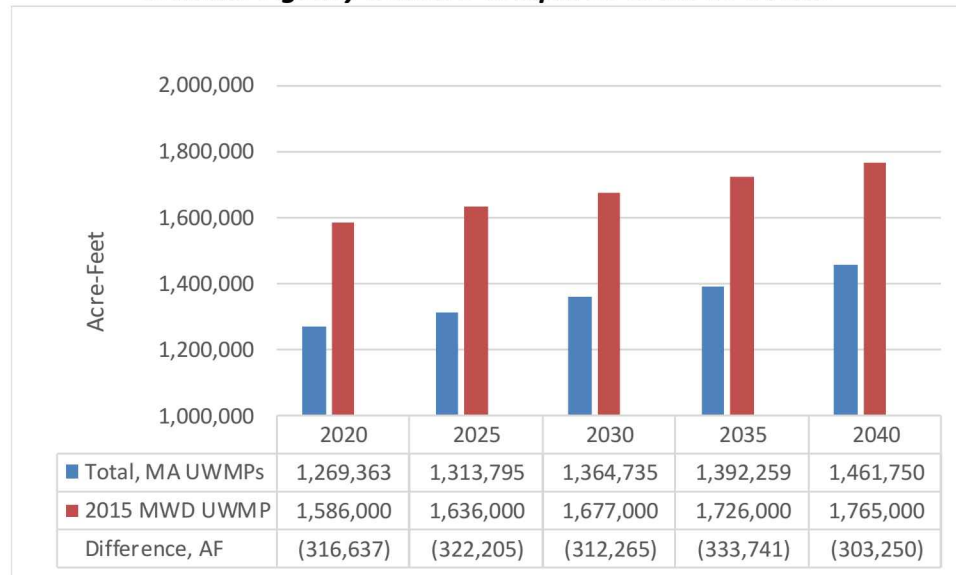
MWD member agencies had several meetings with Metropolitan relating to preparation of their respective UWMPs, however, not all member agencies used the same supply and demand estimates as the Metropolitan UWMP. In many cases, member agencies had separate models that estimated future demands, or received and used information provided by their retail agencies. In some cases, such as Calleguas MWD, differences between Metropolitan's UWMP forecast of demands on Metropolitan for the agency are compared to the agency's own forecast of demands. Each agency summary in Appendix B provides an overview of the member agency and how the member agency forecasts its demands. Appendix C provides specific data from the member agency plans and cumulative totals for supplies and demands contained in the plans.

Comparison of Metropolitan's 2015 UWMP Demands with Member Agencies' 2015 Projections of Demand for Metropolitan Water

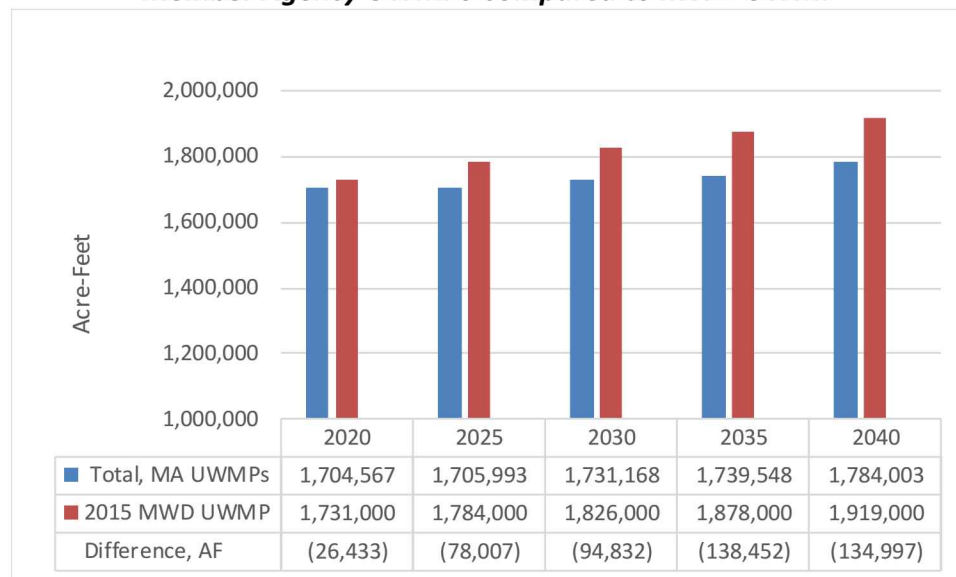
Each Metropolitan member agency prepared its own 2015 UWMP. In some cases, the member agency used Metropolitan's forecasted demand for Metropolitan water in its UWMP. Other agencies, however, developed their own forecasts using their own methods to determine demand, assumptions about availability of local supplies and future water conservation. A comparison of the cumulative member agency 2015 UWMP forecasts of demand for Metropolitan water with Metropolitan's 2015 UWMP demand forecast shows the member agencies' demand forecast to be less than Metropolitan's forecast

in every 2020 to 2040 scenario. This difference is greatest --over 300,000 acre-feet -- in average year forecasts, but also significant in dry-year and multiple dry-years¹³:

**Figure 5- Comparison of Average-Year MWD Demand
Member Agency UWMPs Compared to MWD UWMP**

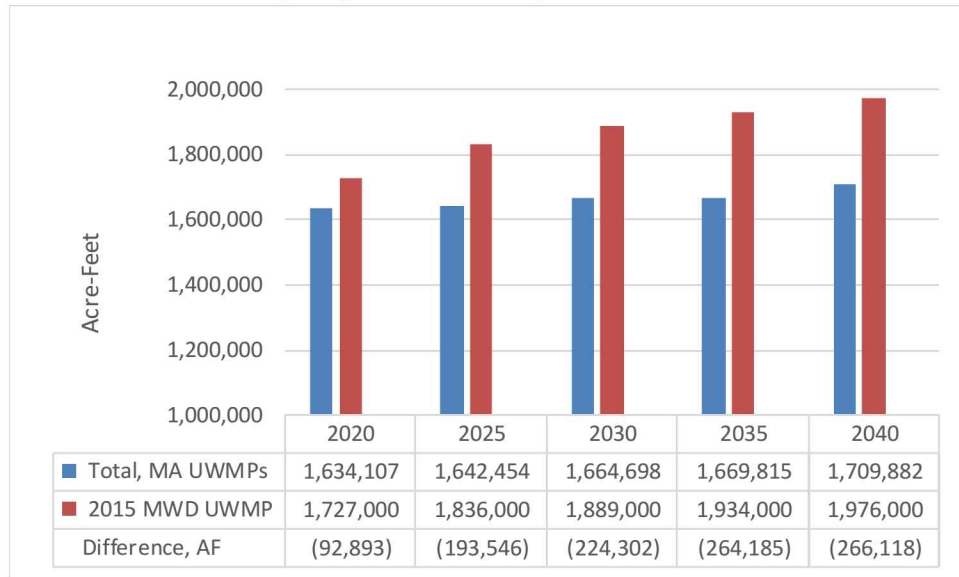


**Figure 6- Comparison of Single Dry-Year MWD Demand
Member Agency UWMPs Compared to MWD UWMP**



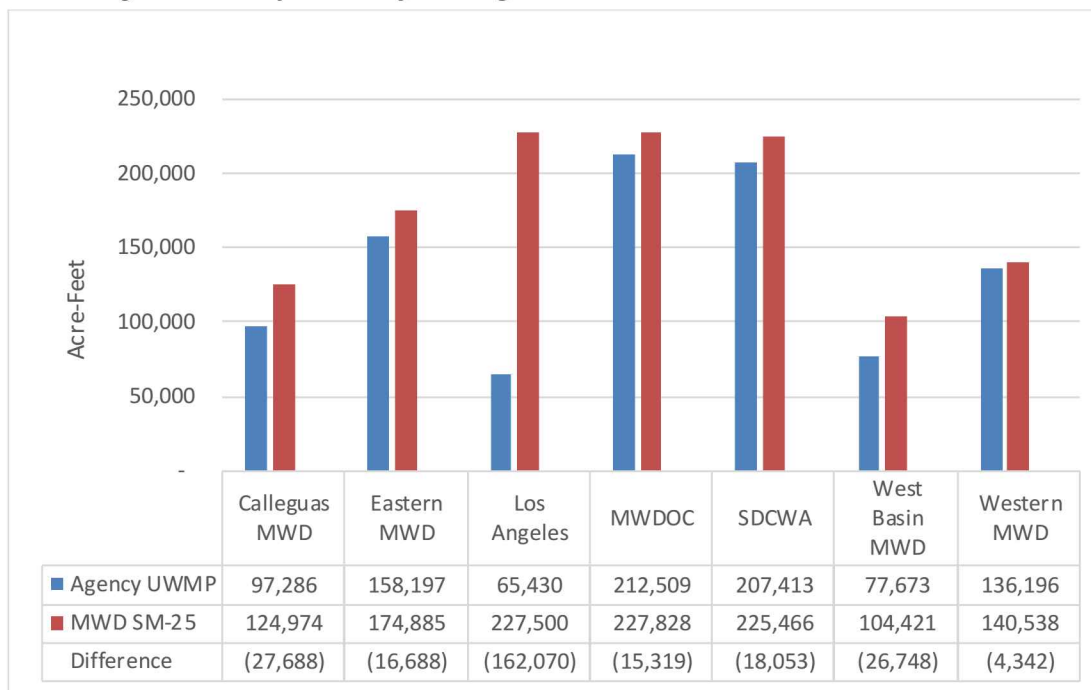
¹³ For the multiple dry-year scenarios, this report uses the third year of the three multiple years contained in the member agency UWMPs

**Figure 7- Comparison of Multiple Dry-Year MWD Demand
Member Agency UWMPs Compared to MWD UWMP**



On average (weighted for all agencies), Metropolitan member agencies' UWMP demands on Metropolitan are 80-83% of what Metropolitan projected in its UWMP. More specifically, 16 of Metropolitan's 26 member agencies' 2015 UWMPs project less demand for Metropolitan water than projected by Metropolitan in its IRP/Sales Model 25/UWMP. Figure 8 shows as an example the 2030 average-year demand as projected in the member agencies' UWMPs compared to Metropolitan's Sales Model 25 demand for its seven largest agencies:

Figure 8- Comparison of Average Year Demand on MWD in Year 2030



The greatest discrepancy exists between Metropolitan and the City of Los Angeles' projections of demand for Metropolitan water in average years, due to the inclusion by Los Angeles in its UWMP its April 2015 "Sustainable City pLAn" water conservation objectives.¹⁴ The Sustainable City pLAn established short-term and long-term targets for Los Angeles over the next 20 years to "strengthen and promote sustainability of the environment, economy, and equity in Los Angeles."¹⁵ The City's water use falls within the environmental framework of the Sustainability City pLAn. Metropolitan does not project any reduction in the demand for its water as a result of the Sustainable City pLAn adopted by the City of Los Angeles.

Other member agencies also have significant conservation efforts and local water supply projects that are not included in Metropolitan projections of the demand for Metropolitan water. For example, West Basin MWD includes in its UWMP a 21,500 acre-foot per year seawater desalination plant as a local supply to reduce future Metropolitan demand. But this project is not included in Metropolitan's UWMP. Upper San Gabriel Valley's UWMP forecasts replenishment demand on Metropolitan to be 32,000 acre-feet per year as compared to Metropolitan's forecast of 42,000 acre-feet per year; presumably the difference would come from an indirect potable reuse project that Metropolitan does not account for in its UWMP¹⁶. The project's stated goal is "replenishing the Main Basin while offsetting imported water demands."

Finally, some agencies, such as Calleguas, calculated water demands using a different method than Metropolitan. The Calleguas UWMP states that "Metropolitan utilizes a top-down approach" whereas "Calleguas demand projections are developed using a bottom-up approach based on demand projections developed by each Calleguas purveyor and include anticipated demand for both potable and recycled water service from Calleguas."¹⁷ Foothill MWD also uses the actual demand projections provided by its member agencies, stating in its UWMP that "FMWD demand projections are based on projections furnished by each of FMWD's retail agencies where water use reduction under Senate Bill (SBx7-7) factored into the total demand projections."¹⁸

Table 5 summarizes some of the projects and programs included in member agency UWMPs but which are omitted from Metropolitan's UWMP demand projections:

¹⁴ Los Angeles Department of Water and Power 2015 Urban Water Management Plan, page ES-12 states "In the future, conservation will continue to be an important part of maintaining supply reliability and is a key component of ED5 and pLAn, which ultimately calls for a 25 percent reduction in per capita water use by 2035 compared to 2013 levels

¹⁵ Ibid. page 1-6

¹⁶ Upper San Gabriel Valley Municipal Water District 2015 Urban Water Management Plan, Pages 6-36

¹⁷ Calleguas Municipal Water District 2015 Urban Water Management Plan – Final, Page 7-7

¹⁸ Foothill Municipal Water District 2015 Urban Water Management Plan, June 2016 Final Copy, Page ES-2

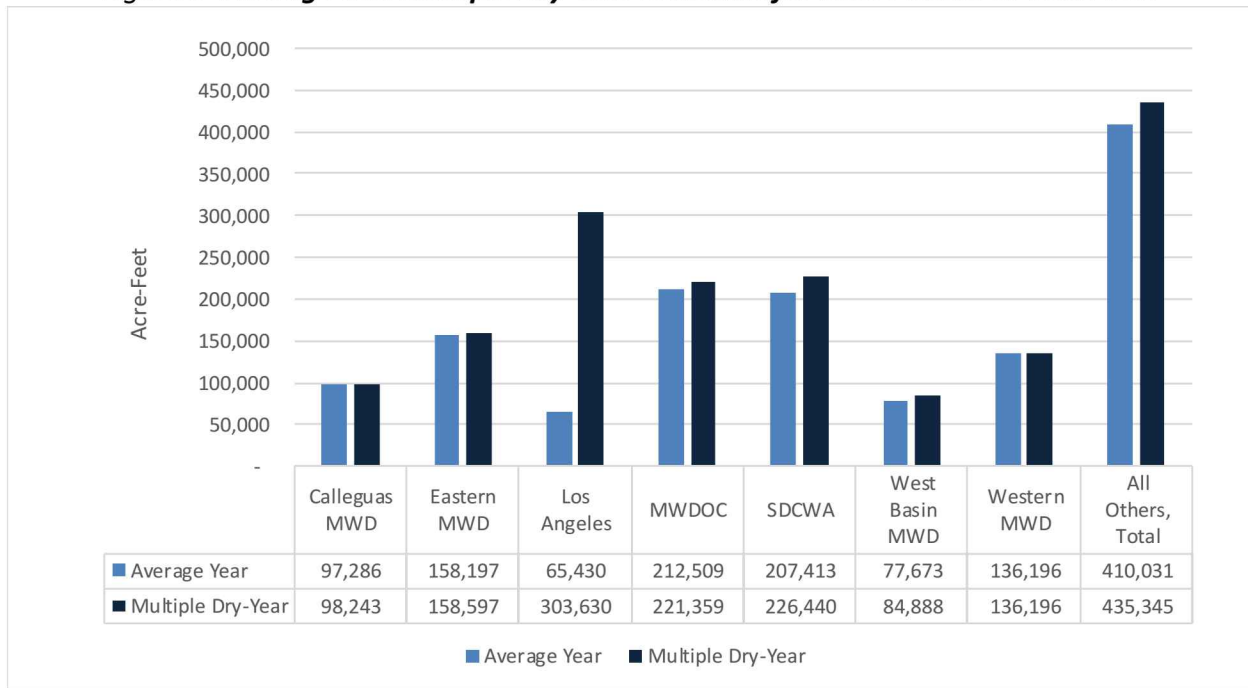
Table 5- Projects and Programs Included in Member Agency UWMPs but Omitted from MWD's UWMP Demand Projection

Member Agency	Project or Program	Reduced Demand for MWD Water (Acre-feet per year)
Beverly Hills	Water Enterprise Plan	1,700
Calleguas MWD	Conservation and Local Supply Development	Up to 9,142
Los Angeles	LADWP's Sustainability City pLAn Conservation Water Recycling Storm Water Capture	Up to 108,000 56,949 in 2040 Up to 17,000
Santa Monica	Sustainable Water Master Plan	Estimated 5,000
Torrance	Goldsworthy Desalter Expansion	3,300
Upper San Gabriel Valley MWD	Reduced Demand for Replenishment Water	10,000
West Basin MWD	Seawater Desalination	21,000
Total		Up to 232,091

Comparison of Average-Year Demand for MWD Water to the Demand for MWD Water in Dry-Years

Metropolitan member agencies that have local water supplies generally “base load” the local supplies (i.e. use them first) due to availability, cost considerations or contractual obligations. During dry periods some local supplies may be diminished due to lack of rainfall or other factors, and overall demand on Metropolitan increases. In single dry-year and multiple dry-year conditions member agencies’ demand for Metropolitan water increases compared to average years to varying degrees, depending on the demand characteristics of each Metropolitan member agency. Figure 9 shows the average and multiple dry-year demand for Metropolitan water for the seven largest agencies, plus that of the remaining others:

Figure 9- Average and Multiple Dry-Year Demands for MWD Water in Year 2030



Because Metropolitan plans its facilities and water supplies to meet its multiple-dry year (“peak”) demands, it incurs costs to develop and maintain a water supply and storage facilities that are not used in average, or sometimes even in a single dry year.

Key Findings and Conclusions

A comparison of Metropolitan’s 2015 UWMP with its member agencies’ UWMPs shows that Metropolitan’s forecasted demand for MWD water is substantially higher – more than 300,000 acre-feet higher -- than the demand forecasted by its member agencies in *average* years. In the *single dry-year* and *multiple dry-year* scenarios Metropolitan’s forecasts are also higher than its member agencies. These differences are primarily due to Metropolitan’s failure to account for water conservation and local water supplies now being implemented by Metropolitan’s member agencies.

The data reviewed in this report also shows that there has been a significant decrease in the projected demand for Metropolitan water since at least 2010. This trend is likely to continue for a number of reasons, including:

1. Member agencies and Metropolitan did not include in their water supply projections other factors and projects that are currently under consideration by MWD member agencies but are still in the "conceptual" phase of planning. A partial list of such water supply projects is shown below:

Table 6- Additional Potential Member Agencies' Projects and Other Factors that Could Reduce Demand for MWD Water (Partial List)

Member Agency	Project or Program	Reduced MWD Demand Acre-feet per year
Compton	Lease of Water Rights from Others	1,778
Eastern MWD	Enhanced Recharge and Recovery Program Expected Future Water Supply Projects	45,000 (dry year) 24,500 to 27,500
Foothill MWD	Portion of PWP's Recycled Water Program	Portion of 6,000
Glendale	Recycled Water	3,431
Long Beach	Lower SCAG Populations	Unknown
Los Angeles	Water Transfers	40,000
MWDOC	Huntington Beach Seawater Desalination Doheny Seawater Desalination Prodo Basin Expanded Recycling Groundwater, San Mateo and San Juan Basins Cadiz Project (Santa Margarita WD)	56,000 16,000 6,000 43,520 9,000 Up to 15,000
SDCWA	Groundwater Recycled Water Potable Reuse Desalination	3,600 10,926 106,099 16,800
San Marino	San Marino Groundwater Recovery	2,500
Three Valleys MWD	Additional Wells Recycled Water	5,000 8,000 to 10,000
Upper San Gabriel Valley MWD	Direct Reuse from LA Sanitation District	Unknown
Western MWD	Riverside North Aquifer Storage and Recovery Dry Year Conjunctive Use Programs Expand Chino Desalter	2,000 5,000 3,500
Total		Up to 428,656

- None of the UWMPs factor in additional water conservation mandates that are being considered by the California State Water Resources Control Board and Department of Water Resources. State of California Executive Order B-37-16, "Making Water Conservation a California Way of Life," signed by Governor Edmund G. Brown Jr. on May 9, 2016, directed the Department of Water Resources to "develop new water use targets as part of a permanent framework for urban water agencies. These new water use targets shall build upon existing state law requirements that the state achieve a 20% reduction in urban water usage by 2020." A proposed draft framework was issued in December 2016.

3. Metropolitan and many of its member agencies used 2012 Southern California Association of Governments (SCAG) or 2013 San Diego Association of Governments (SANDAG) population projections to estimate future demands¹⁹. More recently SCAG approved its 2016 final growth projections, which show lower population projection than forecast in 2012. SCAG 2035 population projections for its service area, less Imperial County, decreased by nearly 590,000 persons from its 2012 projections to its 2016 projections. SANDAG has not yet updated its 2013 population forecast.
4. None of the UWMPs factors in the Metropolitan regional recycled water program that it says could produce up to 168,000 acre-feet annually of supply from effluent made available through the Los Angeles County Sanitation Districts.

Historically Metropolitan's demand forecasts have overstated future demands, requiring it to adjust them downward in each iteration of its IRP or UWMP. In 2010, the cumulative member agencies' forecast of demands on Metropolitan were less than Metropolitan's forecast in average-years. In 2015 the member agency UWMP forecasts are also less than Metropolitan's UWMP in the average year scenario, but also less in both dry-year scenarios.

According to Metropolitan's 2015 UWMP series of supply capability and projected demands (See Appendix A) its current water supply is sufficient to meet projected demands to the year 2040; indeed, it would have surplus supplies in all hydrological conditions evaluated. Metropolitan's UWMP shows the surplus to be even greater if other programs are implemented. It will be greater still if its Los Angeles County Sanitation project moves forward.

By Metropolitan's own projections and measures, it is developing 286,000 acre-feet more water than it has any projected demand for in multiple-dry years.²⁰ Factoring in the member agencies' UWMP projections of even less demand for Metropolitan water by 2040 (266,118 acre-feet) – the result could be more than 500,000 acre-feet of stranded investment.

Finally, the demand for Metropolitan water during dry-years varies widely by member agency, indeed, in the hundreds of thousands of acre-feet. Metropolitan should work more closely with its member agencies to understand each agency's intended and projected future reliance on Metropolitan water, and plan accordingly. Failure to do so could result in the unnecessary expenditure of billions of ratepayer dollars by Metropolitan.

¹⁹ Metropolitan Water District 2015 [Regional] Urban Water Management Plan, Page ES-2

²⁰ Metropolitan's UWMP indicates it would have a surplus of 288,000 acre-feet of water supplies in the year 2040 if it adds its "programs under development" to its existing "current programs."

Appendices

Appendix A- Metropolitan Water District Urban Water Management Plan Tables 2-4 to 2-6 Supply Capability and Projected Demands in Single Dry-Year, Multiple Dry-Year, and Average-Year Hydrologies

Appendix B- Summary of Member Agency Urban Water Management Plan Demands on Metropolitan

Appendix C- Member Agency Data from Urban Water Management Plans

Appendix D- List of Local Projects by Planning Stage Compiled from MWD's UWMP Appendix 5

Appendix A- Metropolitan Water District Urban Water Management Plan

Tables 2-4 to 2-6: Supply Capability and Projected Demands in Single Dry-Year, Multiple Dry-Year, and Average-Year Hydrologies

Metropolitan Water District Urban Water Management Plan- Table 2-4 Single Dry-Year

Supply Capability¹ 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	691,000	712,000	723,000	749,000	749,000
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	2,584,000	2,686,000	2,775,000	2,905,000	2,941,000
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 Deliveries⁵	2,005,000	2,066,000	2,108,000	2,160,000	2,201,000
Surplus	579,000	620,000	667,000	745,000	740,000
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	642,000	720,000	983,000	1,103,000	1,138,000

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 demands 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.

Metropolitan Urban Water Management Plan- Table 2-5 Multiple Dry-Year

Supply Capability¹ 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	664,000	682,000	687,000	696,000	696,000
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	2,103,000	2,154,000	2,190,000	2,242,000	2,260,000
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 Deliveries⁵	2,001,000	2,118,000	2,171,000	2,216,000	2,258,000
Surplus	102,000	36,000	19,000	26,000	2,000
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	145,000	116,000	223,000	271,000	288,000

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 demands 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.

Metropolitan Water District Urban Water Management Plan- Table 2-6 Average Year

Supply Capability¹ 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	1,555,000	1,576,000	1,606,000	1,632,000	1,632,000
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
Capacity of Current Programs	3,448,000	3,550,000	3,658,000	3,788,000	3,824,000
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 Deliveries⁵	1,860,000	1,918,000	1,959,000	2,008,000	2,047,000
Surplus	1,588,000	1,632,000	1,699,000	1,780,000	1,777,000
Programs Under Development					
In-Region Supplies and Programs	43,000	80,000	118,000	160,000	200,000
California Aqueduct	20,000	20,000	268,000	268,000	268,000
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
Capacity of Proposed Programs	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

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 demands 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 B- Summary of Member Agency Urban Water Management Plan Demands on Metropolitan

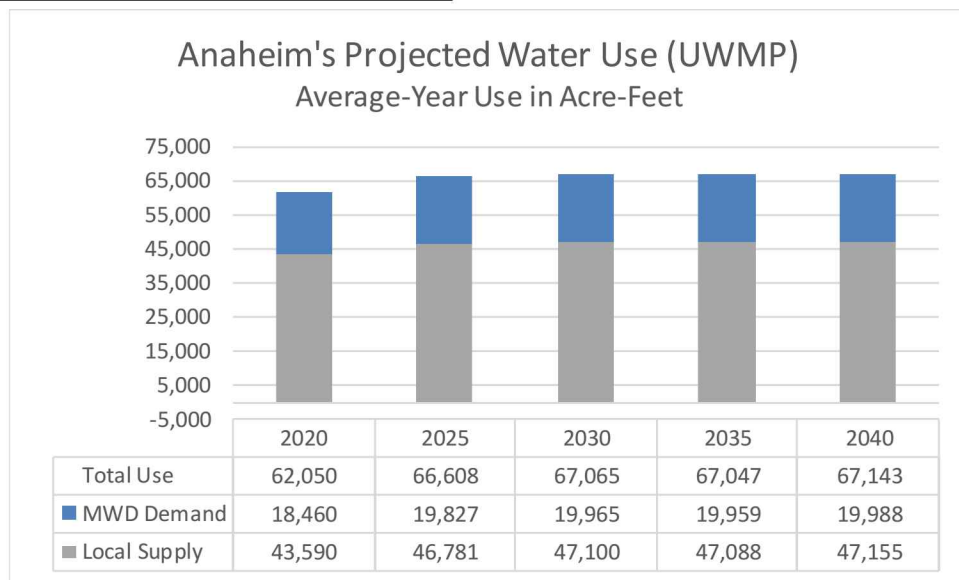
City of Anaheim

Overview

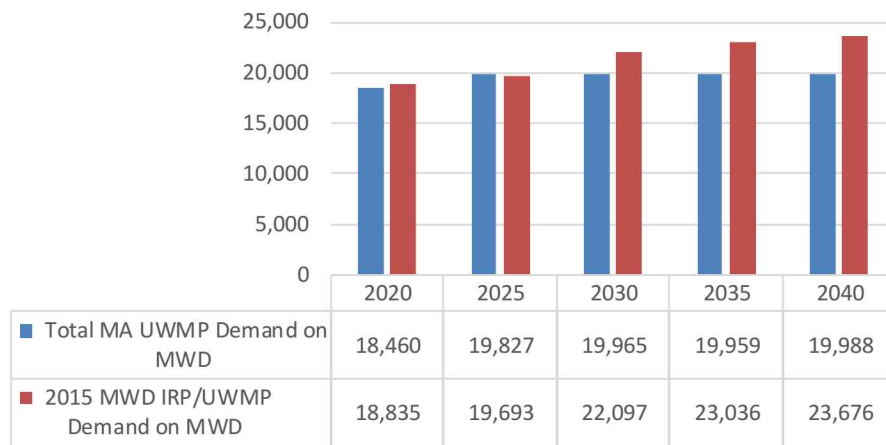
The City of Anaheim provides retail water service to residents and businesses throughout its 49.3 square mile service area. The City receives water from two main sources: The Orange County Groundwater Basin, which is managed by the Orange County Water District and imported water from Metropolitan. Groundwater is pumped from 18 active wells located within the City and imported water is delivered through seven treated water connections and one untreated water connection from Metropolitan.

Anaheim's 2015 UWMP lists its current population at 360,142 and projects population to increase to 417,456 in the year 2040, an increase of 15.9%. Total average demand from the UWMP is expected to increase 8.2% over the same period, from 62,053 acre-feet in 2015 compared to 67,143 acre-feet in 2040. This increased demand will be met by both increased groundwater pumping and deliveries from Metropolitan.

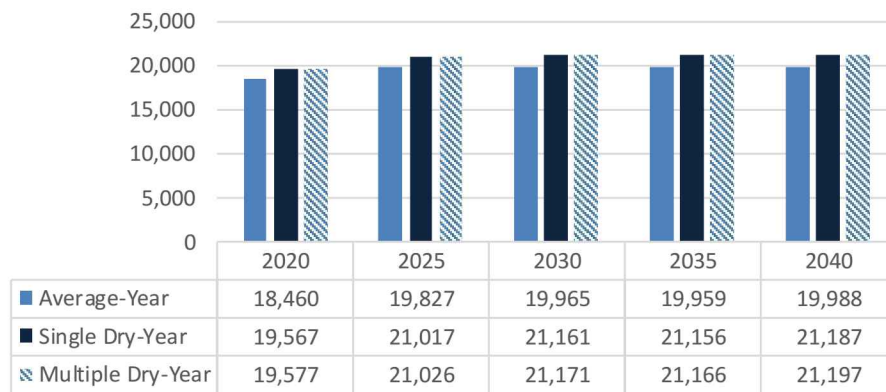
Projected Future Water Supply and Demand



Anaheim's UWMP vs. MWD's UWMP Average Year Demands on MWD in Acre-Feet



City of Anaheim Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

The City's UWMP projects constant uses of groundwater and very slight increases in recycled water usage over the planning period. Mostly the slight increase in recycled water use would be in expanded use in landscape (i.e. parks and schools), and 100 acre-feet of industrial usage through the OCWD Groundwater Replenishment System (GWRs). The City's UWMP states it will continue to conduct feasibility studies for recycled water and Metropolitan, in its IRP, lists as a feasibility level project 1,100 acre-feet of additional recycled water through the GWRs.

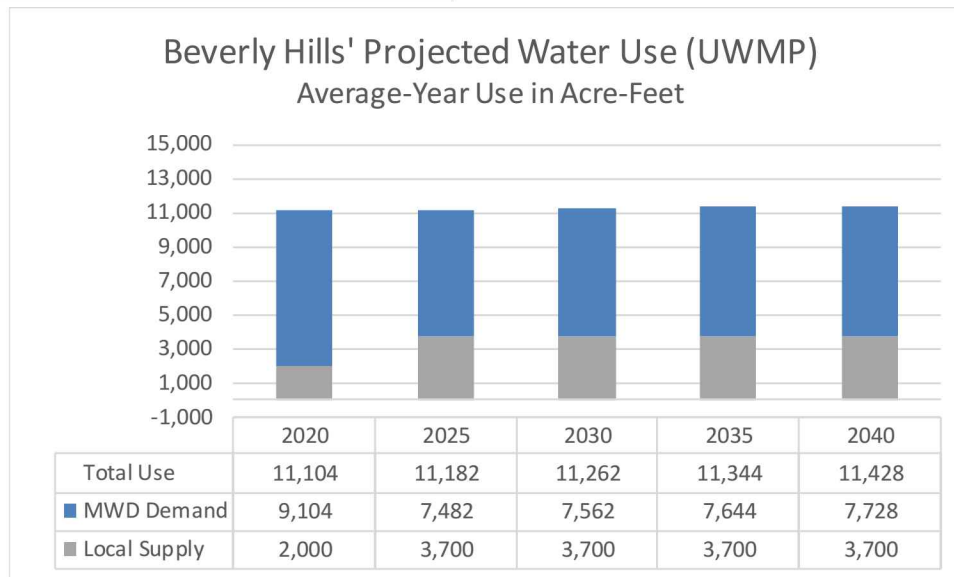
City of Beverly Hills

Overview

The City of Beverly Hills, located in Los Angeles County and surrounded by the City of Los Angeles, provides retail water service to city residents within its 5.70 square mile city limits and to a portion of the City of West Hollywood. Water is obtained from two main sources: groundwater from four groundwater wells that pump water from the Hollywood Sub Basin and treated water from Metropolitan's Weymouth Treatment Plant through the Santa Monica Feeder. In order to maintain water quality, all the City's raw groundwater is treated at the City's Reverse Osmosis Treatment Plant.

Beverly Hills' 2015 UWMP lists its water service area population at 43,189 and projects an 8.7% increase to 46,950 by the year 2040. Total average demand from the UWMP is expected to increase 9.5 % over the same period, from 10,432 acre-feet in 2015 to 11,428 acre-feet in 2040. It plans to increase pumping from the unadjudicated portions of the Hollywood and Central Basins to meet increased demands and lower demand on Metropolitan.

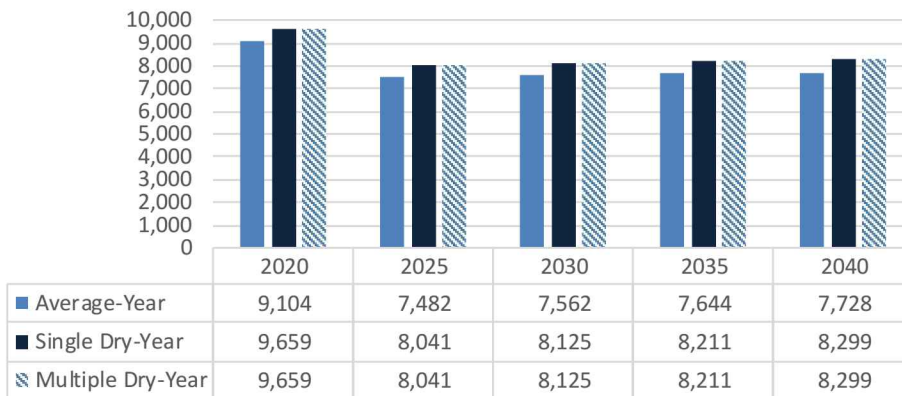
Projected Future Water Supply and Demand



Beverly Hills' UWMP vs. MWD's UWMP Average Year Demands on MWD in Acre-Feet



City of Beverly Hills Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

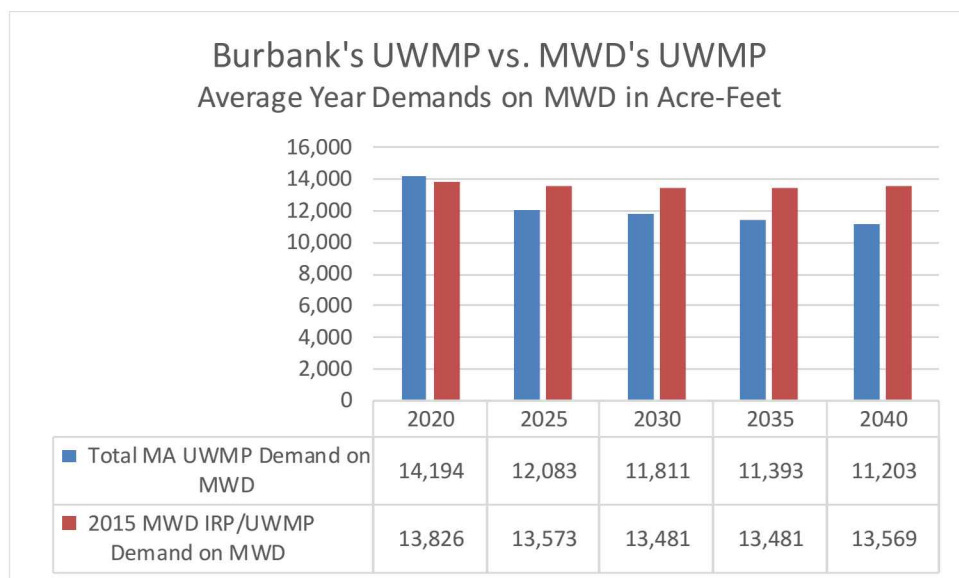
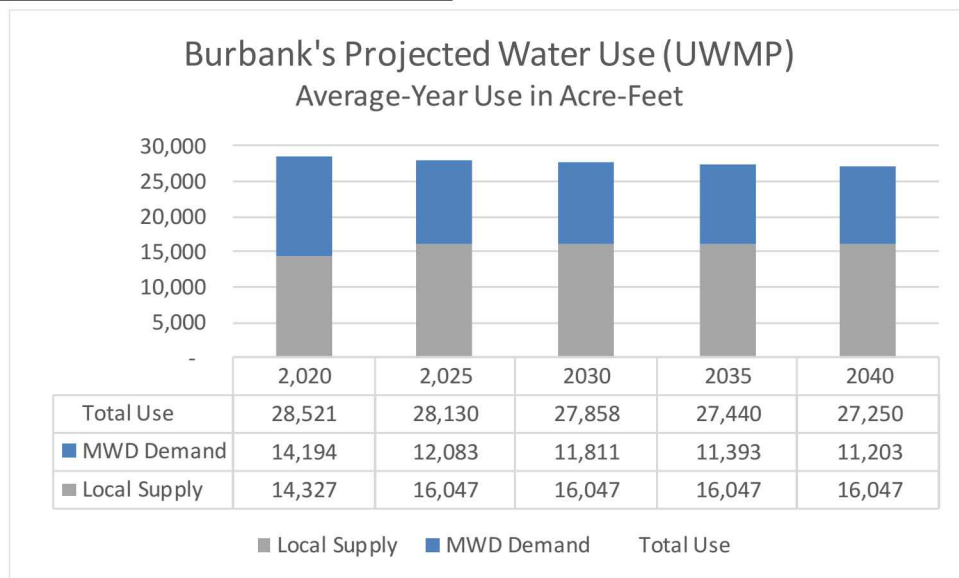
The City developed a Water Enterprise Plan (WEP) in 2015 that sets forth a recommended water supply portfolio that includes increasing groundwater supplies (1,700 acre-feet), rehabilitating wells, increased water conservation and participating in a regional water bank. However, it will continue to rely on Metropolitan to meet the majority of the City's water demands. Metropolitan identified a potential of 2,500 acre-feet of additional groundwater development in the conceptual to feasibility level of development.

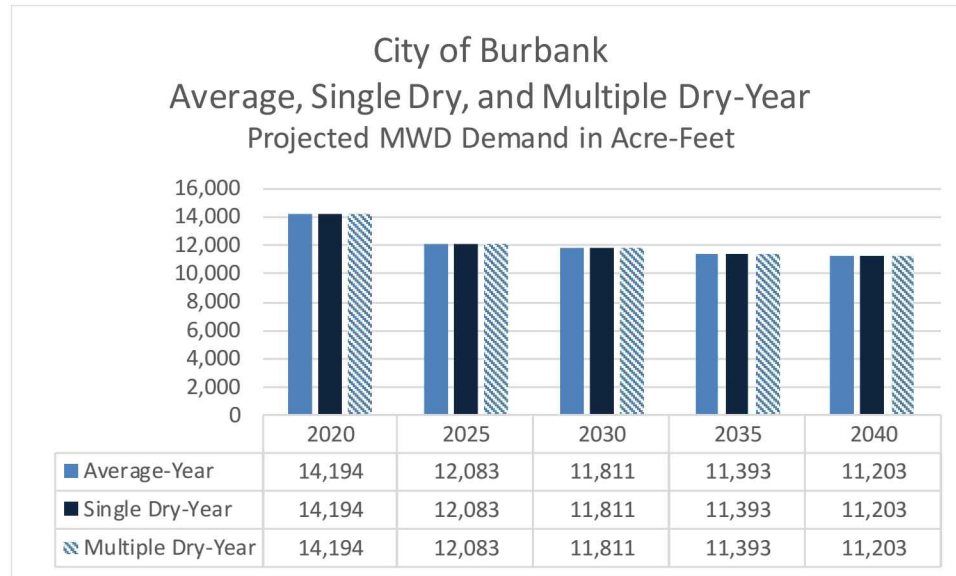
City of Burbank

Overview

The City of Burbank is located approximately 12 miles north of downtown Los Angeles and provides retail water service to its residents. The City covers 17 square miles of the eastern end of the San Fernando Valley. The City of Los Angeles lies to the north and west, and the City of Glendale to the south and east. Burbank's 2015 RUWP lists its current population at 108,084 and projects populations to increase 9.9% to 118,821 in the year 2040. Total normal year demand from the UWMP is expected to increase 9.6% over the same period. This increased demand will be met by a combination of increase recycled water use and groundwater pumping, and increased demand from Metropolitan.

Projected Future Water Supply and Demand





Potential Future Local Projects

Metropolitan’s IRP identified up to 4,000 acre-feet of additional recycled water production, through potable reuse for the City of Burbank. Burbank’s UWMP discusses this potential but does not quantify the total quantity. Burbank also discusses in its UWMP future projects including increased water recycling, well improvements and implementation of more aggressive conservation measures.

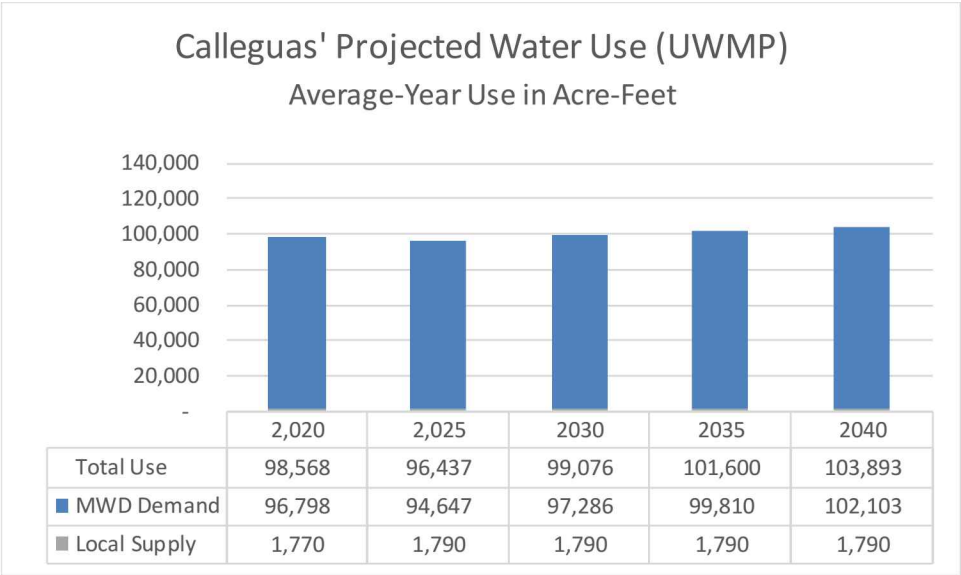
Calleguas MWD

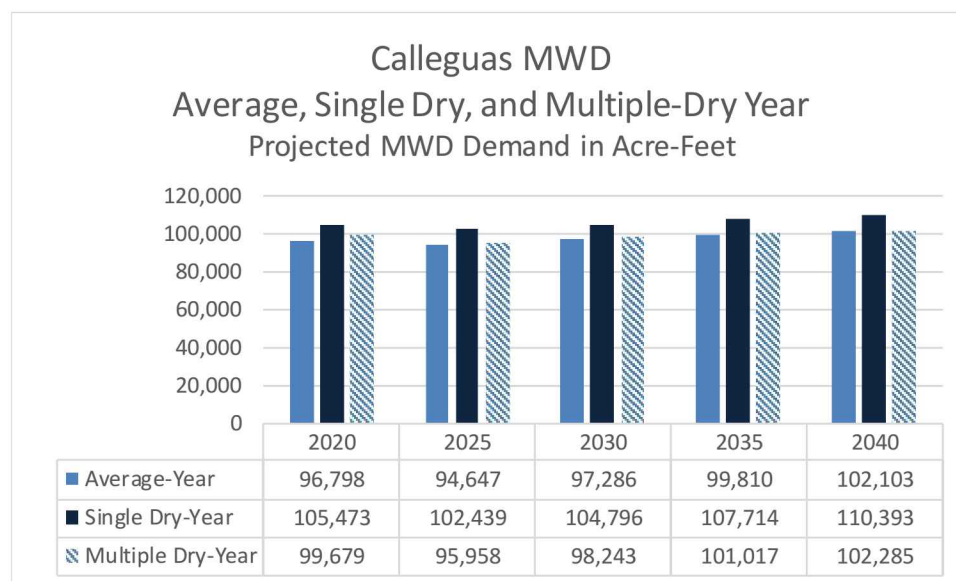
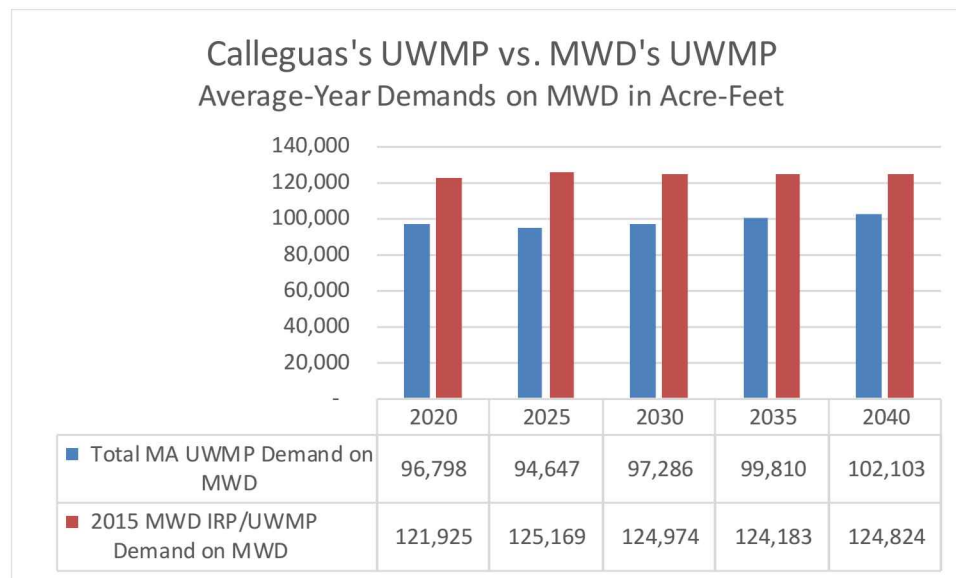
Overview

The Calleguas Municipal Water District, located in southern Ventura County, is a wholesaler water agency that distributes water to 19 local purveyors. Approximately three-quarters of Ventura County residents depend on Calleguas for all or part of their water. The water supplied by CMWD represents much of, but not all the total municipal and industrial water demand within its service area.

Calleguas’ UWMP lists its current population at 633,404 and projects populations to increase to 715,112 in the year 2040, an increase of 12.9%. The UWMP projects total Metropolitan demand to increase 16.1% over the same period, from 89,453 acre-feet in 2015 to 103,893 acre-feet in 2040. Unlike its 2010 UWMP, the 2015 plan does not quantify local all supplies, but instead focuses on water provided by Calleguas.

Projected Future Water Supply and Demand





Potential Future Local Projects

The water demand projections contained in the UWMP are an aggregate of forecasts by individual purveyors (UWMP page 4-2). The plan describes the different approach to demand forecasting used by Calleguas as a “bottom up” approach versus the “top down” approach used by Metropolitan (UWMP page 7-7). This difference results in lower forecasts from Calleguas than Metropolitan. The UWMP also states that if planned local supplies do not materialize demands on Metropolitan will be higher. However, per the UWMP the projected demands would still be less than what Metropolitan’s forecasts as demands until 2040 (Table 7-2 of the Calleguas UWMP).

The UWMP states that by 2017 Calleguas will conduct a water supply alternative study to identify other potential water sources for the district. The plan does not list any other sources, however Metropolitan

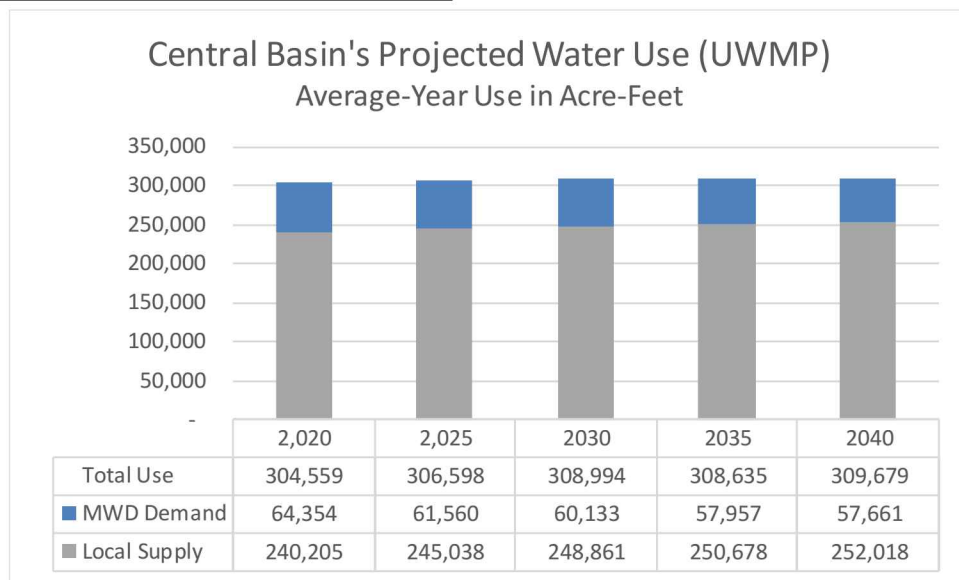
lists in its IRP conceptual to advance-planning stages over 10,000 acre-feet of recycled water, groundwater recovery and other projects. Presumably some of these projects are included in the individual purveyor's future plans.

Central Basin MWD

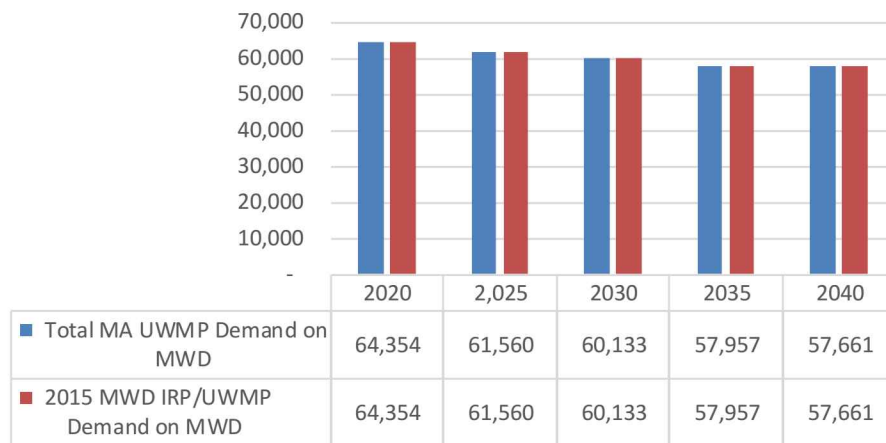
Overview

The Central Basin Municipal Water District is a wholesale water agency located in southeast Los Angeles County. It encompasses approximately 227 square miles including 24 cities and several unincorporated areas. Its current population of 1,565,128 is expected to increase 12.3% by the year 2040 to 1,757,232 persons. At the same time, average water use is expected to increase by 16.2% from 266,487 acre-feet in 2015 to 309,679 acre-feet in 2040. The 2040 figure includes replenishment deliveries. Demand on Metropolitan is expected to decrease during the 2020 to 2040 period. Groundwater production is expected to remain fairly constant and use of recycled water is projected to increase.

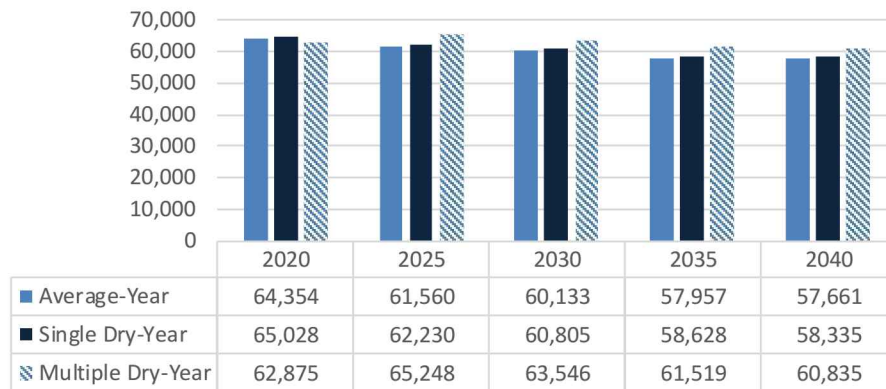
Projected Future Water Supply and Demand



Central Basin's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



Central Basin MWD Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

The UWMP uses the same population and demand projections as Metropolitan used in its IRP update. The UWMP notes that recycled water use is expected to increase and provides a discussion of the Central Basin recycled water distribution system storage project, West San Gabriel recycled water expansion project, and La Mirada recycled water expansion project. The UWMP figures include 10,003 acre-feet of expanded recycled water use. The UWMP states that increasing cost of imported water demand makes recycled water more desirable, but also discusses the challenges and limitations of expanding the recycled water system, such as proximity to sources and capacity and pressure needs of customers, and costs.

An overview and status of the Water Replenishment District's (WRD's) Groundwater Reliability Improvement Program (GRIP) is included on page 7-14 of the UWMP. The plan states that WRD's use of

recycled water from the Los Angeles County Sanitation District has helped to offset potable water use and augments replenishment water within Central Basin's service area.

Metropolitan' IRP lists 1,500 acre-feet of additional recycled water in the advance planning stage of development.

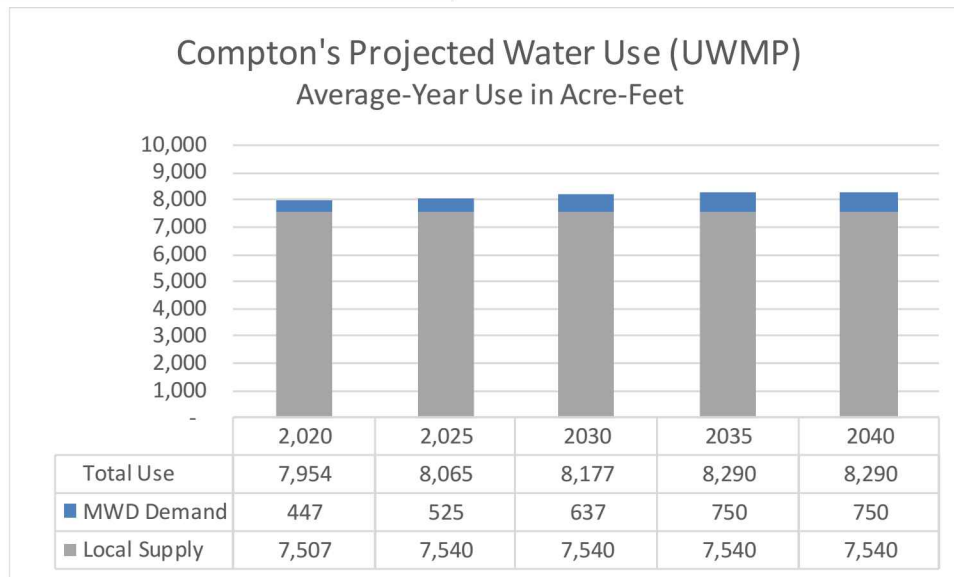
City of Compton

Overview

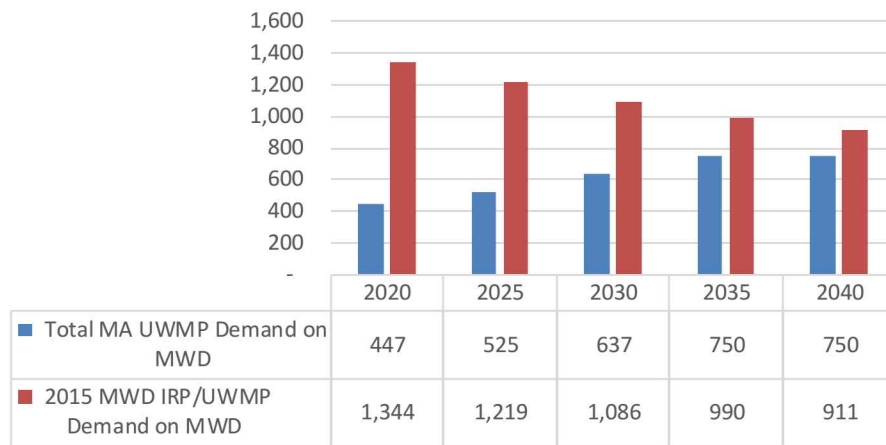
The City of Compton is located approximately six miles north of downtown Long Beach covering approximately 10.2 square miles. Compton Municipal Water District provides retail water service to approximately 80 percent of the City and private water companies provide service to the remaining residents. Water is obtained from two main two main sources: The Central Groundwater Basin and imported water from Metropolitan. Groundwater is pumped from active wells located within the City and imported water is delivered through treated water connections from Metropolitan.

Compton's 2015 UWMP lists its current population at 98,119 and projects populations to increase to 103,727 in the year 2035, an increase of 5.7%. Total Demand from the UWMP is expected to increase 13.7% over the same period, from 7,288 acre-feet in 2015 to 8,290 acre-feet in 2035. As its rights to pump water from the groundwater basin are fixed, this increased demand will be met by increased deliveries from Metropolitan.

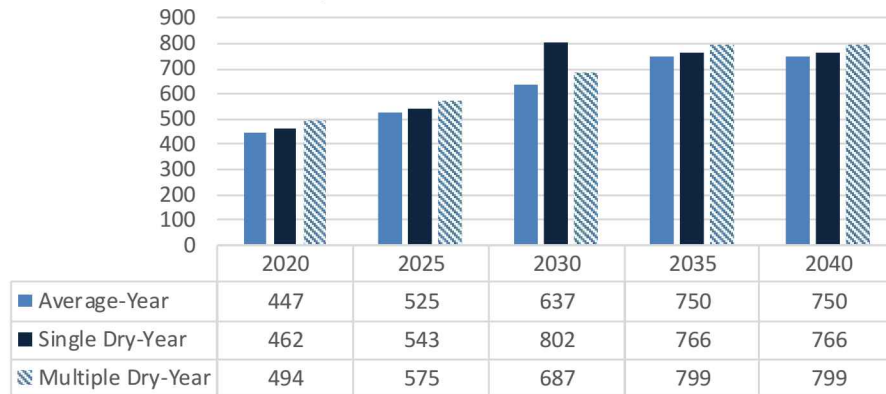
Projected Future Water Supply and Demand



Compton's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



City of Compton Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

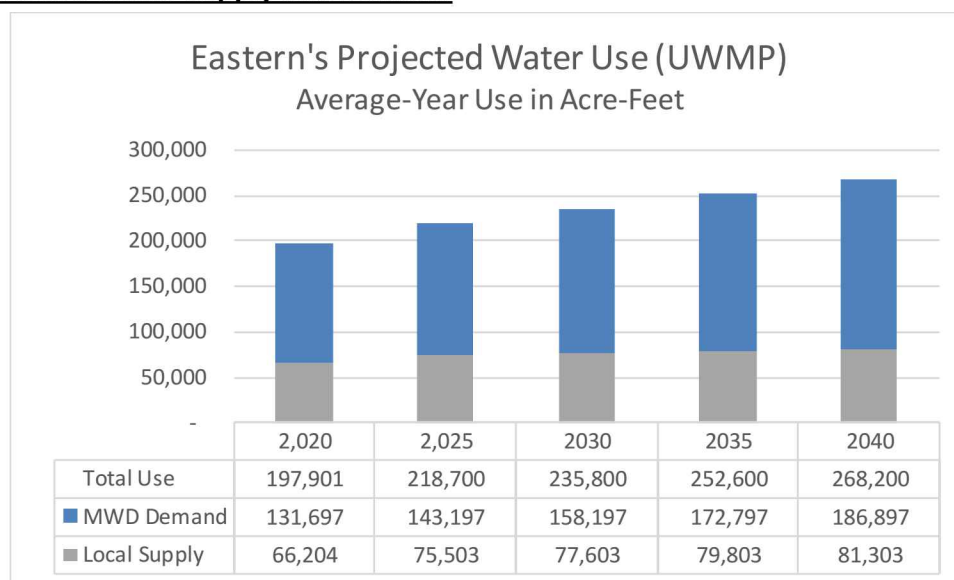
Per the UWMP, Compton routinely leases water rights from local groundwater purveyors who are unable to extract groundwater for various reasons. The water is used to supplement the local groundwater pumping rights of the City and decreases the reliance on Metropolitan. The City's UWMP lists two potential short-term or long-term transfer opportunities, totaling 1,778 acre-feet.

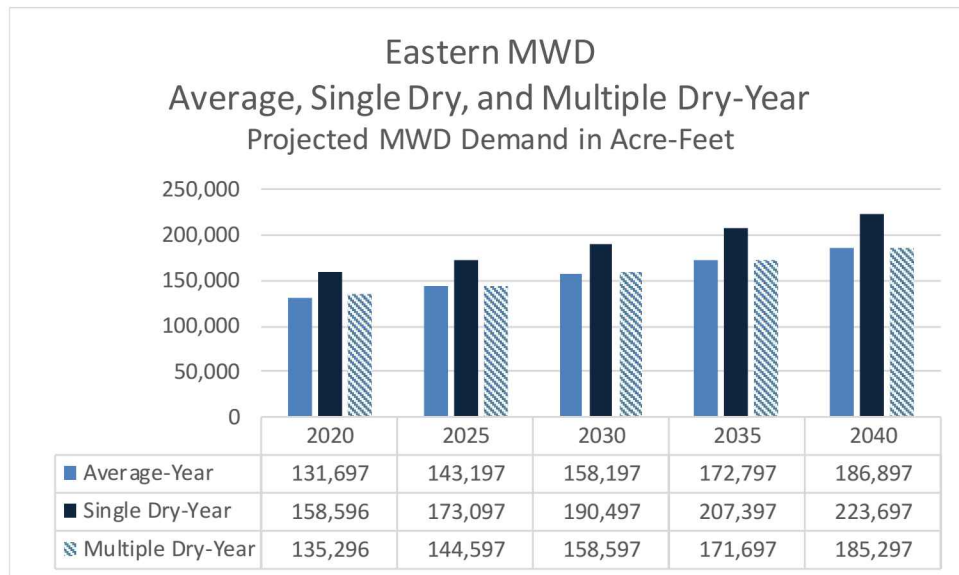
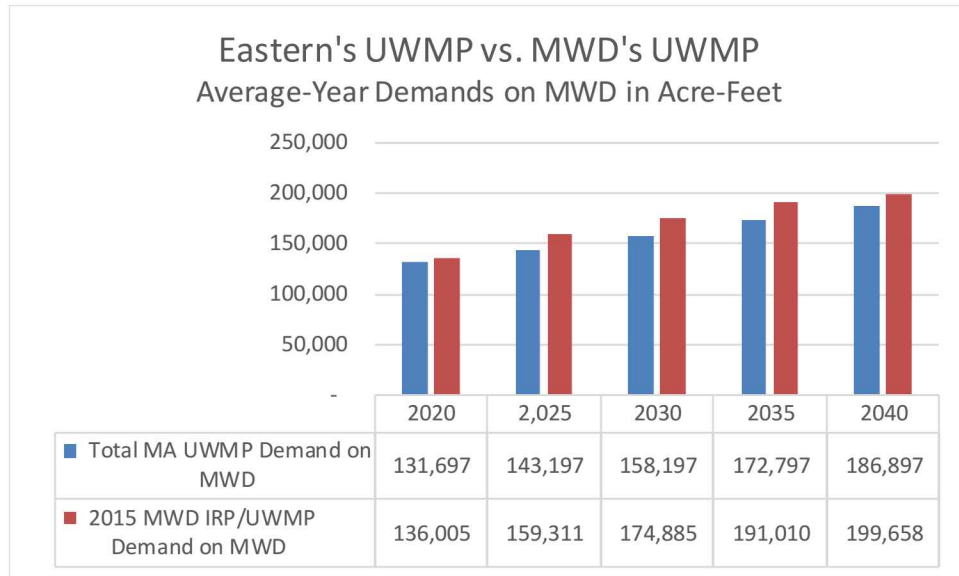
Eastern MWD

Overview

The Eastern Municipal Water District provides both retail and wholesale water service and is in western Riverside County, approximately 75 miles east of Los Angeles. The 555 square-mile service area includes seven incorporated cities in addition to unincorporated areas of the County of Riverside. Eastern provides both water and sewer services to many, but not all of the areas it serves. It also provides wholesale water to three separate cities, two water companies, and two water districts including the Rancho California Water District. The population within EMWD's boundaries is 761,221 and is forecast to grow by 67.4% to 1,274,600 by the year 2040. Water use is expected to increase by 83.6% over the same period, from 146,090 acre-feet in 2015 to 268,200 acre-feet in 2040. Because 2015 was a year when Metropolitan supplies were limited and water demands were lower than previous years, the increase in demand versus projected increase in population is somewhat distorted. Per its UWMP, most of this increase in water use is expected to be met by Metropolitan, with some increase in recycled water production and desalinated groundwater production.

Projected Future Water Supply and Demand





Potential Future Local Projects

The UWMP projects desalted water to increase from 7,288 acre-feet in 2015 to 10,100 acre-feet in 2040, however the plan states that the Perris II desalter could produce more, 3,000 to 6,000 AF. (p 6-27) and that a forth desalter could also be built. Also, the Enhanced Recharge and Recovery Program (ERRP) for groundwater banking is expected to provide an additional 45,000 acre-feet of potable supply in dry years (see page 6-27). Table 6-16 in the plan, titled “Expected Future Retail Water Supply Projects or Programs”, lists this, and 24,500 to 27,500 of additional potential supplies for average year water use.

Metropolitan’s IRP lists 25,070 acre-feet of additional feasibility level projects included in Table 6-16, but does not include Eastern’s ERRP potential program yield for dry years.

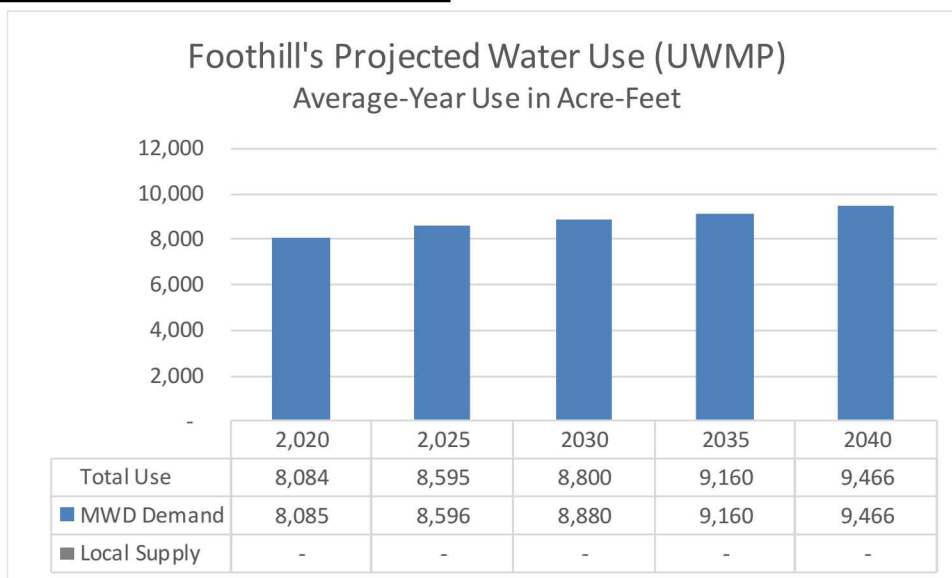
Foothill MWD

Overview

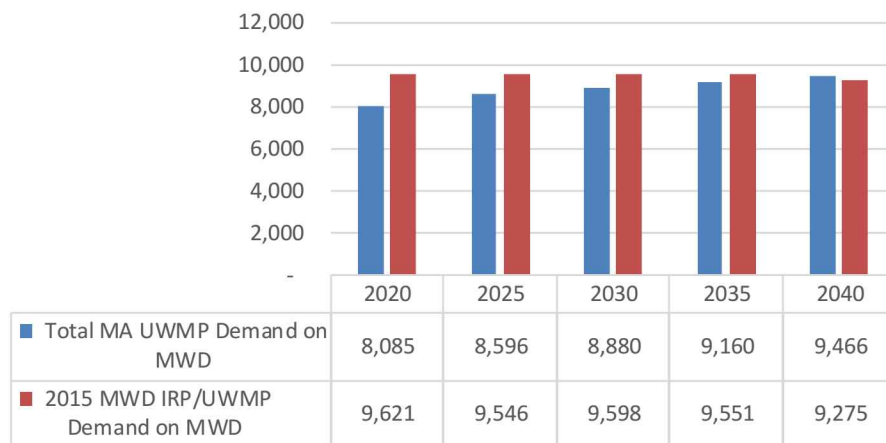
The Foothill Municipal Water District is a wholesale agency that provides imported water to retail agencies located in the foothills of the San Gabriel Mountains in Los Angeles County. While Foothill is dependent on Metropolitan for 100 percent of its water supply, most of its retail agencies have access to their own groundwater supplies. Currently, these agencies rely on about 50 percent of their supplies to come from Foothill.

The Foothill service area covers 21.66 square miles and overlies both the Raymond and Verdugo Groundwater Basins. Foothill's 2015 UWMP lists its current population at 80,558 and projects population to increase 11.3% to 89,636 in the year 2040. Total normal year imported demand listed the UWMP is expected to increase 23.6% over the same period (from 7,656 acre-feet in 2015 to 9,466 acre-feet in 2040), although this increase represents only the increase in imported water demands of the agencies that FMWD serves and not use of local supplies. The UWMP does not document or project local supply used within its service area, but instead includes a short discussion of other sources of water in its service area.

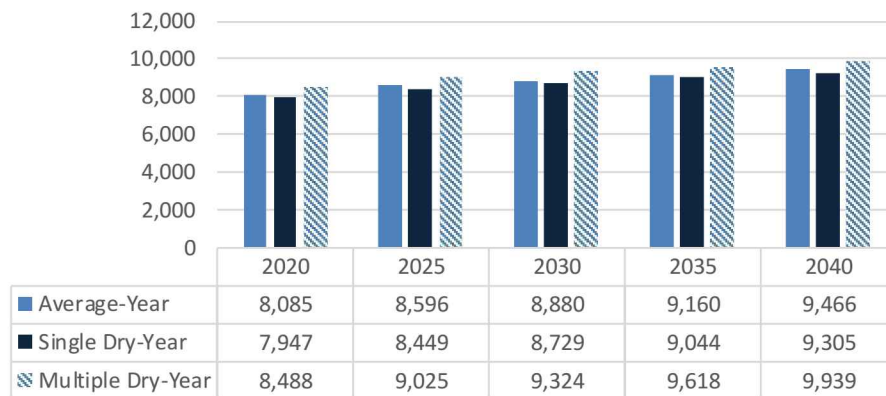
Projected Future Water Supply and Demand



Foothill's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



Foothill MWD Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

Foothill's demand projections are based on its member agencies' forecast demands after factoring in water use reductions required under Senate Bill (SBx7-7). (see page ES-2). These demands for the Foothill agencies are less than what Metropolitan used in its forecast. Foothill's UWMP states that demands on Metropolitan could be reduced further if recycled water projects identified in Pasadena Water and Power (PWP)'s recycled water study are put into place. The quantity available from such projects that could be made available to Foothill's agencies is not determined. The entire PWP project, however, would yield up to 6,000 acre-feet per year, if fully built. In addition, the Plan notes that a groundwater recovery project that is being designed, (CVWD Well No. 2 Wellhead Treatment) could also reduce water purchased from Metropolitan (see page 7-4).

Metropolitan's IRP lists 860 acre-feet of conceptual and advance-planning level recycled water projects.

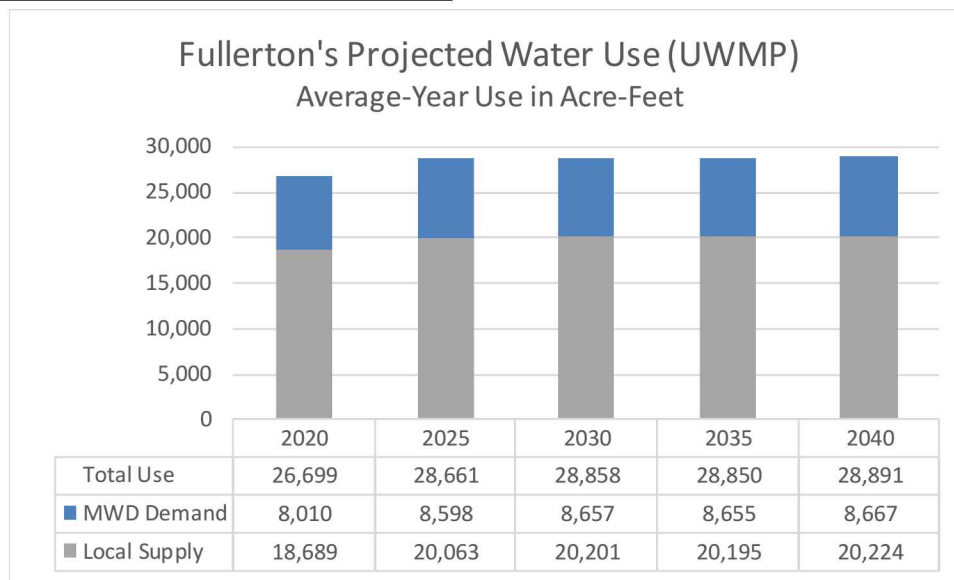
City of Fullerton

Overview

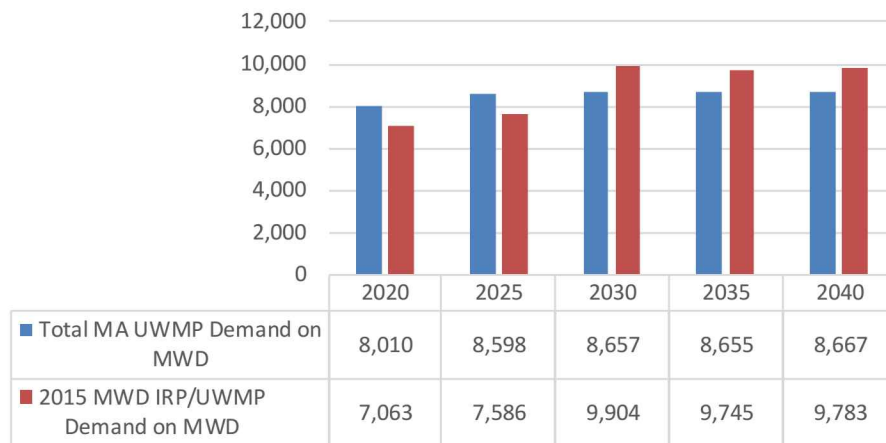
The City of Fullerton provides retail water service to residents and businesses throughout its 22.3 square mile service area. The City receives water from two main sources: The Lower Santa Ana River Groundwater Basin, which is managed by the Orange County Water District and imported water from Metropolitan. Groundwater is pumped from active wells located within the City and imported water is delivered through six treated water connections from Metropolitan.

Fullerton's 2015 UWMP lists its current population at 140,827 and projects population to increase to 160,547 in the year 2040, an increase of 14.0%. Total average demand from the UWMP is expected to increase 6.1% over the same period, from 27,244 acre-feet in 2015 to 28,891 acre-feet in 2040. This increased demand will be met by both increased groundwater pumping and deliveries from Metropolitan.

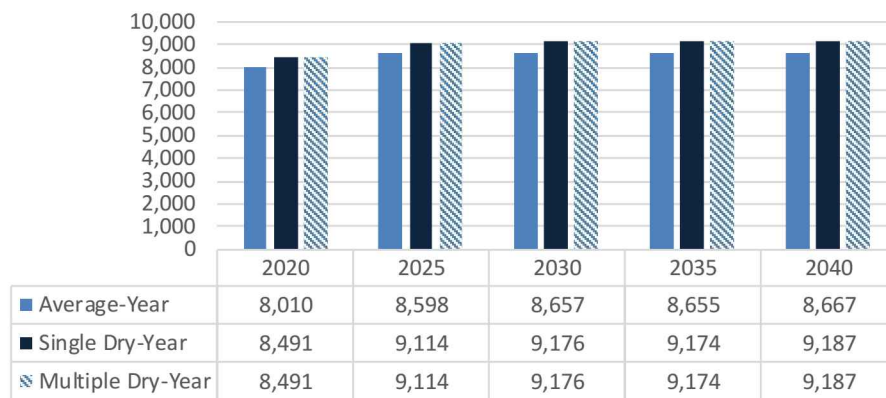
Projected Future Water Supply and Demand



Fullerton's UWMP vs. MWD's UWMP Average-Year Demand on MWD in Acre-Feet



City of Fullerton Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

Fullerton's does not have any additional planned water supply projects, but notes that the Orange County Water District North Basin Groundwater remediation Project could connect into the City's system and provide more groundwater. Metropolitan does not note any additional projects for the City.

City of Glendale

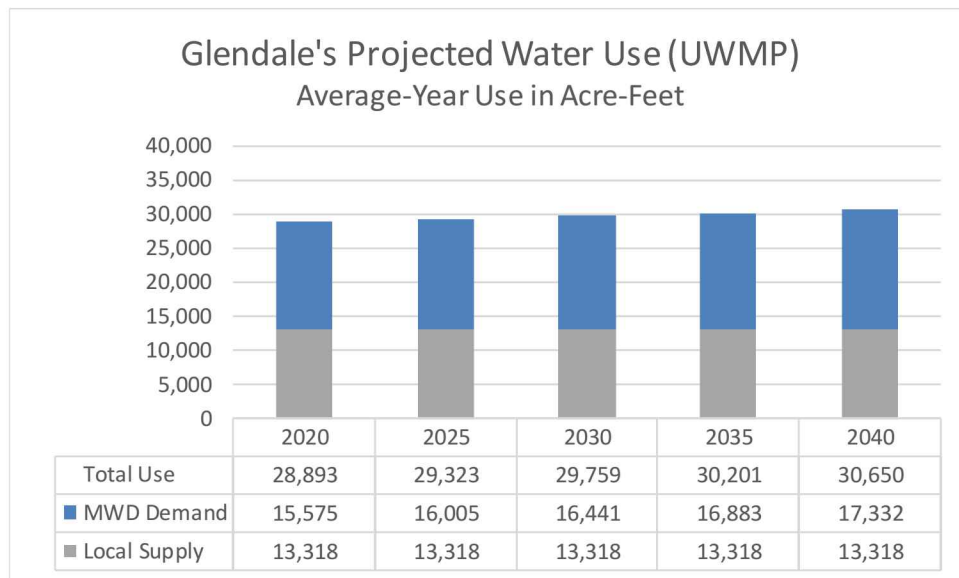
Overview

The City of Glendale's Water and Power provides retail water within its service area. The City is located northeast of the City of Los Angeles and adjacent to both the City of Burbank on the west and the City of Pasadena on the east, encompassing a service area of 31.58 square miles. Glendale's UWMP lists its current population at 199,182 and projects population to increase to 211,745 in the year 2040, an increase of 6.3% overall. Total normal year demand from the UWMP is expected to increase 24.7 % over the same period, from 24,556 acre-feet in 2015 to 30,650 acre-feet in 2040. This demand increase is expected to be met by additional local water and Metropolitan supply sources.

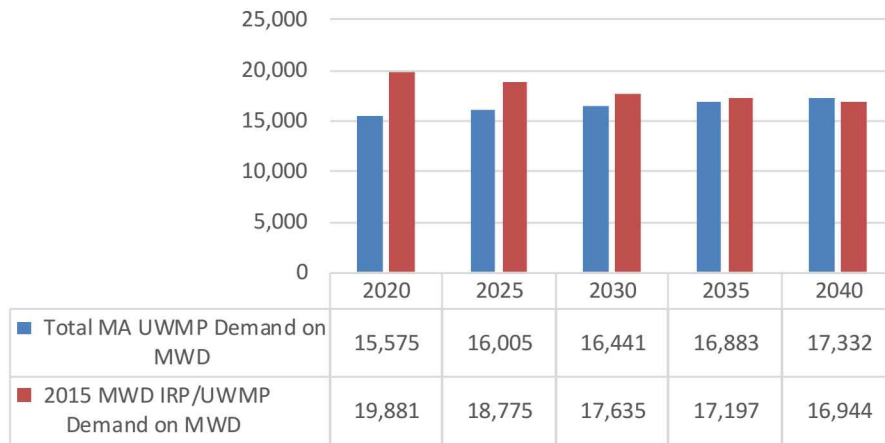
Glendale's current water supplies include local groundwater from the San Fernando and Verdugo groundwater basins. Full use of these basins has been limited in recent years, due to water quality issues, however efforts to clean up contaminants and improve water quality and supply availability will allow Glendale to increase production in the future.

Glendale's UWMP shows an excess of supplies over projected demands in each year of the hydrologic conditions presented. To determine projected demands on Metropolitan for each condition, this analysis assumed available local supplies presented in the UWMP would be used and the remaining demands would be met by Metropolitan.

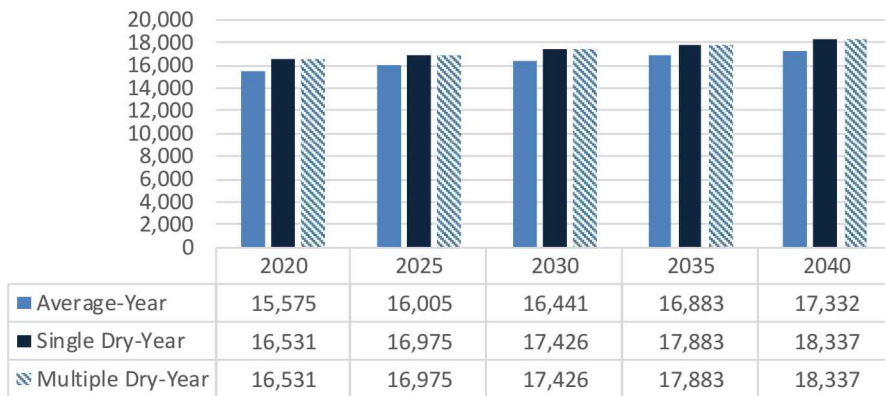
Projected Future Water Supply and Demand



Glendale's UWMP vs. MWD's UWMP Average-Year Demand on MWD in Acre-Feet



City of Glendale Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

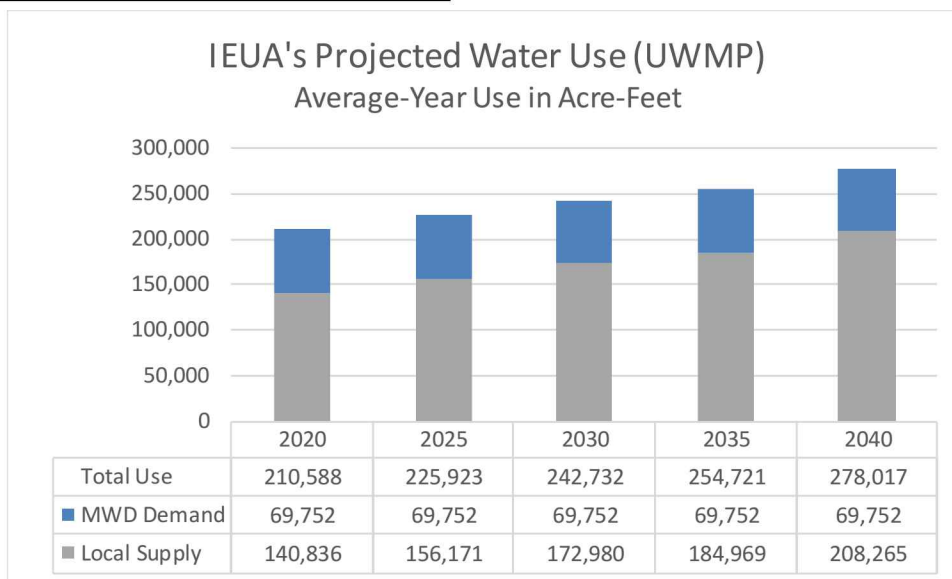
Glendale's UWMP includes a discussion of the Loa-Angeles-Glendale Water Reclamation Plant, which started operations in 1976. The City has identified nine potential recycled water users in addition to existing users. These users have a potential demand for 3,431 acre-feet of recycled water use in the future. These potential users are not identified in Metropolitan's IRP list of local projects.

Inland Empire Utilities Agency

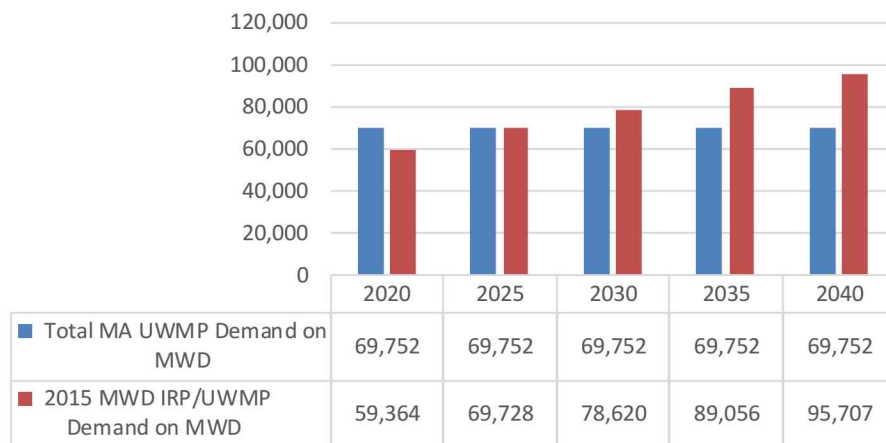
Overview

The Inland Empire Utilities Agency provides wholesale water service within the western portion of San Bernardino County. It provides other services also, including production of recycled water, sewage collection and treatment, distribution of imported and recycled water, desalination of groundwater supplies and disposal of industrial wastewater and brine. IEUA's service area encompasses approximately 242 square miles and serves an estimated population of 856,168. The population is expected to grow 31.4% by 2040, to 1,125,203. Water use within the service area for 2015 is reported as 278,017 acre-feet, and is expected to increase 39.2% to 278,017 acre-feet by 2040. This increased demand is expected to be met by a combination of increased recycled water use and increased groundwater production and use. Deliveries from Metropolitan are expected to remain flat from 2020 to 2040, per the plan in average and the dry-year scenarios.

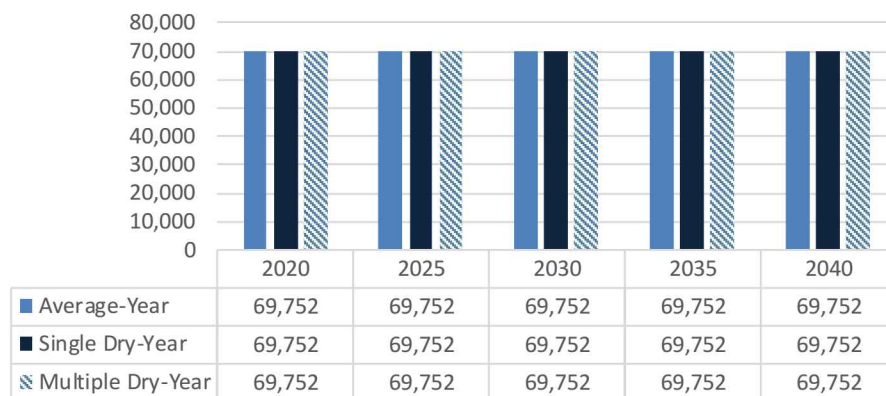
Projected Future Water Supply and Demand



IEUA's UWMP vs. MWD's UWMP Average-Year Demand on MWD in Acre-Feet



Inland Empire Utilities Agency Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

IEUA's UWMP discusses its commitment to increasing recycled water use. Per the plan, IEUA can currently recharge up to 14,900 acre-feet of supply when blended with up to 50 percent with other sources of recharge. The plan does not quantify how much additional recycled water supply can be developed and used above that already accounted for in the plan (IEUA shows in its UWMP and increase of 17,107 acre-feet of recycled water between 2015 and 2040). Metropolitan, in its IRP Appendix 5 list of local projects, shows an additional 20,000 acre-feet of recycled water under its advance planning category.

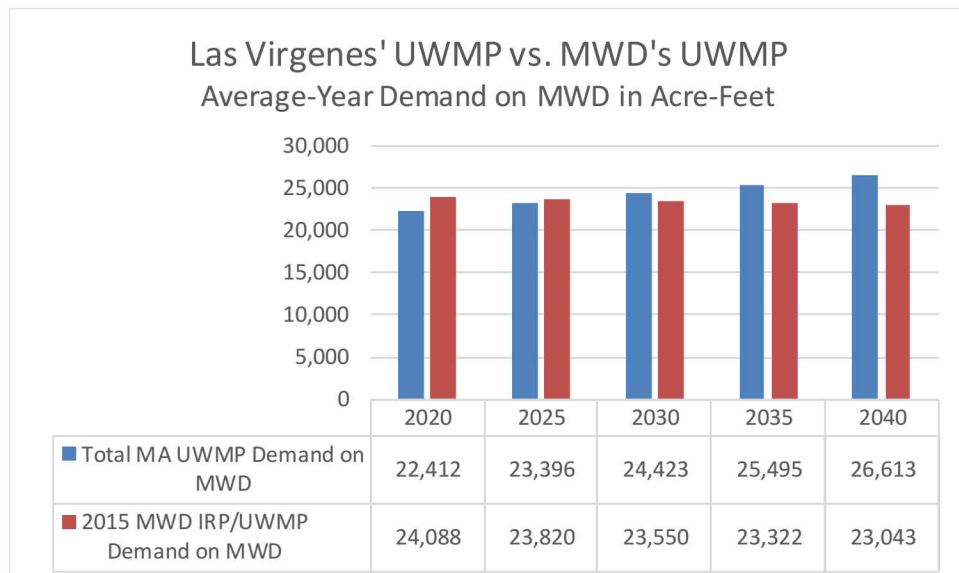
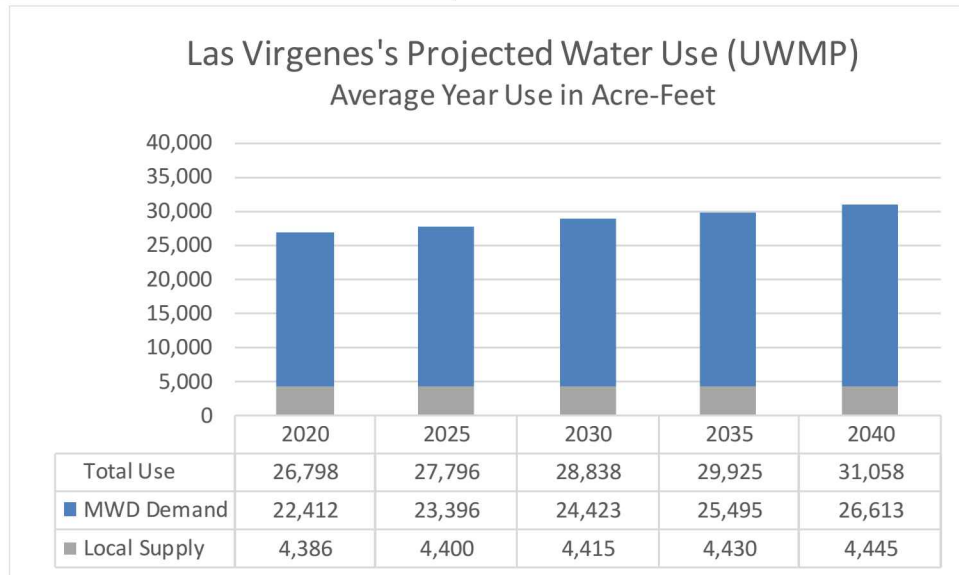
Las Virgenes MWD

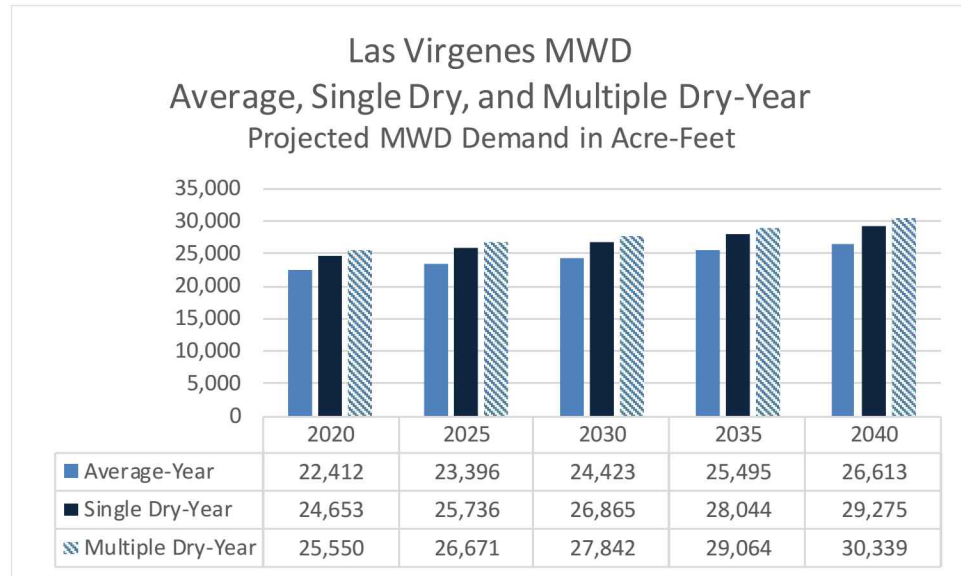
Overview

Las Virgenes Municipal Water District is a retail water supplier in western Los Angeles County and comprises a 122-square mile area. The service area includes the incorporated cities of Agoura Hills, Calabasas, Hidden Hills and Westlake Village as well as unincorporated portions of Los Angeles County.

LVMWD's 2015 UWMP lists its current population at 68,766 and projects populations to increase to 85,144 in the year 2040, an increase of 23.8%. Total normal water year demand from the UWMP is expected to increase 30.4% over the same period, from 23,825 acre-feet in 2015 to 31,058 acre-feet in 2040. Of this increase, the vast majority will come from Metropolitan.

Projected Future Water Supply and Demand





Potential Future Local Projects

LVMWD 's UWMP states that it assessed opportunities to expand recycled water use in a Recycled Water Master Plan Update in 2014 and continues to do so. While the UWMP shows a slight increase in recycled water use between 2015 and 2040 (74 acre-feet per year) for landscape irrigation, Metropolitan’s IRP list an additional 324 acre-feet beginning in 2018, as a feasibility level project for golf course irrigation.

City of Long Beach

Overview

The City of Long Beach provide retail water service within its 52 square-mile incorporated area in the southwest corner of the County of Los Angeles. Long Beach's UWMP lists its current population at 481,784 and projects population to increase to 549,920 in the year 2040, an increase of 14.1% overall. Total normal year demand from the UWMP is expected to increase 7.6% over the 2014 to 2040 period, from 59,582 acre-feet in 2014 to 64,137 acre-feet in 2040. This demand increase is expected to be met by the addition of additional local water supplies. The development of these additional supplies is also expected to decrease its Metropolitan demands slightly, from 35,100 acre-feet in 2015 (a drought year) to 24,105 acre-feet in 2040 (average year).

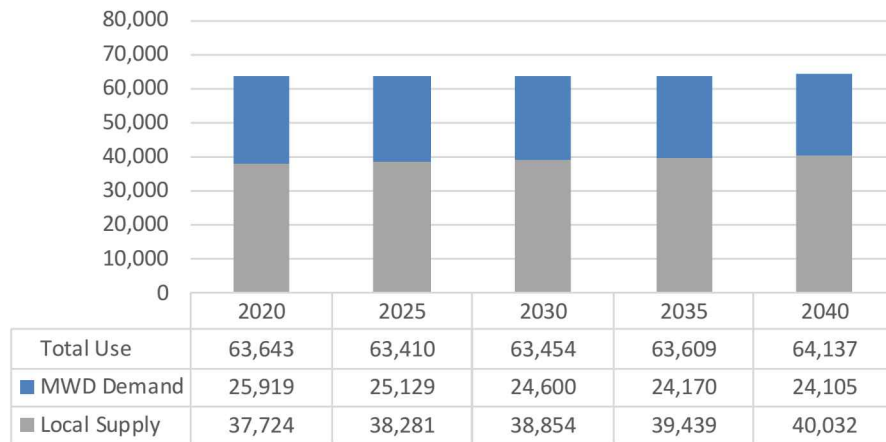
Long Beach's current water supplies include local groundwater from the West Coast Basin. Per the UWMP, Long Beach has a right to pump 32,692 acre-feet from the basin and has and will continue to fully utilize this supply.

Long Beach's UWMP states the 2012 SCAG population projections were used to determine future water demands within the City. It notes that SCAG's preliminary 2016 projections are less than the 2012 projections. The UWMP states "it is only prudent to err on the side of over estimating population growth, and on the side of over estimating water demand and the need to develop additional water supplies or pursue additional conservation (UWMP page 3)."

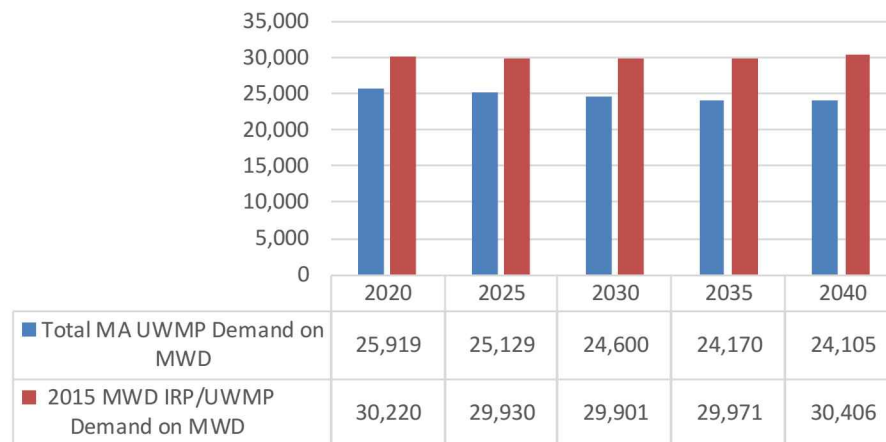
Long Beach's UWMP shows an excess of supplies over projected demands in each year of the hydrologic conditions presented. To determine projected demands on Metropolitan for each condition, this analysis assumes available groundwater extraction rights will be used, along with projected recycled water use, and the remaining demands would be met by Metropolitan. Per the UWMP, Long Beach anticipates purchasing additional rights to extract groundwater. Metropolitan demands could be reduced further if Long Beach uses this additional groundwater to meet future demands.

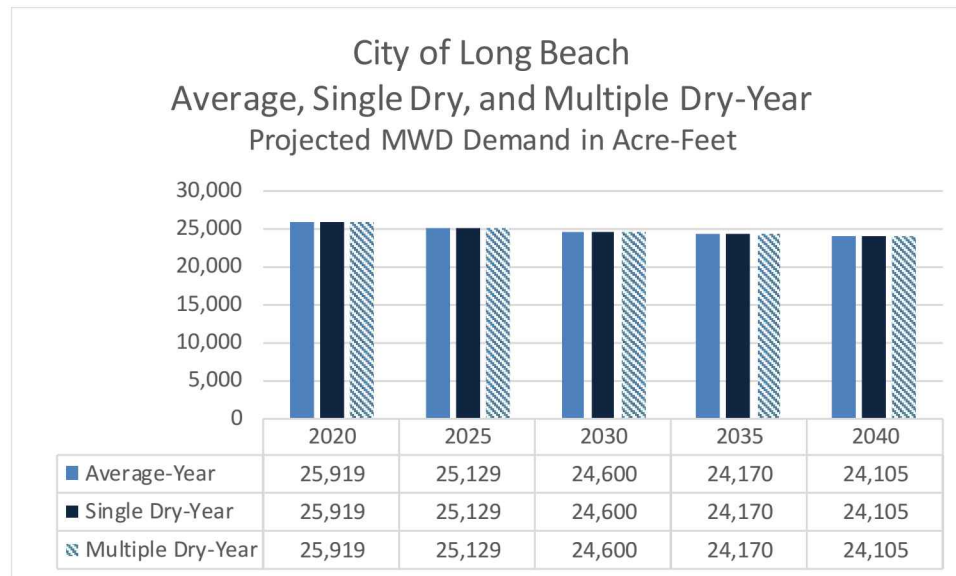
Projected Future Water Supply and Demand

Long Beach's Projected Water Use (UWMP)
Average-Year Use in Acre-Feet



Long Beach's UWMP vs. MWD's UWMP
Average-Year Demand on MWD in Acre-Feet





Potential Future Local Projects

The UWMP questions how Metropolitan accounts for additional local supplies during shortage allocations and notes that while “a future local water supply project may appear to provide additional reliability, most of the additional reliability may not actually materialize during a water shortage due to the way MWD allocates water during a shortage. The MWD allocation plan deducts... most of the additional water created by local projects, which negates most of the additional reliability benefits...” (UWMP page 9).

The UWMP lists several future water supply projects, such as Central Basin Augmentation and Storm Water Treatment program, but does not quantify the potential yield of such projects. The UWMP notes that Long Beach partnered with the USBR and LADWP to explore seawater desalination, but now feels that it has sufficient water supplies for the next 25 years and that seawater desalination is not cost effective when compared to Metropolitan supplies. It has not, however, ruled out the possibility of building a plant in the future. Metropolitan’s IRP lists 450 acre-feet of recycled water projects in the advance-planning stage.

City of Los Angeles

Overview

The City of Los Angeles Department of Water and Power (LADWP) provides retail water and power service to the 3,990,000 residents it serves. LADWP provides water to the City and portions of West Hollywood, Culver City, Universal City, and small portions of the County of Los Angeles. The service area encompasses 472 square miles and residential development constitutes about half of the total land use within the City. LADWP's population is expected to grow 11.3% to 4,441,545 and average water use is expected to increase 16.5%, from 485,600 acre-feet in 2015 to 565,600 acre-feet in 2040.

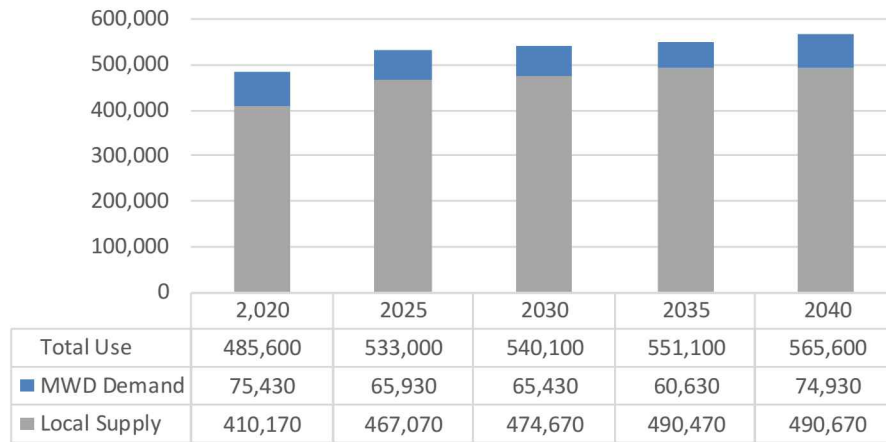
Los Angeles includes its April 2015 "Sustainable City pLAn" water conservation objectives in its UWMP. The Sustainable City pLAn establishes short-term and long-term targets for Los Angeles over the next 20 years to "strengthen and promote sustainability of the environment, economy, and equity in Los Angeles." Water use in the City falls within the category of local water, within the environmental framework of the Sustainability City pLAn.

LADWP's UWMP water supply and demand projections reflect additional conservation (up to 108,100 acre-feet in average years), water recycling (an increase of 64,963 acre-feet from 2015 levels), and storm water capture (up to 17,000 acre-feet) accomplishments that are set forth in the Sustainable City pLAn. With the pLAn and because 2015 was a dry year for LADWP local supplies, supplies from Metropolitan are expected to decrease from 362,607 acre-feet in 2015 to 74,930 acre-feet in an average year 2040. However, Los Angeles has large swings in its Metropolitan water demand depending on availability of water from its Los Angeles Aqueduct (LAA). In a single dry year LADWP estimates its 2040 demand on Metropolitan to be 310,530 acre-feet, up 324% over its normal year demand for the same year. At the same time LAA supplies would have been reduced for a normal year of 286,200 acre-feet to 50,600 acre-feet.

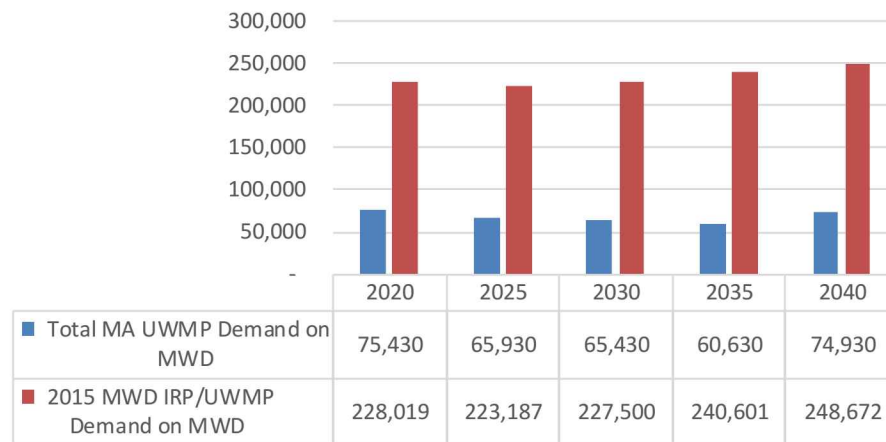
LADWP has groundwater water supplies currently (2015) providing about 87,046 acre-feet plus recycled supplies of 10,437 acre-feet.

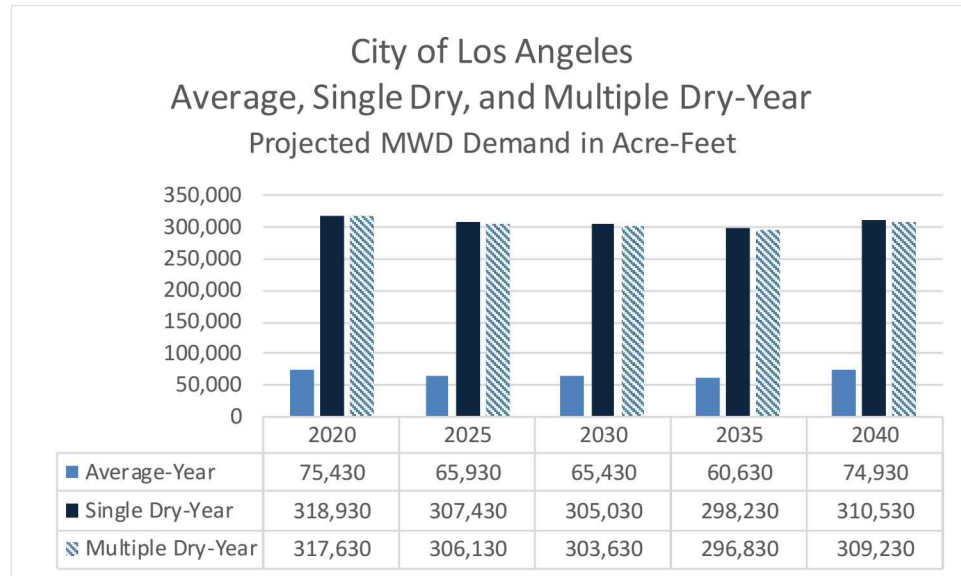
Projected Future Water Supply and Demand

Los Angeles' Projected Water Use (UWMP)
Average-Year Use in Acre-Feet



Los Angeles' UWMP vs. MWD's UWMP
Average-Year Demands on MWD in Acre-Feet





Potential Future Local Projects

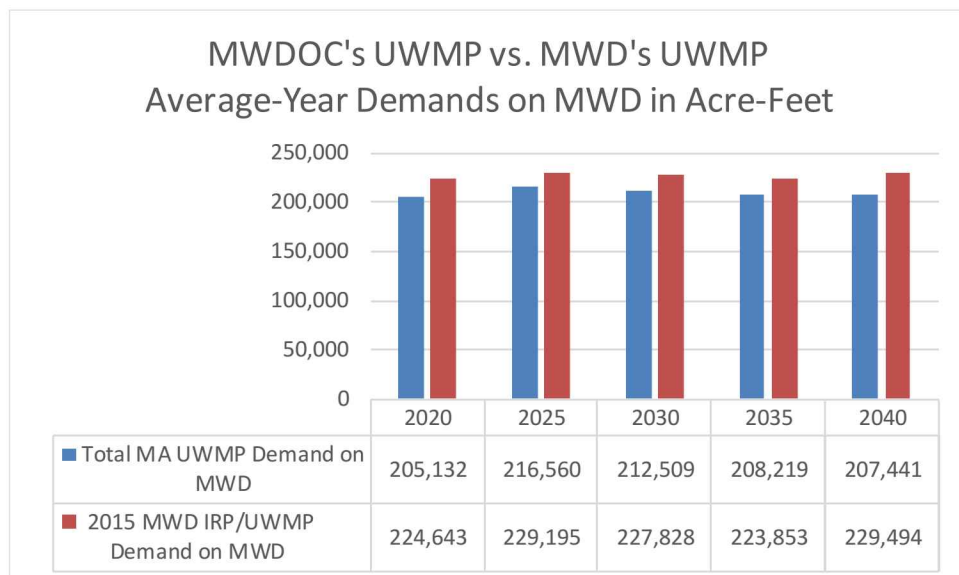
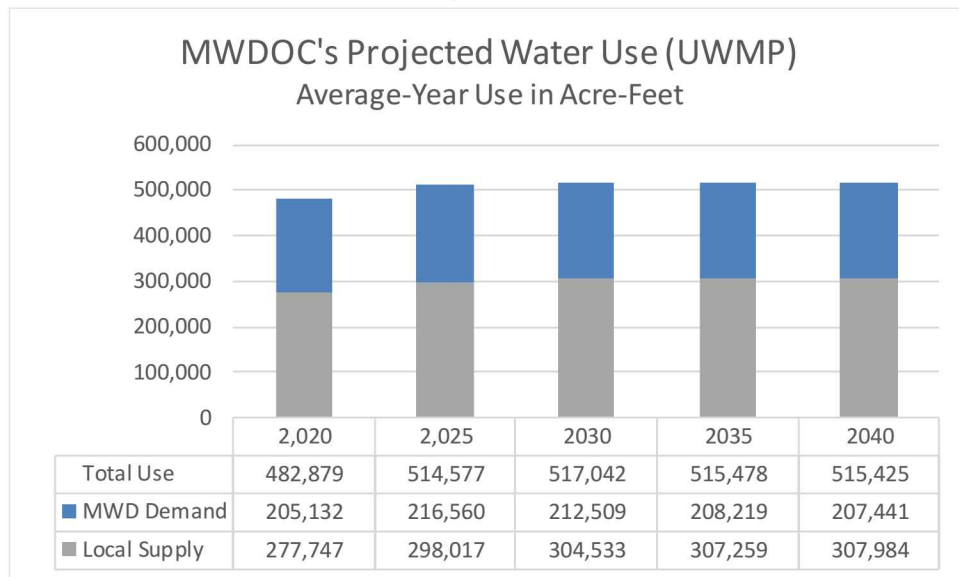
Additional water transfers of 40,000 acre-feet are identified as potential supplies that would reduce its projected future demands on Metropolitan further. Metropolitan does not account for Sustainable City pLAn measures in its IRP projections of its demands. Instead, Metropolitan lists up to 81,675 acre-feet of additional water recycling and 24,000 acre-feet of groundwater recovery to the conceptual to full design and appropriated level of planning for potential future projects.

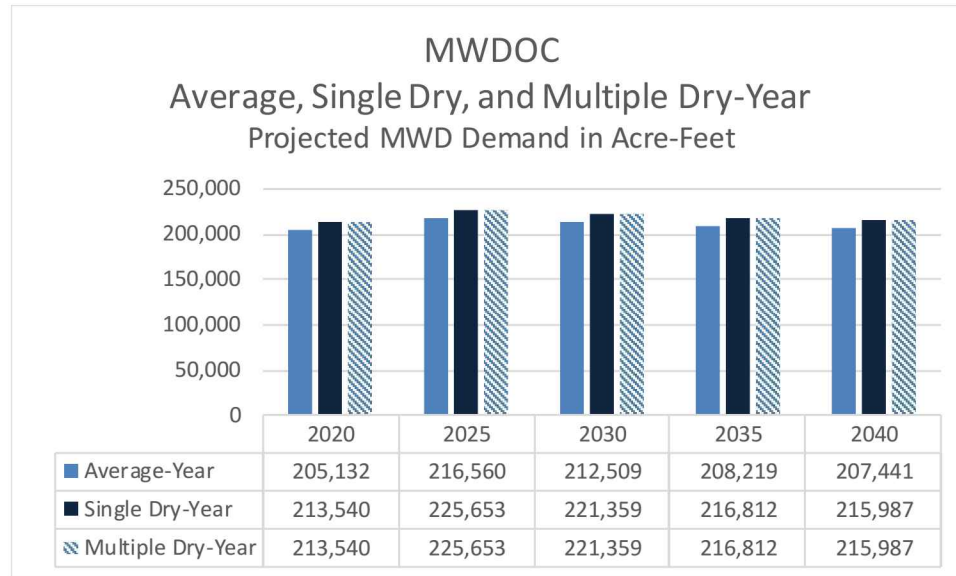
Municipal Water District of Orange County

Overview

The Municipal Water District of Orange County is a water wholesaler and resource planning agency, managing all of Orange County's imported water supply except for water imported to the cities of Anaheim, Fullerton, and Santa Ana. MWDOC serves imported water to 28 retail water agencies. MWDOC's 2015 UWMP lists its current population at 2,302,578 and projects populations to increase to 2,553,088 in the year 2040, an increase of 10.9%. Total Demand from the UWMP is expected to increase 3.3% over the same period, from 499,120 acre-feet in 2015 to 515,425 acre-feet in 2040.

Projected Future Water Supply and Demand





Potential Future Local Projects

MWDOC's UWMP lists several projects that create additional local supplies. These include a seawater desalination plant at Huntington Beach (56,000 acre-feet) and Doheny (16,000 acre-feet maximum, with a phase one capacity of 4,000 to 5,000 acre-feet), a project at Prado Basin (6,000 acre-feet), expanded recycling (up to 43,520 acre-feet) and additional groundwater at Lower San Juan Creek and in the San Mateo groundwater basin (up to 9,000 acre-feet total).

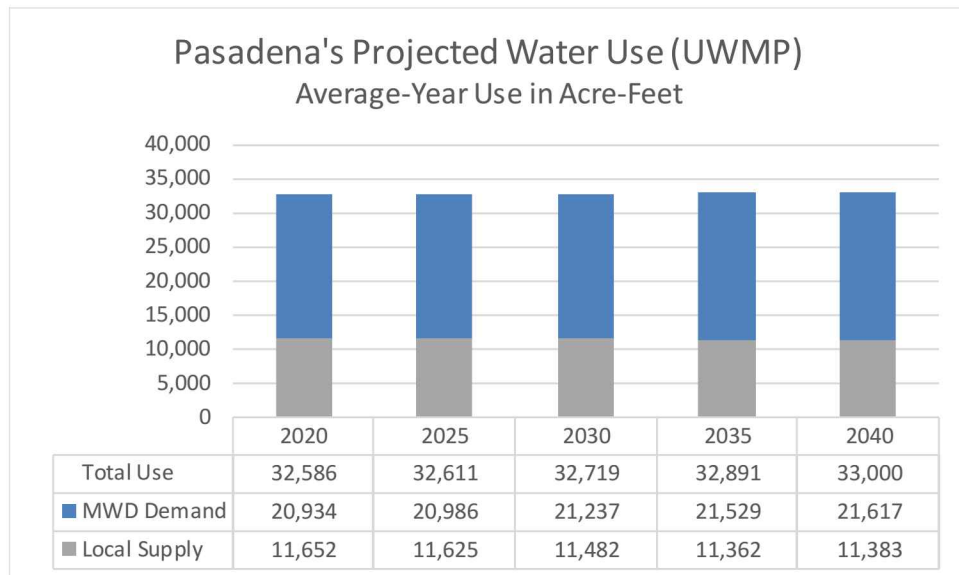
Metropolitan lists in its IRP list of local projects up to 137,801 acre-feet of potential project, including the above, in the advance-planning stage down to a conceptual level.

City of Pasadena

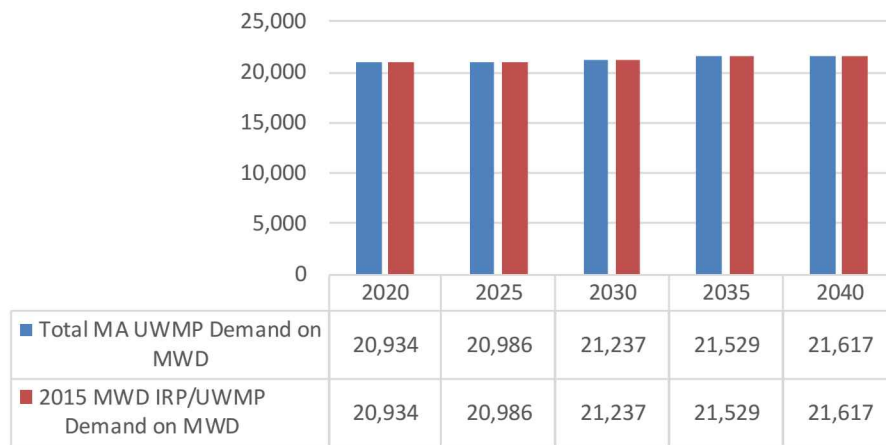
Overview

The City of Pasadena's Water and Power (PWP) service area is located within the northwest portion of the San Gabriel Valley in Los Angeles County, encompassing approximately 23 square miles, and is slightly larger than the legal boundary of the City of Pasadena. PWP provides retail water service. PWP's UWMP lists its current population at 165,282 and projects population to increase to 189,927 in the year 2040, an increase of 14.9% overall. Total normal year demand from the UWMP is expected to remain relatively flat, 32,586 acre-feet in 2020 to 33,000 acre-feet in 2040. Because recycled water supplies are projected to increase during this period, Metropolitan supplies are projected to decrease.

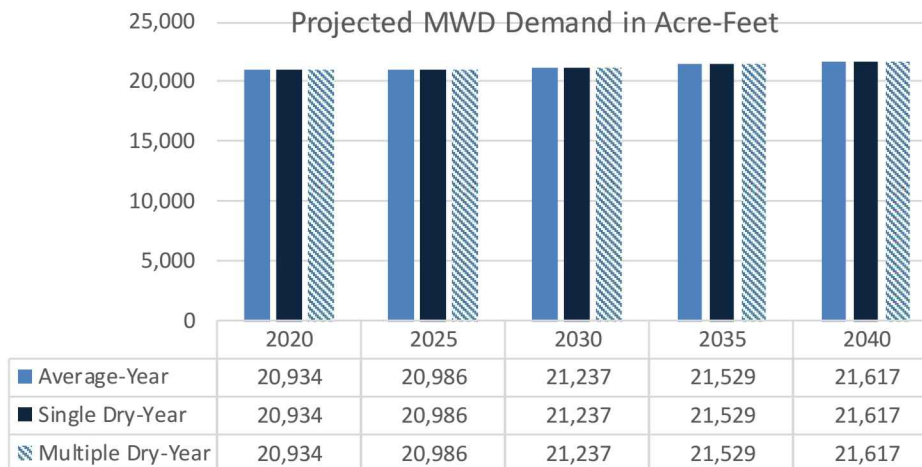
Projected Future Water Supply and Demand



Pasadena's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre=Feet



City of Pasadena Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Supplies

Pasadena's UWMP accounts for all its projected additional recycled demands of 4,590 acre-feet in its future demand projections. Metropolitan, on the other hand lists 3,056 acre-feet of recycled water in its advance planning category and does not include this supply in its future projections.

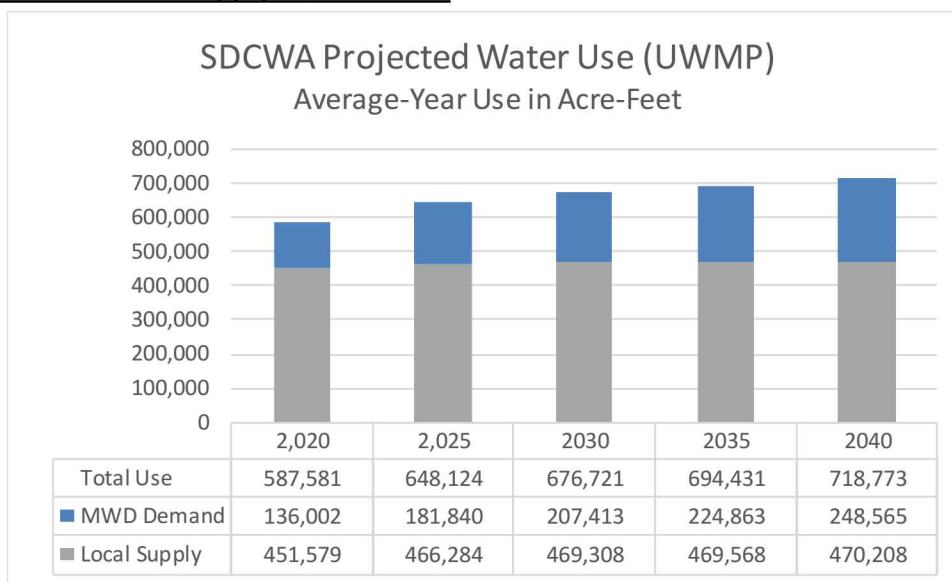
San Diego County Water Authority

Overview

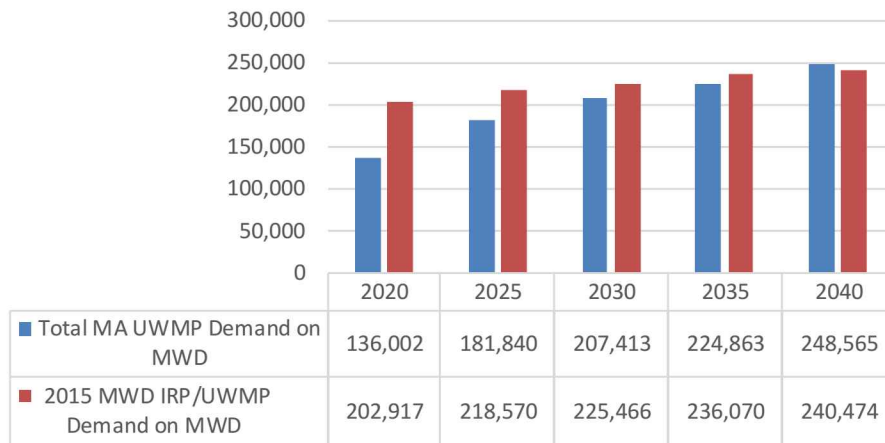
The San Diego County Water Authority is a regional water wholesaler and resource planning agency that provides imported water to the western part of San Diego County. The remaining portion of the county is not within SDCWA's service area, nor does it receive imported water. SDCWA provides water to its 24 member agencies, supplying between 75 to 95 percent of the region's needs depending on weather conditions and yield from surface, recycled, and groundwater projects.

SDCWA's 2015 RUWP lists its current population at 3.2 million and projects populations to increase to 3,825,041 in the year 2040, an increase of 19.5 percent. Total demand from the UWMP is expected to increase 33.3% over the same period, from 539,361 acre-feet in 2015 (a year of State mandated shortages) to 718,773 acre-feet in 2040. If compared to 2014 water use of 594,535 acre-feet, 2040 demands would be 20.9% greater in an average year.

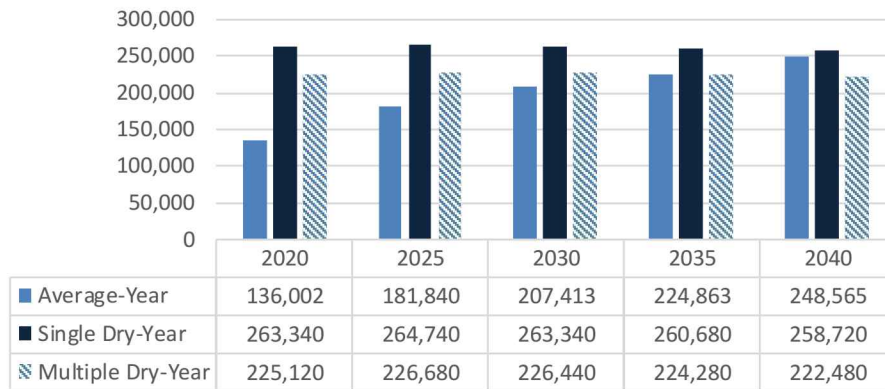
Projected Future Water Supply and Demand



SDCWA's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



SDCWA Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

SDCWA's UWMP calculations of available water supplies include both existing and verifiable water available to it and its member agencies. Appendix F of the plan also includes a list of “additional planned supplies” and other “concept and feasibility” level projects as follows:

SDCWA Potential Future Local Supplies, Year 2040 Totals

Planning Level	Year 2040 Potential Supply, Acre-feet
Additional Projects	
Groundwater	3,600
Recycled Water	10,926
Potable Reuse	106,099
Desalination	16,800
Total	137,425
Concept and Feasibility	
Groundwater	14,759
Recycled Water	17,679
Potable Reuse	11,384
Desalination	-
Total	43,822

By comparison Metropolitan lists in its IRP the following potential project quantities at the conceptual to full design and appropriated planning level projects:

Recycled Water	136,108 acre-feet
Groundwater Recovery	14,299 acre-feet
Seawater Desalination	84,000 acre-feet
Total	234,407 acre-feet

City of San Fernando

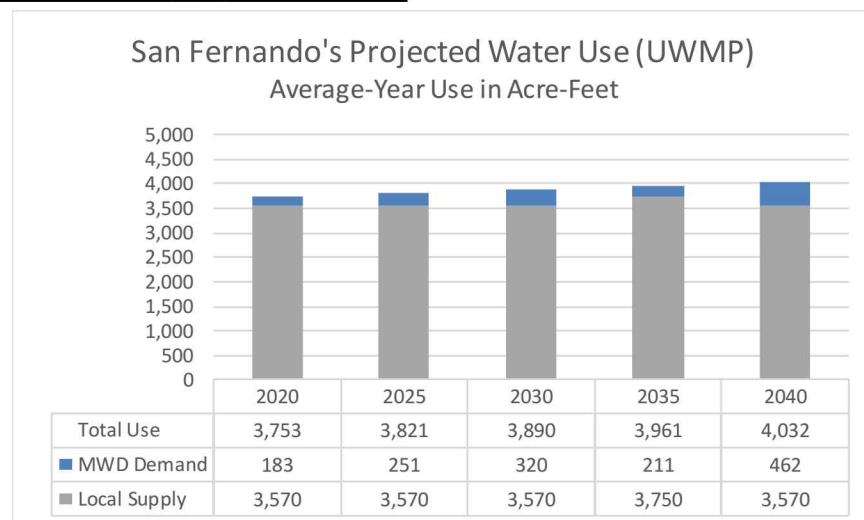
Overview

The City of San Fernando provides retail water service and is in the San Fernando Valley northwest of downtown Los Angeles and is bounded on all sides by the City of Los Angeles. The City's total areas is 2.42 square miles and overlies both the San Fernando and Sylmar groundwater basins.

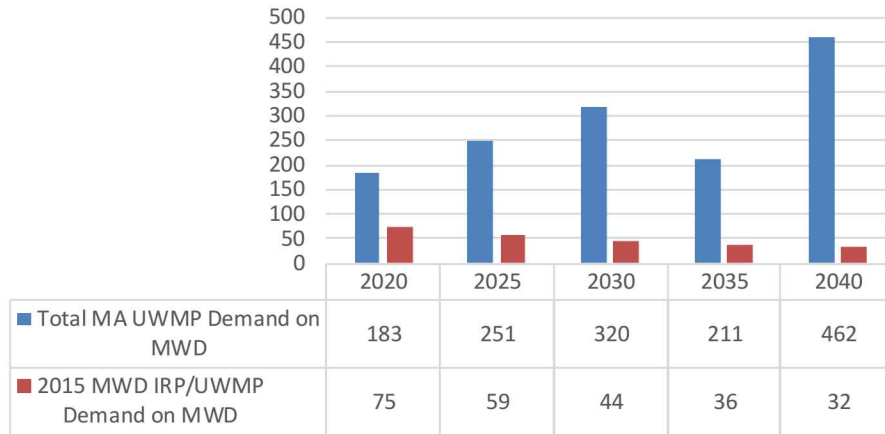
San Fernando's 2015 UWMP lists its current population at 24,560 and projects populations to increase to 26,865 in the year 2040, an increase of 9.4%. Total normal year demand from the UWMP is expected to increase 8.3% when compared to the 2005-2009 average, of 3,632 acre-feet, although this increase represents only 300 acre-feet because of the size of the City and its population. In 2015 San Fernando took no water from Metropolitan, and is projected to use only 462 acre-feet in 2040 (San Fernando's UWMP does not specifically list demand on Metropolitan; for this analysis, San Fernando's demand was calculated by subtracting available groundwater from total demand listed in the UWMP). San Fernando does not expect to significantly increase its use of Metropolitan supplies over what is presented in the UWMP in because of its desire to use the less expense local supplies.

San Fernando's UWMP shows an excess of supplies over projected demands in each year of the hydrologic conditions presented. To determine projected demands on Metropolitan for each condition, this analysis assumes available local supplies presented in the UWMP would be used and the remaining demands would be met by Metropolitan.

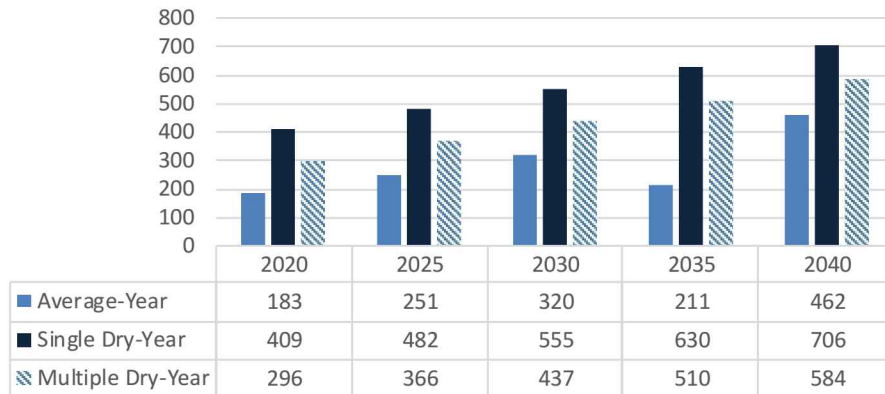
Projected Future Water Supply and Demand



San Fernando's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



City of San Fernando Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

San Fernando's UWMP does not list additional local supply projects although it indicates that it is always looking at possibilities to upgrade its infrastructure to ensure a reliable supply and reduce losses. It also cites Metropolitan's programs and investments in conservation and water management strategy.

City of San Marino

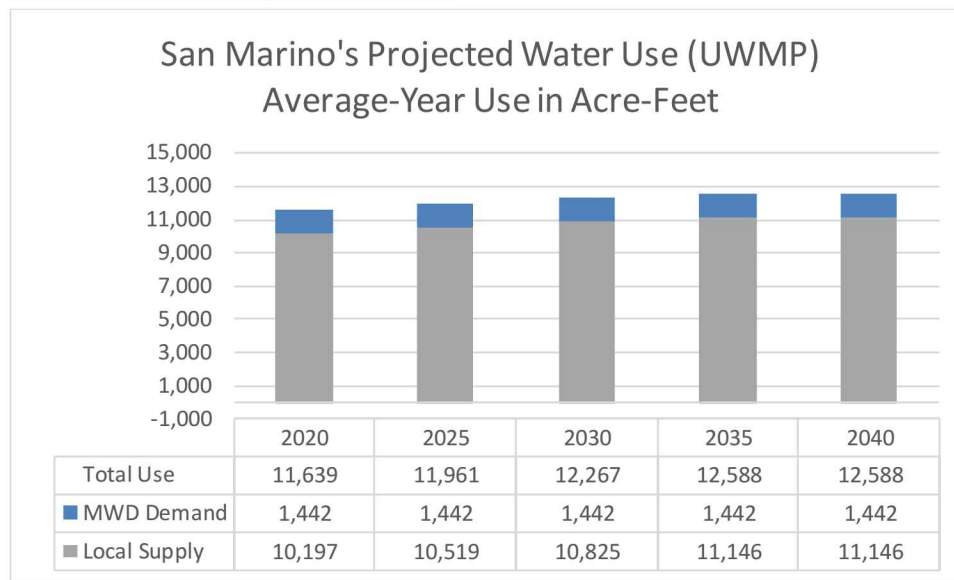
Overview

The City of San Marino is in the San Gabriel Valley, approximately 10 miles northeast of downtown Los Angeles. The City's total area is 3.77 square miles.

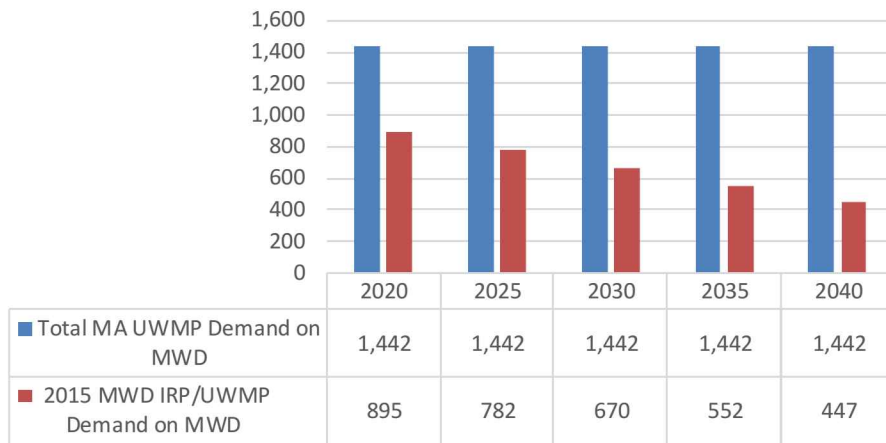
San Marino's retail water service is provided by California American Water Company, which prepared its 2015 UWMP. The plan includes the City of San Marino as part of California American's San Marino service area, which also encompasses customers in the City of Alhambra, Arcadia, El Monte, Pasadena, Rosemead, San Gabriel, East Pasadena, and East San Gabriel. California American serves a population of approximately 55,979 people with its San Marino service area.

The San Marino service area has remained steady over the past 10 years, growing only slightly from 54,808 to its current population. It is expected that growth will be slow, with the service area population growing only 8.5 percent from 2015 to 2035. Water deliveries by California American is expected to increase from 9,078 acre-feet in 2015 to 12,588 acre-feet in 2035, an increase of 38.6 percent.

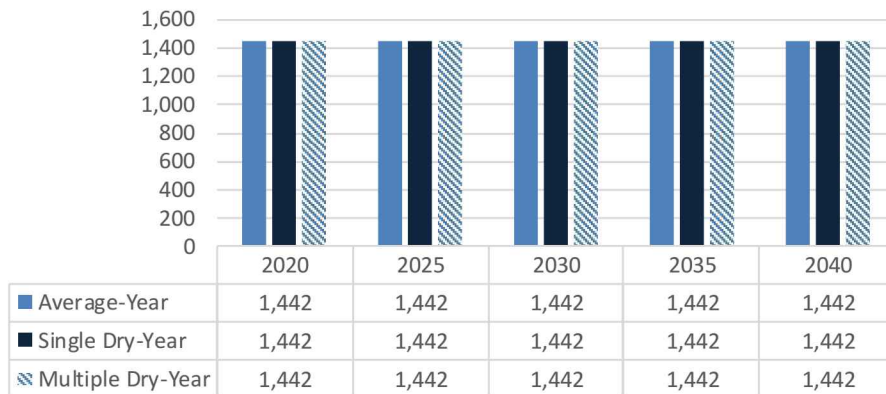
Projected Future Water Supply and Demand



San Marino's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



City of San Marino Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

San Marino plans to keep its demands on Metropolitan flat, at 1,442 acre-feet, through the 2035 planning period. Additional demand will be provided from groundwater. Metropolitan includes in its IRP the San Marino Groundwater Recovery Project as a feasibility level project estimated to provide 2,500 acre-feet of additional local supply.

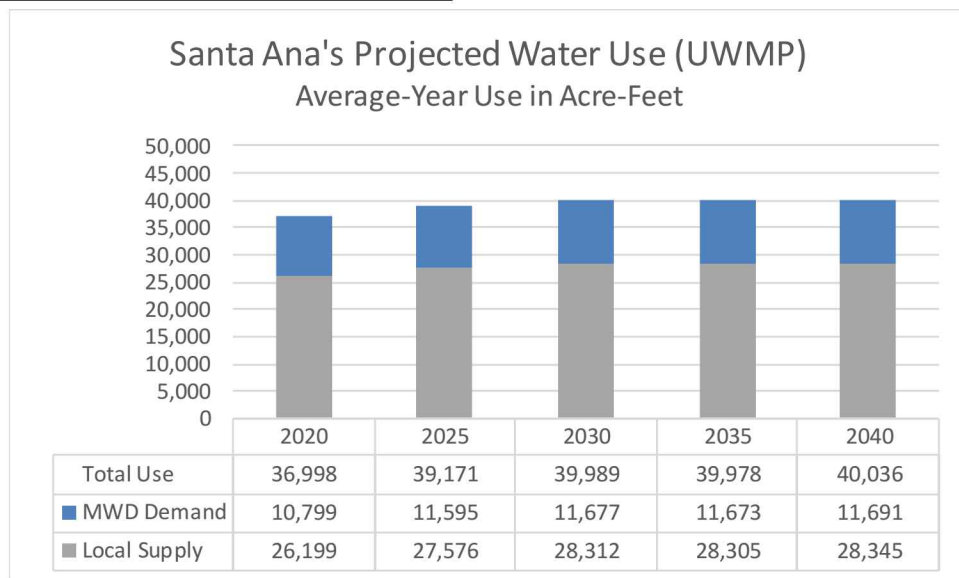
City of Santa Ana

Overview

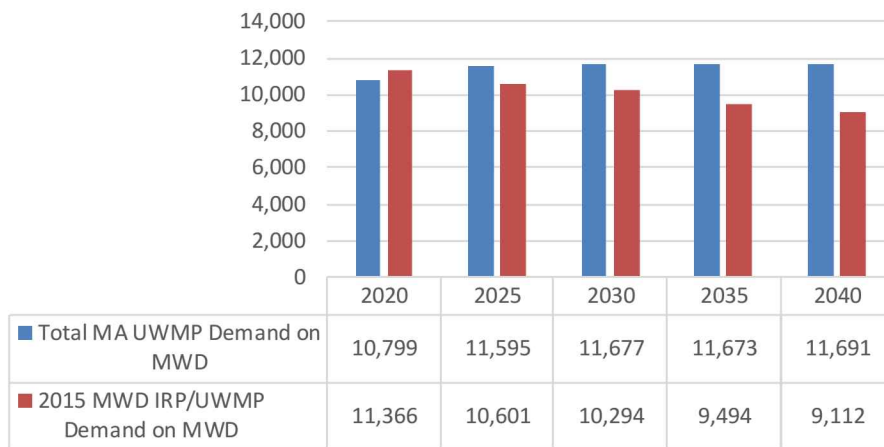
The City of Santa Ana provides retail water service to residents and businesses throughout its 27-square mile service area. The City receives water from two main sources: The Lower Santa Ana River Groundwater Basin, which is managed by the Orange County Water District and imported water from Metropolitan. Groundwater is pumped from active wells located within the City and imported water is delivered through seven treated water connections from Metropolitan.

Santa Ana's 2015 UWMP lists its current population at 335,299 and projects populations to increase to 343,766 in the year 2040, an increase of 2.5%. Total demand from the UWMP is expected to increase 8.2% over the same period, from 37,007 acre-feet in 2013 to 40,036 acre-feet in 2040. This increased demand will be met by increased groundwater pumping and a slight increase in deliveries from Metropolitan.

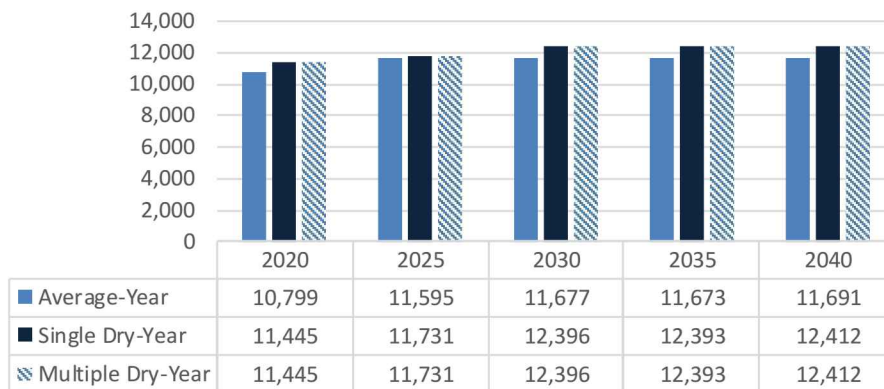
Projected Future Water Supply and Demand



Santa Ana's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



City of Santa Ana Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

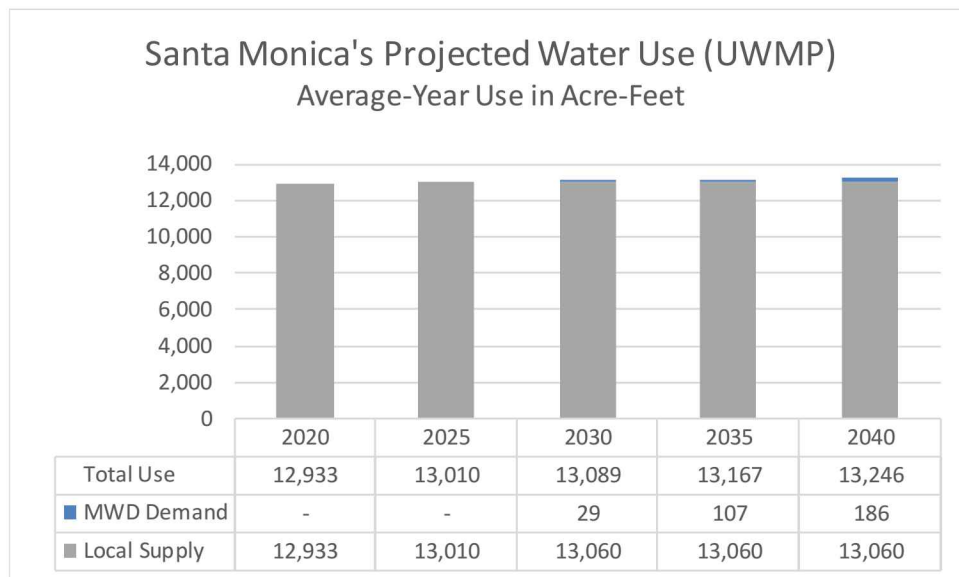
Santa Ana's UWMP does not indicate any additional local projects that it may pursue on its own, but does cite nearby projects such as the Huntington Beach Seawater Desalination project and OCWD's recycled water projects that it benefits from. Similarly, Metropolitan does not list in its IRP any potential projects for the City.

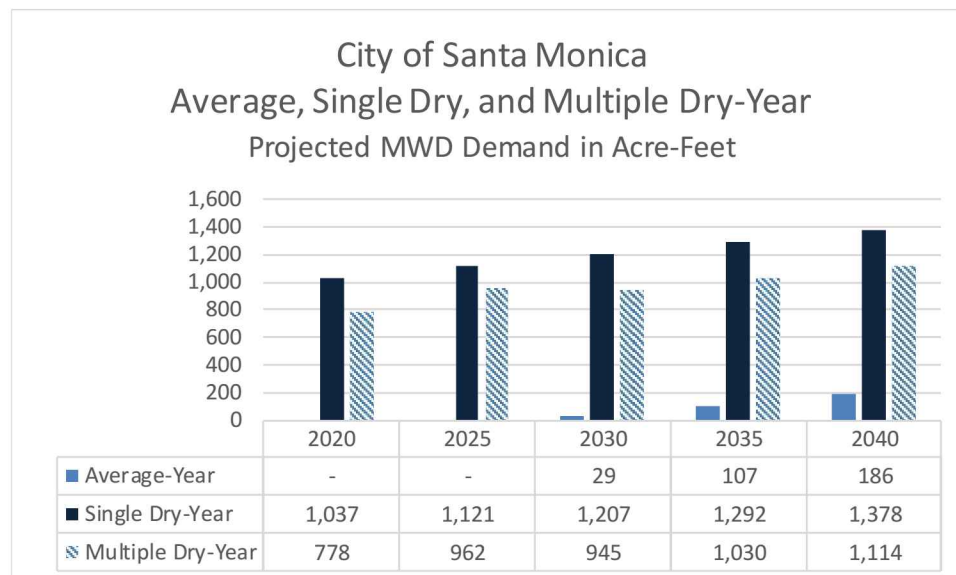
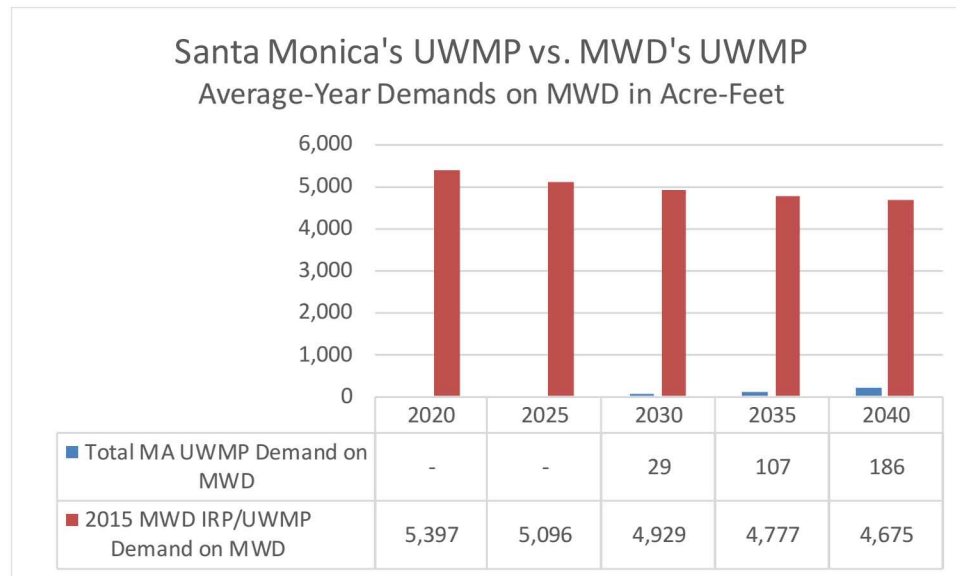
City of Santa Monica

Overview

The City of Santa Monica's retail water service area is bordered by the Pacific Ocean on the west, and the City of Los Angeles on the north, east and south. Santa Monica's 2015 UWMP lists its current population at 93,283 and projects only slight growth, with a population of 96,141 in the year 2040. Total normal year demand over the UWMP planning period is expected to increase slightly, from 12,933 acre-feet in 2020 to 13,246 acre-feet in 2040. The majority of Santa Monica's demands can be met through groundwater production and Metropolitan demand from Santa Monica is forecast to be only minimal, if any. Metropolitan demand was calculated by subtracting projected local supplies from forecast total demand. Recent increased groundwater production from the Santa Monica Basin accounts for this ability to meet demands through local supplies. Santa Monica has a recycled dry weather urban runoff program that allow it to help eliminate contamination of Santa Monica Bay and capture and treat runoff for reuse in landscape irrigation and indoor plumbing.

Projected Future Water Supply and Demand





Potential Future Local Projects

Santa Monica's UWMP refers to the City's 2014 Sustainable Water Master Plan (page 2-18 of City's UWMP) to meet future water demands. THE UWMP recognizes that water conservation alone may not achieve the 100 percent sustainability goal and that it may need to develop additional recycled water, groundwater, storm water capture or other supply projects. The Sustainable Water Master Plan charts how the City can reduce its imported demands to zero and the UWMP supplies and demand figures, if achieved, will essentially meet this goal. Metropolitan does not include any additional supply development for the City in its IRP.

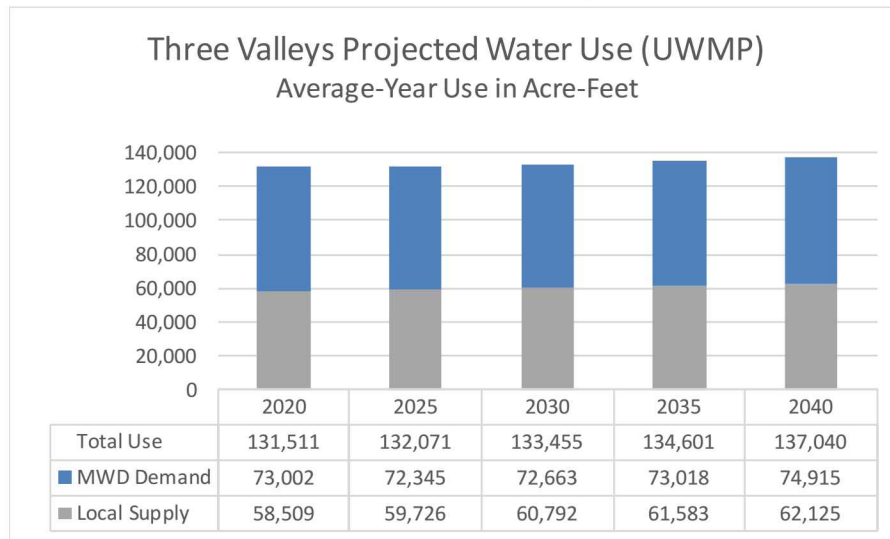
Three Valleys MWD

Overview

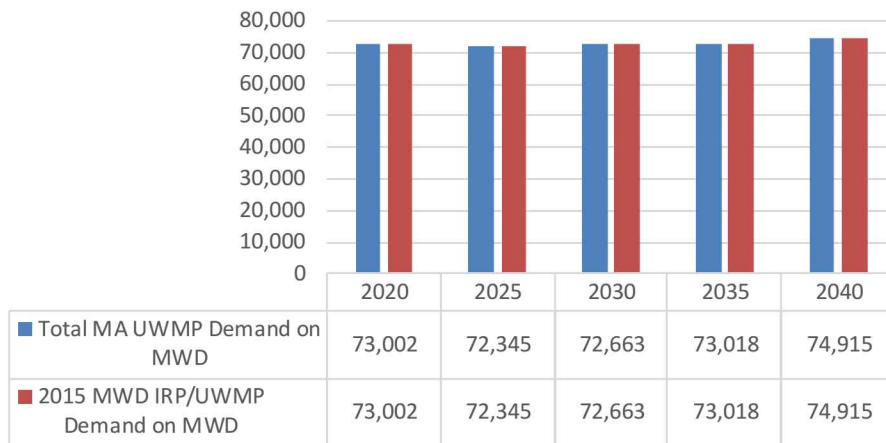
The Three Valleys MWD is a wholesale water provider to cities and water districts within the Pomona Valley, Walnut Valley, and eastern portion of the San Gabriel Valley in Los Angeles County. The district encompasses approximately 133.3 square miles and a current population of 525,000. The UWMP projects population to increase to 638,700 in the year 2040, an increase of 21.7% overall. Total average year demand from the UWMP is expected to increase 4.2% over the 2020 to 2040 time period, from 131,511 acre-feet in 2020 to 137,040 acre-feet in 2040. The projected increase of over 26,000 acre-feet is expected to come mainly from increased Metropolitan purchases (over 21,000 acre-feet) and increased recycled water usage (5,000 acre-feet), with local groundwater pumping remaining nearly constant.

Three Valleys' members current water supplies include local groundwater from the Chino, San Gabriel, Puente, Six Basins, and Spadra groundwater basins. The region also receives captured surface water from San Gabriel, San Dimas, and San Antonio canyon watersheds that provide water through Covina Irrigating Company, Golden State Water Company, and the City of Pomona. Typically, surface water provides about 5 to 8% of the total water demand within the TVMWD service area.

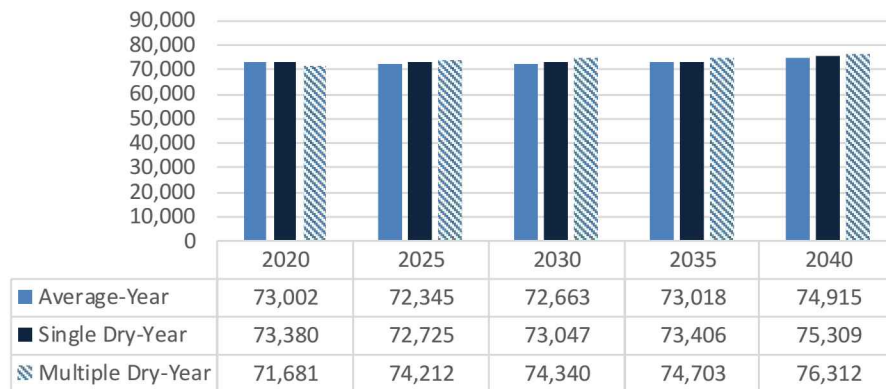
Existing and Projected Future Water Supply and Demand



Three Valleys' UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



Three Valleys MWD Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Supplies

Three Valleys MWD cites cost as a factor in justifying expansion of reclaimed water use and that outside funding is difficult to get. However, the UWMP states there is the potential to “offset another 8,000 to 10,000 AF of firm potable water demand.” The district plans to increase local resources by constructing additional groundwater production wells and “lessen the need for imported water.” This potential production (around 5,000 acre-feet) is not reflected in the TVMWD demand figures. Other water supply issues are noted in the UWMP, such as the Chino Basin (TVMWD is a stakeholder in an agreement between Metropolitan and Chino Basin stakeholders) which it describes as high in nitrates but is still “expected to be a sound resource through the planning horizon of the UWMP.” Similarly, the plan states that the Puente Basin is under-utilized but it could use more if imported water becomes “too costly.” Metropolitan does not include for Three Valleys MWD any potential additional water supplies at the conceptual through full design level in its IRP.

City of Torrance

Overview

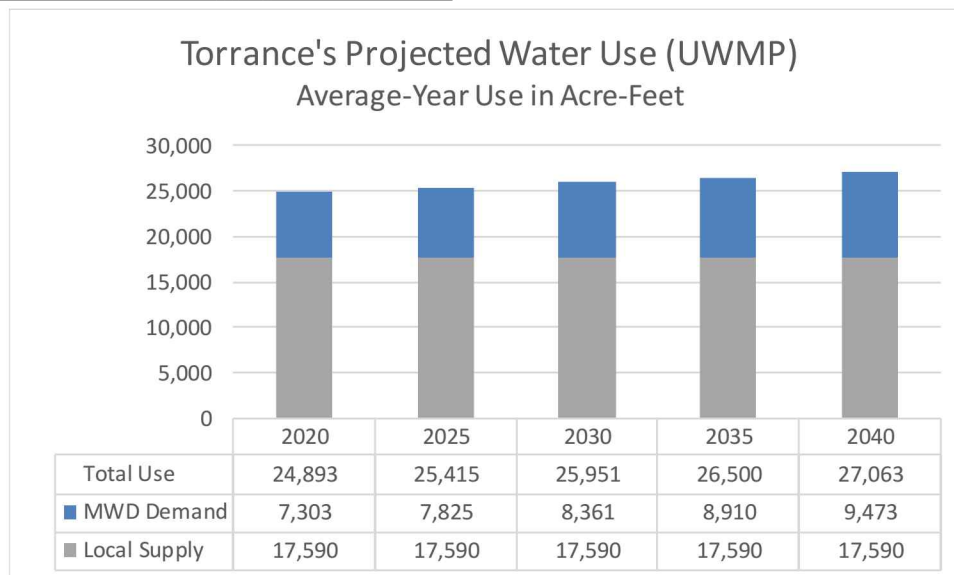
The City of Torrance's Torrance Municipal Water (TMW) retail service area is approximately 16.2 square miles and comprises about 78 percent of the land within the City limits. California Water Service provides water service to the remaining portion of the City.

Torrance's 2015 UWMP lists its current population within TMW at 105,400 and projects the population to increase to 120,812 in the year 2040, an increase of 14.6% overall. Total normal year demand from the UWMP is expected to increase 8.7% over the 2020 to 2040 time period, from 24,893 acre-feet in 2020 to 27,063 acre-feet in 2040. At the same time, Metropolitan demand within TMW is shown in the UWMP to increase from 7,303 acre-feet to 9,473 acre-feet. The increase in Metropolitan supply listed in the UWMP is to meet the projected increased demands as local supplies remain constant.

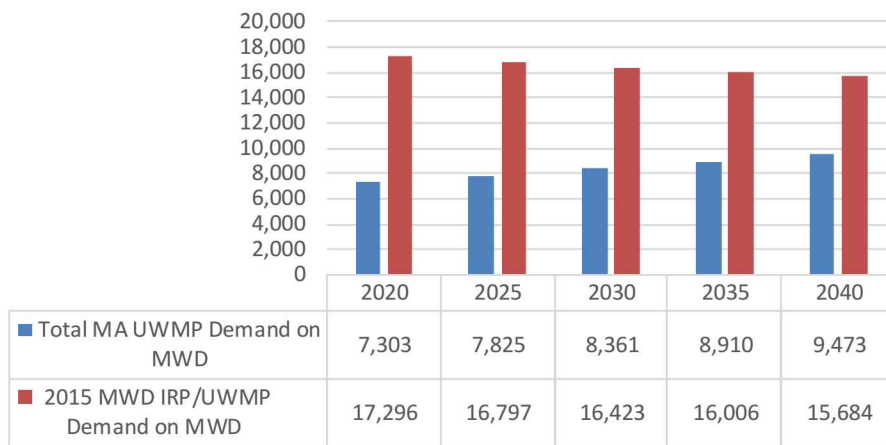
TMW pumps its groundwater from the West Coast Basin and uses desalted groundwater produced by the Water Replenishment District's Robert W. Goldsworthy Desalter. It also purchases reclaimed water from West Basin MWD.

Torrance's UWMP shows an excess of supplies over projected demands in each year of the hydrologic conditions presented. To determine projected demands on Metropolitan for each condition, this analysis assumes its adjudicated groundwater supplies, recycled water, and desalted water presented in the UWMP would be used and the remaining demands would be met by Metropolitan.

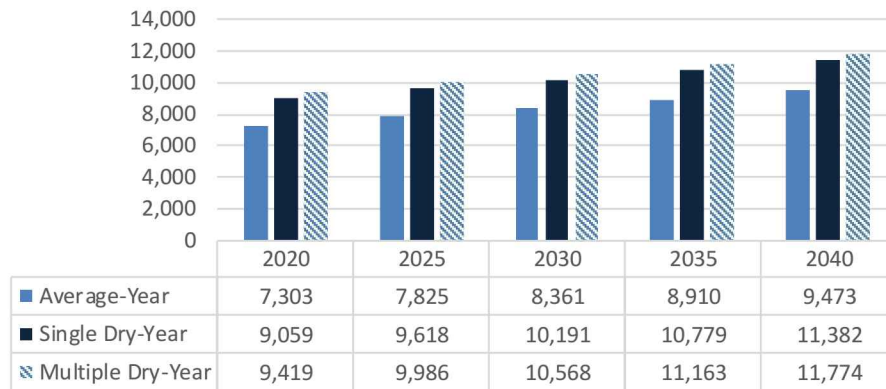
Projected Future Water Supply and Demand



Torrance's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



City of Torrance Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

Torrance's UWMP states that it will drill additional wells to achieve its adjudicated right of 5,639 acre-feet by 2018. The plan includes this groundwater in its supply/demand calculations. In addition, the Goldsworthy Desalter Expansion project, scheduled to be completed in 2017 will increase treatment capacity up to 5,000 acre-feet from the current effective capacity of 1,500 acre-feet. Most of this capacity (4,800 acre-feet) is accounted for in the UWMP.

Metropolitan's IRP includes 2,400 acre-feet of groundwater recovery as a full design and appropriated funds project (Goldsworthy Expansion) but does not account for this production in its IRP demand projections, and 5,000 acre-feet of recycled water addition as a conceptual project.

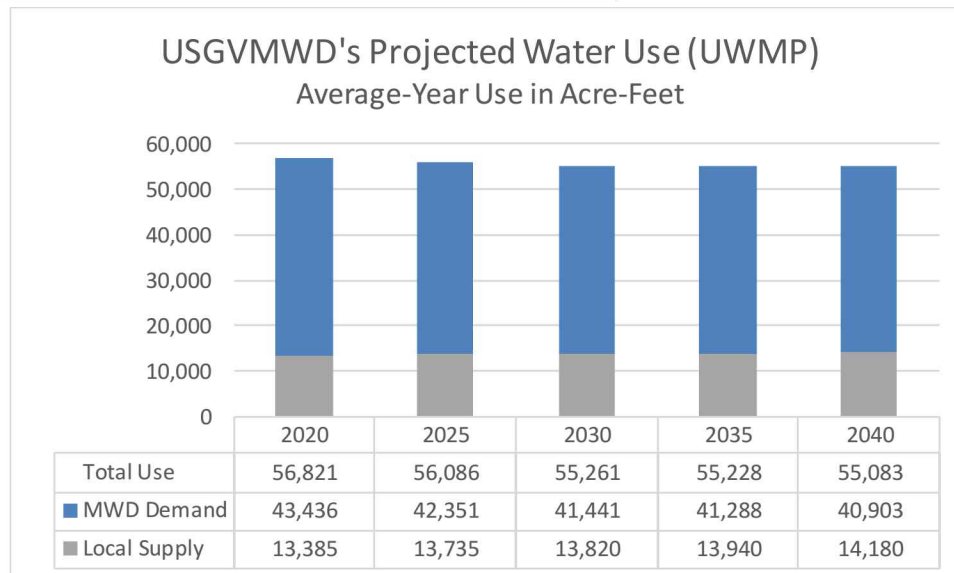
Upper San Gabriel Valley MWD

Overview

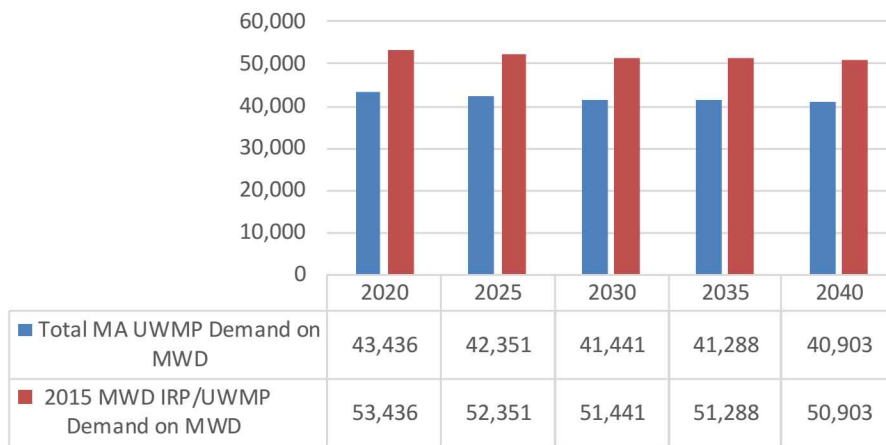
Upper San Gabriel Valley MWD (Upper District) is a wholesale water agency that supplies imported water from MWD and recycled water to its sub-agencies. Upper District is located within the San Gabriel Valley in Los Angeles County and overlies the "Main Basin." Its service area is about 144 square miles and includes all or portions of 18 separate cities. The service area is largely urbanized consisting mainly of residential, light industrial, and commercial uses.

Upper District's UWMP lists its current population at 865,598 and projects population to increase to 961,998 in the year 2040, an increase of 11.1% overall. Total normal year demand from the UWMP is expected to decrease slightly between 2020 and 2040, from 56,821 acre-feet in 2020 to 55,083 acre-feet in 2040. Additional water supplies and demand that is not met through Upper District is not accounted for in the UWMP. Most of Upper District's demand on Metropolitan is for replenishment water (32,000 acre-feet per year) in average and all dry-year scenarios listed in the UWMP.

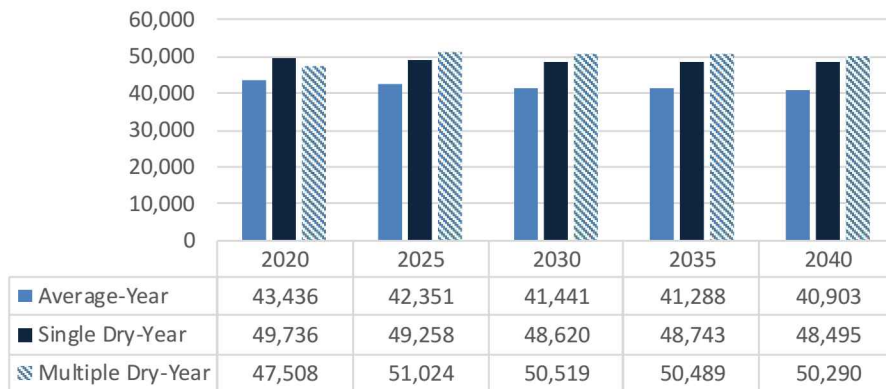
Existing and Projected Future Water Supply and Demand



USGVMWD's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



USGVMWD Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

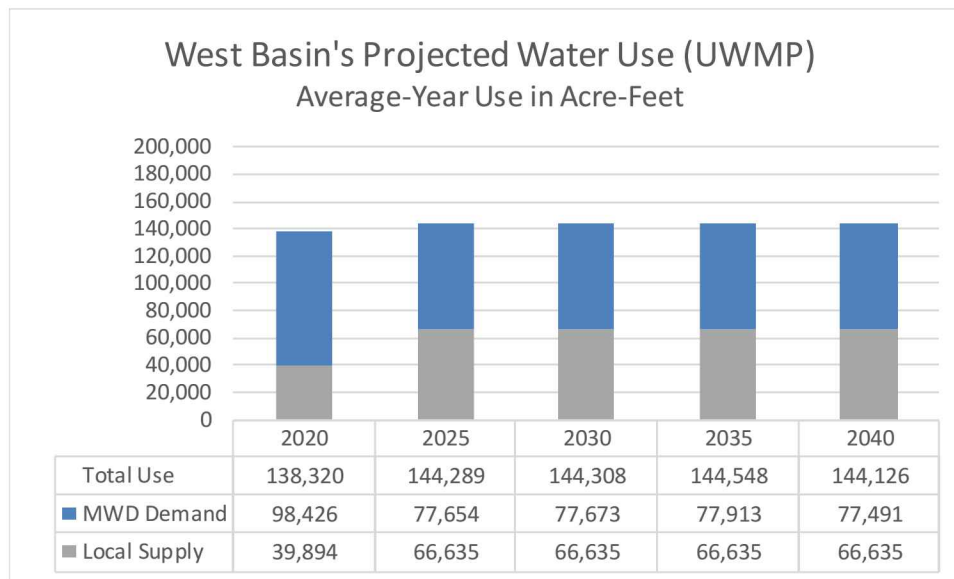
Upper District's future plans includes the development of direct reuse and indirect reuse replenishment water supplies from Los Angeles County Sanitation District. Other projects, totaling 1,500 acre-feet of supplies are listed in Metropolitan's IRP at the feasibility or conceptual level of development, and thus did not include this yield in its IRP demand projections.

West Basin MWD

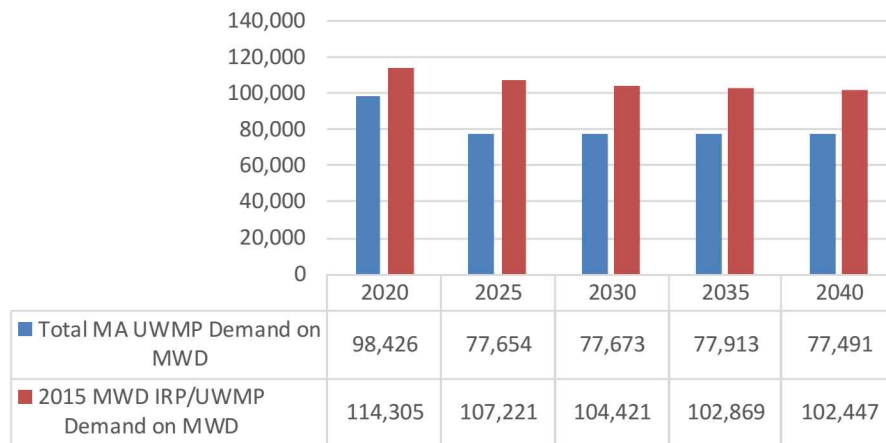
Overview

The West Basin Municipal Water District is a wholesale water agency that provides potable water and recycled water to 17 cities, investor owned utilities, water districts and private companies. It covers approximately 185 square miles and a current population of 813,000. Its current population is expected to grow 9.7% by 2040 to 891,617. Water use is also expected to increase, by 6.5%, from 135,369 acre-feet in 2015 to 144,126 acre-feet in 2040. While overall water use is expected to increase, use of Metropolitan supplies is expected to decrease over 20,000 acre-feet per year, due to increased direct use of recycled water, indirect use of recycled water and construction of a seawater desalination project.

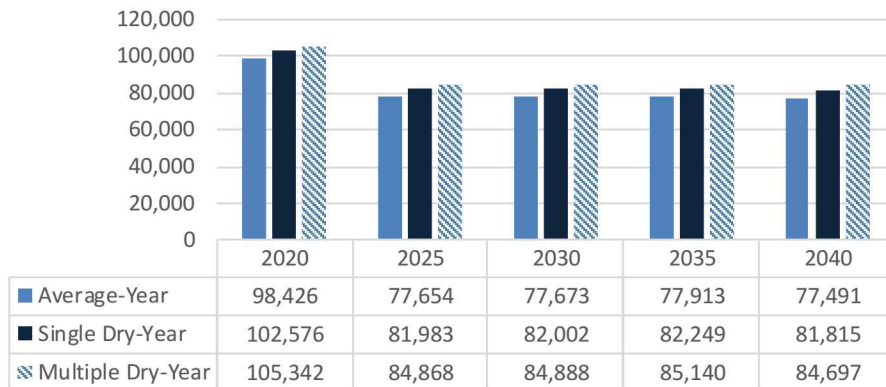
Projected Future Water Supply and Demand



West Basin's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



West Basin MWD Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

West Basin MWD includes in its UWMP supply projections its proposed 21,000 AF seawater desalination project. It also includes increased recycled water usage in its projections. Metropolitan, in its IRP included these projects in the feasibility stage, and thus did not include this yield in its IRP demand projections.

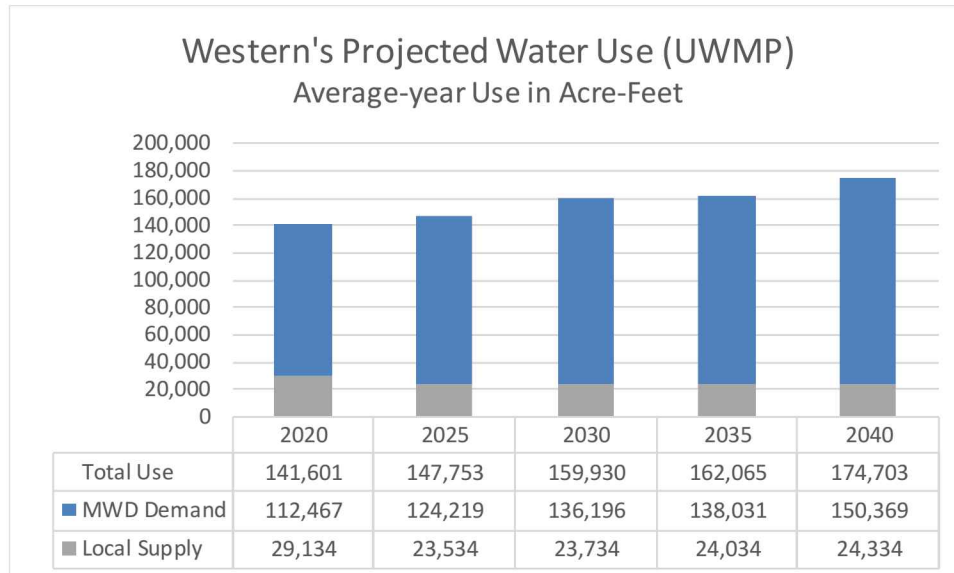
Western MWD

Overview

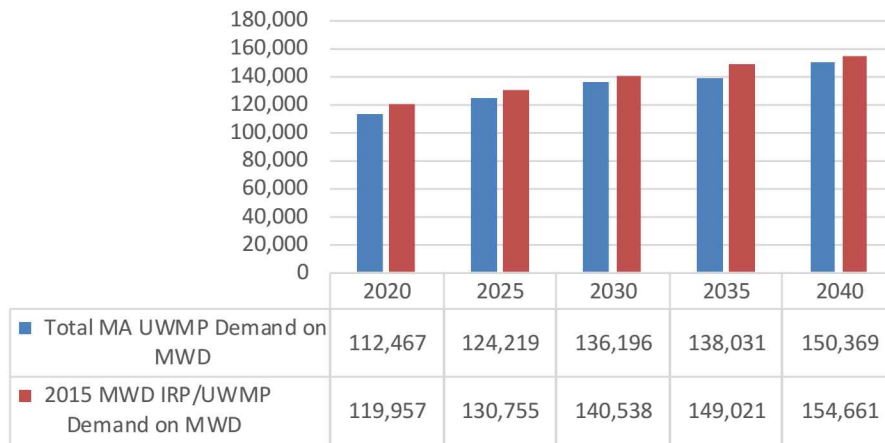
The Western Municipal Water District provides both wholesale and retail water service to western Riverside County. Western serves imported and local supplies on a wholesale basis to nine local area water purveyors, including a portion of the Rancho California Water District. Western also has a retail service area that it provides with similar water supplies. The general district (wholesale and retail areas combined) consists of 527 square miles and an estimated population of 1,049,638 people. Western's retail service area population is currently 94,107 and is expected to grow by 64.2% to 140,371 by 2040. The wholesale population is currently 955,531 and expected to grow 30.3% to 1,244,880 by 2040. Water use accounted for by the UWMP (wholesale and retail) is expected to grow from 141,601 acre-feet in 2020 to 174,703 acre-feet in 2040, an increase of 23.4%. All this increase is expected to come from Metropolitan, as groundwater production decreases and desalter production increases by a similar quantity.

Western's UWMP shows an excess of supplies over projected demands in each year of the hydrologic conditions presented. To determine projected demands on Metropolitan for each condition, this analysis assumes available local supplies presented in the UWMP would be used and the remaining demands would be met by Metropolitan.

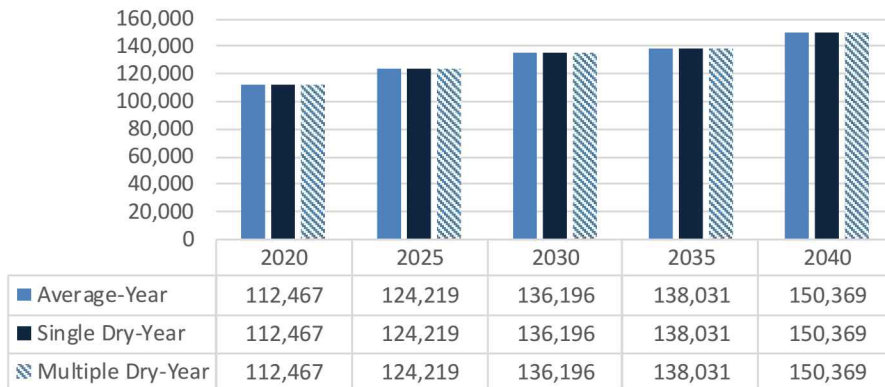
Projected Future Water Supply and Demand



Western's UWMP vs. MWD's UWMP Average-Year Demands on MWD in Acre-Feet



Western MWD Average, Single Dry, and Multiple Dry-Year Projected MWD Demand in Acre-Feet



Potential Future Local Projects

In addition to the existing local supplies contained in the UWMP, Western lists five future projects that could increase local supplies and potentially reduce Metropolitan demands. These include the Riverside North Aquifer Storage and Recover Project (2,000 AF in average years), Conjunctive use programs (5,000 AF in multi-dry years) and expansion of the Chino Desalter (3,500 AF in average years). Metropolitan, in its IRP listed projects that could add up to an additional 64,580 acre-feet of local supplies (conceptual to advance-planning) for the Western MWD service area that could reduce future Metropolitan demands.

Appendix C- Member Agency Data from Urban Water Management Plans

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Anaheim

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	360,142	366,938	374,836	387,739	396,021	417,456
Total Demand						
Retail M&I	62,053	62,050	66,608	67,065	67,047	67,143
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	62,053	62,050	66,608	67,065	67,047	67,143

Local Supplies						
Groundwater Production	46,937	43,435	46,626	46,946	46,933	47,000
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	71	155	155	155	155	155
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	47,008	43,590	46,781	47,101	47,088	47,155

Net Demand On Metropolitan						
Consumptive Use		15,045	18,460	19,827	19,965	19,959
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		15,045	18,460	19,827	19,965	19,959

2010 UWMP MWD Firm Demands		25,263	25,671	26,476	27,036	27,106
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		25,263	25,671	26,476	27,036	27,106
2015 UWMP vs. 2010 UWMP, Percent		72%	75%	74%	74%	

2015 MWD Sales Model 25 IRP Consumptive	18,001	18,835	19,693	22,097	23,036	23,676
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	18,001	18,835	19,693	22,097	23,036	23,676
2015 MA UWMP vs. MWD T-25 IRP		98%	101%	90%	87%	84%
AF, MWD IRP T25 less MA UWMP		375	(134)	2,132	3,077	3,688

2015 UWMP Data Locations:
Table 3-4 Page 3-13
Calculations per Section 3.6.4 Page 3-18

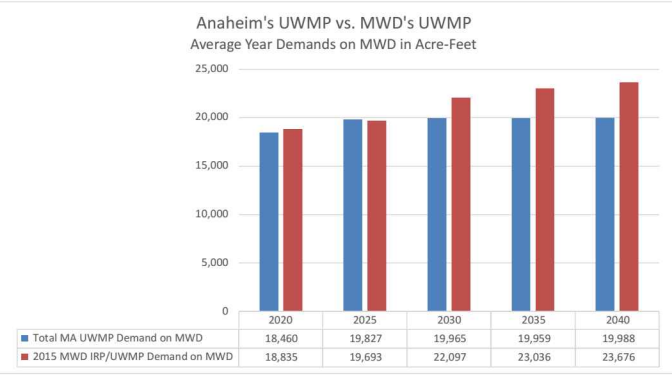
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Anaheim

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	360,142	366,938	374,836	387,739	396,021	417,456
Total Demand						
Retail M&I	65,777	65,773	70,605	71,089	71,070	71,172
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	65,777	65,773	70,605	71,089	71,070	71,172

Local Supplies						
Groundwater Production	49,753	46,041	49,424	49,763	49,749	49,820
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	75	164	164	164	164	164
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	49,829	46,206	49,588	49,928	49,914	49,985

Net Demand On Metropolitan						
Consumptive Use		15,948	19,567	21,017	21,161	21,156
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		15,948	19,567	21,017	21,161	21,156

2010 UWMP MWD Firm Demands		27,468	27,912	28,787	29,396	29,472
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		27,468	27,912	28,787	29,396	29,472
2015 UWMP vs. 2010 UWMP, Percent		70%	73%	72%	72%	



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Anaheim

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	360,142	366,938	374,836	387,739	396,021	417,456
Total Demand						
Retail M&I	65,777	65,773	70,605	71,089	71,070	71,172
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	65,777	65,773	70,605	71,089	71,070	71,172

Local Supplies						
Groundwater Production	49,753	46,041	49,424	49,763	49,749	49,820
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	71	155	155	155	155	155
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	49,824	46,196	49,579	49,918	49,904	49,975

Net Demand On Metropolitan						
Consumptive Use		15,953	19,577	21,026	21,171	21,166
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		15,953	19,577	21,026	21,171	21,166

2010 UWMP MWD Firm Demands		29,822	30,304	31,254	31,915	31,998
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		29,822	30,304	31,254	31,915	31,998
2015 UWMP vs. 2010 UWMP, Percent		65%	67%	66%	66%	

3/14/2017
UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Beverly Hills

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection includes ptn West H	43,189	43,942	44,694	45,446	46,198	46,950
Total Demand						
Retail M&I		11,104	11,182	11,262	11,344	11,428
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	11,104	11,182	11,262	11,344	11,428

Local Supplies						
Groundwater Production		2,000	3,700	3,700	3,700	3,700
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	2,000	3,700	3,700	3,700	3,700

Net Demand On Metropolitan						
Consumptive Use		9,104	7,482	7,562	7,644	7,728
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	9,104	7,482	7,562	7,644	7,728

2010 UWMP MWD Firm Demands		10,854	10,986	11,113	11,236	11,353	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		10,854	10,986	11,113	11,236	11,353	
2015 UWMP vs. 2010 UWMP, Percent		83%	67%	67%	67%		

2015 MWD Sales Model 25 IRP Consumptive	10,331	10,522	10,027	9,630	9,254	8,805
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	10,331	10,522	10,027	9,630	9,254	8,805
2015 MA UWMP vs. MWD T-25 IRP		87%	75%	79%	83%	88%
AF, MWD IRP T25 less MA UWMP		1,418	2,545	2,068	1,610	1,077

2015 UWMP Data Locations:

Table 7-4A Page 7-20

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

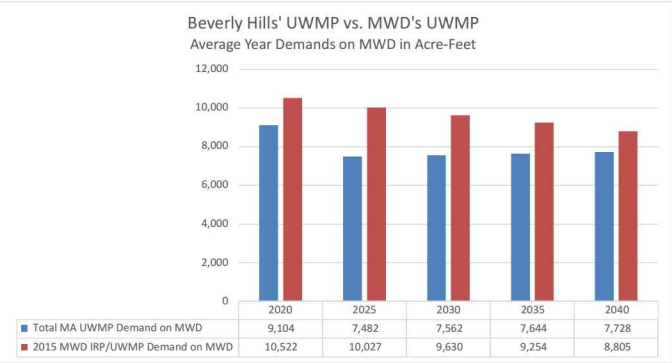
Beverly Hills

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection includes ptn West H	43,189	43,942	44,694	45,446	46,198	46,950
Total Demand						
Retail M&I		11,659	11,741	11,825	11,911	11,999
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	11,659	11,741	11,825	11,911	11,999

Local Supplies						
Groundwater Production		2,000	3,700	3,700	3,700	3,700
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	2,000	3,700	3,700	3,700	3,700

Net Demand On Metropolitan						
Consumptive Use		9,659	8,041	8,125	8,211	8,299
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	9,659	8,041	8,125	8,211	8,299

2010 UWMP MWD Firm Demands		11,810	12,377	12,412	14,440	12,580	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		11,810	12,377	12,412	14,440	12,580	
2015 UWMP vs. 2010 UWMP, Percent		78%	65%	56%	65%		



UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Beverly Hills

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	43,189	43,942	44,694	45,446	46,198	46,950
Total Demand						
Retail M&I		11,659	11,741	11,825	11,911	11,999
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	11,659	11,741	11,825	11,911	11,999

Local Supplies						
Groundwater Production		2,000	3,700	3,700	3,700	3,700
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	2,000	3,700	3,700	3,700	3,700

Net Demand On Metropolitan						
Consumptive Use		9,659	8,041	8,125	8,211	8,299
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	9,659	8,041	8,125	8,211	8,299

2010 UWMP MWD Firm Demands		12,194	12,542	12,900	12,945	13,042	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		12,194	12,542	12,900	12,945	13,042	
2015 UWMP vs. 2010 UWMP, Percent		77%	62%	63%	63%		

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Burbank

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	106,084	112,451	113,179	114,850	115,680	118,821
Total Demand						
Retail M&I	15,042	18,894	18,383	18,011	17,493	17,303
Retail Agriculture						
Recycled	2,463	3,327	5,047	5,047	5,047	5,047
Replenishment	7,350	6,300	4,700	4,800	4,900	4,900
Total Demand	24,855	28,521	28,130	27,858	27,440	27,250

Local Supplies						
Groundwater Production	10,277	11,000	11,000	11,000	11,000	11,000
Surface Production						
GW Credits from LA- Included in GW produc	-	-	-	-	-	-
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	2,463	3,327	5,047	5,047	5,047	5,047
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	12,740	14,327	16,047	16,047	16,047	16,047

Net Demand On Metropolitan						
Consumptive Use	4,765	7,894	7,383	7,011	6,493	6,303
Seawater Barrier						
Replenishment	7,350	6,300	4,700	4,800	4,900	4,900
Total MA UWMP Demand on MWD	12,115	14,194	12,083	11,811	11,393	11,203

2010 UWMP MWD Firm Demands	6,750	7,481	8,141	8,779	9,391	
Seawater Barrier						
Replenishment Demands	2,100	500	300	200	100	
2010 UWMP Total Demands	8,850	7,981	8,441	8,979	9,491	
2015 UWMP vs. 2010 UWMP, Percent		178%	143%	132%	120%	

2015 MWD Sales Model 25 IRP Consumptive	7,212	7,926	7,675	7,604	7,589	7,725
Seawater Barrier						
Replenishment Demands	6,045	5,900	5,898	5,877	5,892	5,844
2015 MWD IRP/UWMP Demand on MWD	13,257	13,826	13,573	13,481	13,481	13,569
2015 MA UWMP vs. MWD T-25 IRP		103%	89%	88%	85%	83%
AF, MWD IRP T25 less MA UWMP		(368)	1,490	1,670	2,088	2,366

2015 UWMP Data Locations:

Tables 3-9 and 3-10, Page 3-7

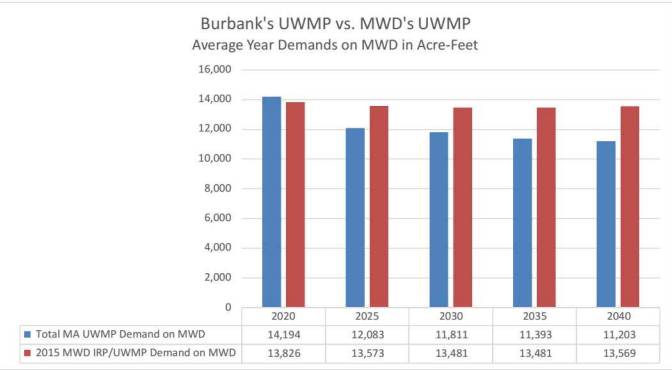
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Burbank

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	106,084	112,451	113,179	114,850	115,680	118,821
Total Demand						
Retail M&I	15,042	18,894	18,383	18,011	17,493	17,303
Retail Agriculture						
Recycled	2,463	3,327	5,047	5,047	5,047	5,047
Replenishment	7,350	6,300	4,700	4,800	4,900	4,900
Total Demand	24,855	28,521	28,130	27,858	27,440	27,250

Local Supplies						
Groundwater Production	10,277	11,000	11,000	11,000	11,000	11,000
Surface Production						
GW Credits from LA- Included in GW production						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	2,463	3,327	5,047	5,047	5,047	5,047
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	12,740	14,327	16,047	16,047	16,047	16,047

Net Demand On Metropolitan						
Consumptive Use	4,765	7,894	7,383	7,011	6,493	6,303
Seawater Barrier						
Replenishment	7,350	6,300	4,700	4,800	4,900	4,900
Total MA UWMP Demand on MWD	12,115	14,194	12,083	11,811	11,393	11,203

2010 UWMP MWD Firm Demands	6,750	7,481	8,141	8,779	9,391	
Seawater Barrier						
Replenishment Demands	2,100	500	300	200	100	
2010 UWMP Total Demands	8,850	7,981	8,441	8,979	9,491	
2015 UWMP vs. 2010 UWMP, Percent		178%	143%	132%	120%	



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Burbank

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	106,084	112,451	113,179	114,850	115,680	118,821
Total Demand						
Retail M&I	15,042	18,894	18,383	18,011	17,493	17,303
Retail Agriculture						
Recycled	2,463	3,327	5,047	5,047	5,047	5,047
Replenishment	7,350	6,300	4,700	4,800	4,900	4,900
Total Demand	24,855	28,521	28,130	27,858	27,440	27,250

Local Supplies						
Groundwater Production	10,277	11,000	11,000	11,000	11,000	11,000
Surface Production						
GW Credits from LA- Included in GW production						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	2,463	3,327	5,047	5,047	5,047	5,047
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	12,740	14,327	16,047	16,047	16,047	16,047

Net Demand On Metropolitan						
Consumptive Use	4,765	7,894	7,383	7,011	6,493	6,303
Seawater Barrier						
Replenishment	7,350	6,300	4,700	4,800	4,900	4,900
Total MA UWMP Demand on MWD	12,115	14,194	12,083	11,811	11,393	11,203

2010 UWMP MWD Firm Demands	5,326	7,989	8,415	9,060	9,685	
Seawater Barrier						
Replenishment Demands	2,100	500	300	200	100	
2010 UWMP Total Demands	7,426	8,489	8,715	9,260	9,785	
2015 UWMP vs. 2010 UWMP, Percent		167%	139%	128%	116%	

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Calleguas

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	633,404	656,804	671,353	681,549	695,854	715,112
Total Demand						
Retail M&I	89,453	98,568	96,437	99,076	101,600	103,893
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	89,453	98,568	96,437	99,076	101,600	103,893

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	1,637	1,770	1,790	1,790	1,790	1,790
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	1,637	1,770	1,790	1,790	1,790	1,790

Net Demand On Metropolitan						
Consumptive Use	87,816	96,798	94,647	97,286	99,810	102,103
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	87,816	96,798	94,647	97,286	99,810	102,103

2010 UWMP MWD Firm Demands	113,384	118,283	121,147	124,810	128,105	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	113,384	118,283	121,147	124,810	128,105	
2015 UWMP vs. 2010 UWMP, Percent		82%	78%	78%	78%	

2015 MWD Sales Model 25 IRP Consumptive	104,287	121,925	125,169	124,974	124,183	124,824
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	104,287	121,925	125,169	124,974	124,183	124,824
2015 MA UWMP vs. MWD T-25 IRP		79%	76%	78%	80%	82%
AF, MWD IRP T25 less MA UWMP		25,127	30,522	27,688	24,373	22,721

2015 UWMP Data Locations:
Tables 4-2 and 4-3, Page 4-3
Tables 7-2 to 7-4, Pages 7-8 and 7-9

UWMP States demands could be higher if local supplies are not developed

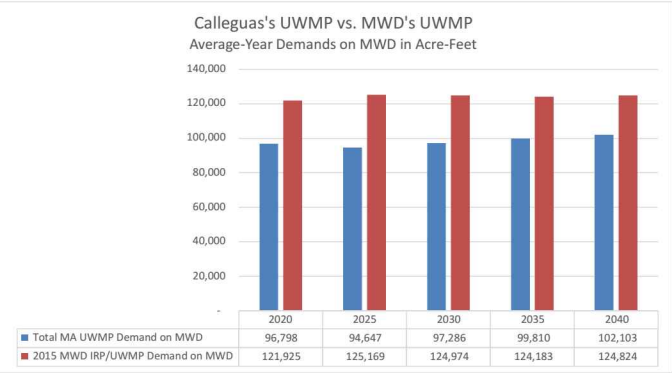
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Calleguas

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	633,404	656,804	671,353	681,549	695,854	715,112
Total Demand						
Retail M&I		107,110	104,209	106,586	109,504	112,183
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	-	107,110	104,209	106,586	109,504	112,183

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		1,637	1,770	1,790	1,790	1,790
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	1,637	1,770	1,790	1,790	1,790

Net Demand On Metropolitan						
Consumptive Use		105,473	102,439	104,796	107,714	110,393
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	105,473	102,439	104,796	107,714	110,393

2010 UWMP MWD Firm Demands	118,627	123,188	126,747	131,964	136,237	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	118,627	123,188	126,747	131,964	136,237	
2015 UWMP vs. 2010 UWMP, Percent		86%	81%	79%	79%	



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Calleguas

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	633,404	656,804	671,353	681,549	695,854	715,112
Total Demand						
Retail M&I		101,316	97,728	100,033	102,807	104,075
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	-	101,316	97,728	100,033	102,807	104,075

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		1,637	1,770	1,790	1,790	1,790
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	1,637	1,770	1,790	1,790	1,790

Net Demand On Metropolitan						
Consumptive Use		99,679	95,958	98,243	101,017	102,285
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	99,679	95,958	98,243	101,017	102,285

2010 UWMP MWD Firm Demands	125,353	129,841	132,655	138,722	142,631	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	125,353	129,841	132,655	138,722	142,631	
2015 UWMP vs. 2010 UWMP, Percent		77%	72%	71%	71%	

3/14/2017

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Central Basin

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	1,565,128	1,603,549	1,632,666	1,691,205	1,722,317	1,757,232
Total Demand						
Retail M&I		225,827	224,849	225,238	224,879	225,923
Retail Agriculture						
Seawater Barrier						
Replenishment		78,732	81,749	83,756	83,756	83,756
Total Demand	-	304,559	306,598	308,994	308,635	309,679

Local Supplies						
Groundwater Production	182,300	182,300	182,300	182,300	182,300	
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery	3,995	4,567	5,139	5,711	5,807	
Recycling						
Recycling - M&I	8,934	10,178	11,423	12,667	13,911	
Recycling - Replenishment	44,976	47,993	50,000	50,000	50,000	
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	240,205	245,038	248,862	250,678	252,018

Net Demand On Metropolitan						
Consumptive Use		30,598	27,804	26,377	24,201	23,905
Seawater Barrier						
Replenishment		33,756	33,756	33,756	33,756	33,756
Total MA UWMP Demand on MWD	-	64,354	61,560	60,133	57,957	57,661

2010 UWMP MVD Firm Demands	56,525	57,185	59,870	61,755	63,440	
Seawater Barrier						
Replenishment Demands	21,000	21,000	21,000	21,000	21,000	
2010 UWMP Total Demands	77,525	78,185	80,870	82,755	84,440	
2015 UWMP vs. 2010 UWMP, Percent	82%	76%	73%	69%		

2015 MWD Sales Model 25 IRP Consumptive	8,732	30,598	27,804	26,377	24,201	23,905
Seawater Barrier						
Replenishment Demands	43,756	33,756	33,756	33,756	33,756	33,756
2015 MWD IRP/UWMP Demand on MWD	52,488	64,354	61,560	60,133	57,957	57,661
2015 MA UWMP vs. MWD T-25 IRP	100%	100%	100%	100%	100%	100%
AF, MWD IRP T25 less MA UWMP	-	-	-	-	-	-

2015 UWMP Data Locations:

Figures 3-2 to 3-4, Pages 3-16 to 3-20

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

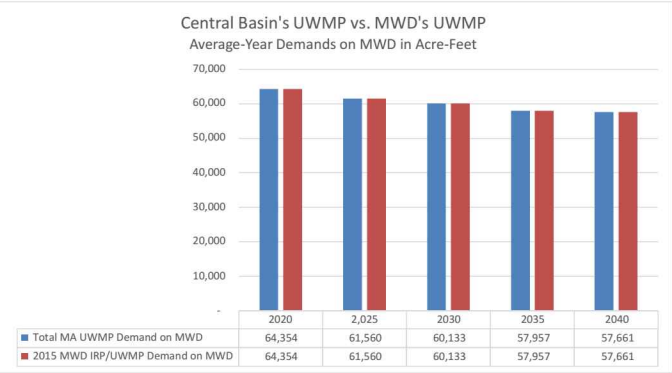
Central Basin

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	1,565,128	1,603,549	1,632,666	1,691,205	1,722,317	1,757,232
Total Demand						
Retail M&I		226,500	225,520	225,910	225,550	226,597
Retail Agriculture						
Seawater Barrier						
Replenishment		78,732	81,749	83,756	83,756	83,756
Total Demand	-	305,232	307,269	309,666	309,306	310,353

Local Supplies						
Groundwater Production	182,300	182,300	182,300	182,300	182,300	
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery	3,995	4,567	5,139	5,711	5,807	
Recycling						
Recycling - M&I	8,934	10,178	11,423	12,667	13,911	
Recycling - Replenishment	44,976	47,993	50,000	50,000	50,000	
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	240,205	245,038	248,862	250,678	252,018

Net Demand On Metropolitan						
Consumptive Use		31,272	28,474	27,049	24,872	24,579
Seawater Barrier						
Replenishment		33,756	33,756	33,756	33,756	33,756
Total MA UWMP Demand on MWD	-	65,028	62,230	60,805	58,628	58,335

2010 UWMP MWD Firm Demands	72,360	72,360	72,360	72,360	72,360	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	72,360	72,360	72,360	72,360	72,360	
2015 UWMP vs. 2010 UWMP, Percent	90%	86%	84%	81%		



UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Central Basin

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	1,565,128	1,603,549	1,632,666	1,691,205	1,722,317	1,757,232
Total Demand						
Retail M&I		223,984	228,174	228,289	228,078	228,848
Retail Agriculture						
Seawater Barrier						
Replenishment		78,732	81,749	83,756	83,756	83,756
Total Demand	-	302,716	309,923	312,045	311,834	312,604

Local Supplies						
Groundwater Production	182,300	182,300	182,300	182,300	182,300	
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery	3,880	4,453	5,025	5,597	5,807	
Recycling						
Recycling - M&I	8,685	9,929	11,174	12,418	13,662	
Recycling - Replenishment	44,373	47,390	49,934	50,000	50,000	
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	239,238	244,072	248,433	250,315	251,769

Net Demand On Metropolitan						
Consumptive Use		29,119	31,492	29,790	27,763	27,079
Seawater Barrier						
Replenishment		33,756	33,756	33,756	33,756	33,756
Total MA UWMP Demand on MWD	-	62,875	65,248	63,546	61,519	60,835

2010 UWMP MWD Firm Demands	69,711	69,711	69,711	69,711	69,711	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	69,711	69,711	69,711	69,711	69,711	
2015 UWMP vs. 2010 UWMP, Percent	90%	94%	91%	88%		

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Compton

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	98,119	99,521	100,923	102,325	103,727	103,727
Total Demand						
Retail M&I	7,288	7,954	8,065	8,177	8,290	8,290
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	7,288	7,954	8,065	8,177	8,290	8,290

Local Supplies						
Groundwater Production		7,507	7,540	7,540	7,540	7,540
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	7,507	7,540	7,540	7,540	7,540

Net Demand On Metropolitan						
Consumptive Use			447	525	637	750
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	447	525	637	750	750

2010 UWMP MWD Firm Demands		3,704	4,018	4,341	4,675	4,675
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		3,704	4,018	4,341	4,675	4,675
2015 UWMP vs. 2010 UWMP, Percent			11%	12%	14%	16%

2015 MWD Sales Model 25 IRP Consumptive	1,351	1,344	1,219	1,086	990	911
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	1,351	1,344	1,219	1,086	990	911
2015 MA UWMP vs. MWD T-25 IRP		33%	43%	59%	76%	82%
AF, MWD IRP T25 less MA UWMP		897	694	449	240	161

2015 UWMP Data Locations:
Table 4.1.8, Page 4-10
Table 4.2.1, Page 4-13
Table 6.2.3, Page 6-11

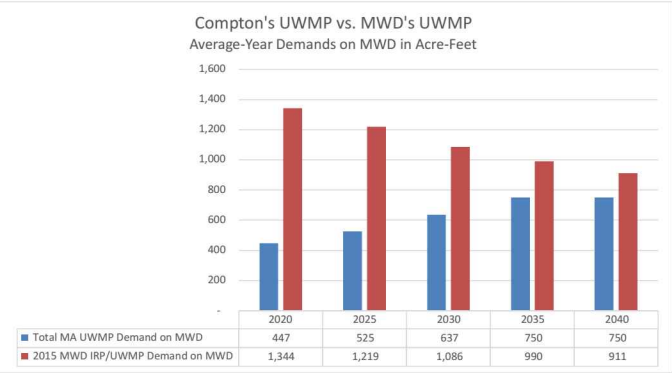
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Compton

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	98,119	99,521	100,923	102,325	103,727	103,727
Total Demand						
Retail M&I		7,969	8,083	8,342	8,306	8,306
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	7,969	8,083	8,342	8,306	8,306

Local Supplies						
Groundwater Production		7,507	7,540	7,540	7,540	7,540
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	7,507	7,540	7,540	7,540	7,540

Net Demand On Metropolitan						
Consumptive Use			462	543	802	766
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	462	543	802	766	766

2010 UWMP MWD Firm Demands		3,742	4,067	4,392	4,717	4,717
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		3,742	4,067	4,392	4,717	4,717
2015 UWMP vs. 2010 UWMP, Percent			11%	12%	17%	16%



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Compton

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	98,119	99,521	100,923	102,325	103,727	103,727
Total Demand						
Retail M&I		8,001	8,115	8,227	8,339	8,339
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	8,001	8,115	8,227	8,339	8,339

Local Supplies						
Groundwater Production		7,507	7,540	7,540	7,540	7,540
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	7,507	7,540	7,540	7,540	7,540

Net Demand On Metropolitan						
Consumptive Use			494	575	687	799
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	494	575	687	799	799

2010 UWMP MWD Firm Demands		3,846	4,136	4,493	4,832	4,832
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		3,846	4,136	4,493	4,832	4,832
2015 UWMP vs. 2010 UWMP, Percent			12%	13%	14%	17%

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Eastern

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	761,221	856,500	967,100	1,075,200	1,178,600	1,274,600
Total Demand						
Retail M&I	146,090	197,901	218,700	235,800	252,600	268,200
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	146,090	197,901	218,700	235,800	252,600	268,200

Local Supplies						
Groundwater Production	15,252	12,303	12,303	12,303	12,303	12,303
Surface Production						
Other-desalinated gw	7,288	7,000	10,100	10,100	10,100	10,100
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	45,385	46,901	53,100	55,200	57,400	58,900
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	67,925	66,204	75,503	77,603	79,803	81,303

Net Demand On Metropolitan						
Consumptive Use	78,165	131,697	143,197	158,197	172,797	186,897
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	78,165	131,697	143,197	158,197	172,797	186,897

2010 UWMP MWD Firm Demands	149,300	170,700	190,700	210,000	226,200	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	149,300	170,700	190,700	210,000	226,200	
2015 UWMP vs. 2010 UWMP, Percent	77%	75%	75%	76%		

2015 MWD Sales Model 25 IRP Consumptive	80,361	128,505	151,811	167,385	183,510	192,158
Seawater Barrier						
Replenishment Demands	7,500	7,500	7,500	7,500	7,500	7,500
2015 MWD IRP/UWMP Demand on MWD	87,861	136,005	159,311	174,885	191,010	199,658
2015 MA UWMP vs. MWD T-25 IRP		97%	90%	90%	90%	94%
AF, MWD IRP T25 less MA UWMP		4,308	16,114	16,688	18,213	12,761

2015 UWMP Data Locations:
Tables 6-19 to 6-21, Page 6-30
Tables 7-3 to 7-6, Page 7-10 to 7-12

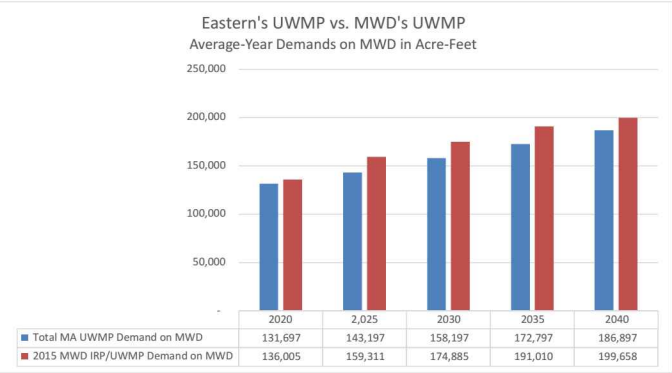
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Eastern

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	761,221	856,500	967,100	1,075,200	1,178,600	1,274,600
Total Demand						
Retail M&I		224,800	248,600	268,100	287,200	305,000
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	-	224,800	248,600	268,100	287,200	305,000

Local Supplies						
Groundwater Production		12,303	12,303	12,303	12,303	12,303
Surface Production						
Other-desalinated gw		7,000	10,100	10,100	10,100	10,100
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		46,901	53,100	55,200	57,400	58,900
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	66,204	75,503	77,603	79,803	81,303

Net Demand On Metropolitan						
Consumptive Use		158,596	173,097	190,497	207,397	223,697
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	158,596	173,097	190,497	207,397	223,697

2010 UWMP MWD Firm Demands	155,300	177,600	198,300	218,300	235,100	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	155,300	177,600	198,300	218,300	235,100	
2015 UWMP vs. 2010 UWMP, Percent	89%	87%	87%	88%		



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Eastern

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	761,221	856,500	967,100	1,075,200	1,178,600	1,274,600
Total Demand						
Retail M&I		201,500	220,100	236,200	251,500	266,600
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	-	201,500	220,100	236,200	251,500	266,600

Local Supplies						
Groundwater Production		12,303	12,303	12,303	12,303	12,303
Surface Production						
Other-desalinated gw		7,000	10,100	10,100	10,100	10,100
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		46,901	53,100	55,200	57,400	58,900
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	66,204	75,503	77,603	79,803	81,303

Net Demand On Metropolitan						
Consumptive Use		135,296	144,597	158,597	171,697	185,297
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	135,296	144,597	158,597	171,697	185,297

2010 UWMP MWD Firm Demands	156,600	179,000	199,800	219,900	236,900	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	156,600	179,000	199,800	219,900	236,900	
2015 UWMP vs. 2010 UWMP, Percent	76%	72%	72%	72%		

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Foothill

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	80,558	82,852	84,956	86,782	88,307	89,636
Total Demand						
Retail M&I	7,656	8,084	8,595	8,800	9,160	9,466
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	7,656	8,084	8,595	8,800	9,160	9,466

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling-Not owned or controlled by Foothill	79	90	90	90	90	90
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	79	90	90	90	90	90

Net Demand On Metropolitan						
Consumptive Use	7,657	8,085	8,596	8,880	9,160	9,466
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	7,657	8,085	8,596	8,880	9,160	9,466

2010 UWMP MWD Firm Demands	11,043	11,259	11,711	12,139	12,621	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	11,043	11,259	11,711	12,139	12,621	
2015 UWMP vs. 2010 UWMP, Percent		72%	73%	73%	73%	

2015 MWD Sales Model 25 IRP Consumptive	9,381	9,621	9,546	9,598	9,551	9,275
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	9,381	9,621	9,546	9,598	9,551	9,275
2015 MA UWMP vs. MWD T-25 IRP		84%	90%	93%	96%	102%
AF, MWD IRP T25 less MA UWMP		1,536	950	718	391	(191)

2015 UWMP Data Locations:
Table 2-5, Page 2-17
Tables 3-8 to 3-10, Pages 3-29 to 3-31

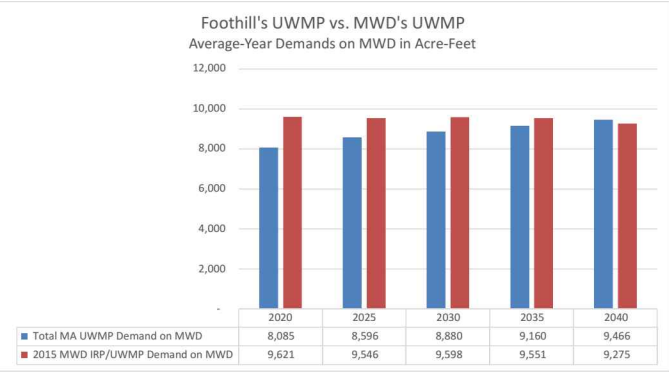
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Foothill

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	80,558	82,852	84,956	86,782	88,307	89,636
Total Demand						
Retail M&I		7,947	8,449	8,729	9,044	9,305
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	7,947	8,449	8,729	9,044	9,305

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling-Not owned or controlled by Foothill		90	90	90	90	90
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	90	90	90	90	90

Net Demand On Metropolitan						
Consumptive Use		7,947	8,449	8,729	9,044	9,305
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	7,947	8,449	8,729	9,044	9,305

2010 UWMP MWD Firm Demands	12,204	12,442	12,941	13,414	13,946	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	12,204	12,442	12,941	13,414	13,946	
2015 UWMP vs. 2010 UWMP, Percent		64%	65%	65%	65%	



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Foothill

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	80,558	82,852	84,956	86,782	88,307	89,636
Total Demand						
Retail M&I		8,488	9,025	9,324	9,618	9,939
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	8,488	9,025	9,324	9,618	9,939

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling-Not owned or controlled by Foothill		90	90	90	90	90
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	90	90	90	90	90

Net Demand On Metropolitan						
Consumptive Use		8,488	9,025	9,324	9,618	9,939
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	8,488	9,025	9,324	9,618	9,939

2010 UWMP MWD Firm Demands	11,414	11,779	12,126	12,482	12,855	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	11,414	11,779	12,126	12,482	12,855	
2015 UWMP vs. 2010 UWMP, Percent		72%	74%	75%	75%	

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Fullerton

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	140,827	145,791	152,026	155,464	158,421	160,545
Total Demand						
Retail M&I	27,244	26,699	28,661	28,858	28,850	28,891
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	27,244	26,699	28,661	28,858	28,850	28,891

Local Supplies						
Groundwater Production	18,946	18,689	20,063	20,201	20,195	20,224
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	18,946	18,689	20,063	20,201	20,195	20,224

Net Demand On Metropolitan						
Consumptive Use		8,298	8,010	8,598	8,657	8,655
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		8,298	8,010	8,598	8,657	8,655

2010 UWMP MWD Firm Demands		12,276	12,495	12,410	12,389	12,461
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		12,276	12,495	12,410	12,389	12,461
2015 UWMP vs. 2010 UWMP, Percent			64%	69%	70%	69%

2015 MWD Sales Model 25 IRP Consumptive		6,364	7,063	7,586	9,904	9,745
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD		6,364	7,063	7,586	9,904	9,745
2015 MA UWMP vs. MWD T-25 IRP			113%	113%	87%	89%
AF, MWD IRP T25 less MA UWMP			(947)	(1,012)	1,247	1,090

2015 UWMP Data Locations:
Table 3-4, Page 3-15
Table 3-6, Page 3-21

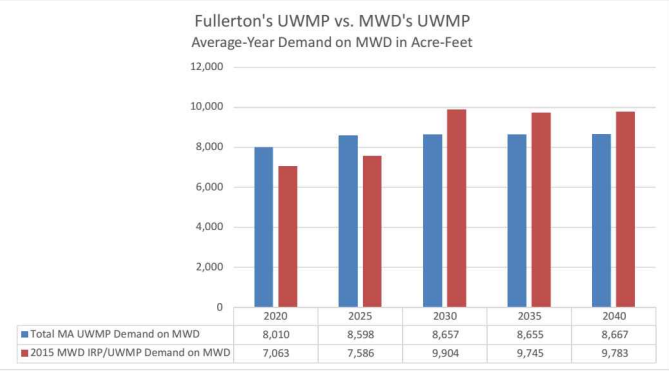
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Fullerton

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	140,827	145,791	152,026	155,464	158,421	160,545
Total Demand						
Retail M&I	28,879	28,301	30,381	30,590	30,581	30,625
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	28,879	28,301	30,381	30,590	30,581	30,625

Local Supplies						
Groundwater Production	20,083	19,810	21,267	21,413	21,407	21,437
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	20,083	19,811	21,267	21,414	21,407	21,438

Net Demand On Metropolitan						
Consumptive Use		8,796	8,491	9,114	9,176	9,174
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		8,796	8,491	9,114	9,176	9,174

2010 UWMP MWD Firm Demands		14,117	14,369	14,272	14,247	14,330
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		14,117	14,369	14,272	14,247	14,330
2015 UWMP vs. 2010 UWMP, Percent			59%	64%	64%	64%



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Fullerton

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	140,827	145,791	152,026	155,464	158,421	160,545
Total Demand						
Retail M&I	28,879	28,301	30,381	30,590	30,581	30,625
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	28,879	28,301	30,381	30,590	30,581	30,625

Local Supplies						
Groundwater Production	20,083	19,810	21,267	21,413	21,407	21,437
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	20,083	19,810	21,267	21,413	21,407	21,437

Net Demand On Metropolitan						
Consumptive Use		8,796	8,491	9,114	9,176	9,174
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		8,796	8,491	9,114	9,176	9,174

2010 UWMP MWD Firm Demands		14,117	14,369	14,272	14,247	14,330
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		14,117	14,369	14,272	14,247	14,330
2015 UWMP vs. 2010 UWMP, Percent			59%	64%	64%	64%

3/14/2017
UWMP Demand Forecast

Note: All Data in Acre Feet
Member Agency:
Glendale

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	199,182	199,606	202,574	205,586	208,643	211,745
Total Demand						
Retail M&I	24,556	28,893	29,323	29,759	30,201	30,650
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	24,556	28,893	29,323	29,759	30,201	30,650

Local Supplies						
Groundwater Production	8,097	11,656	11,656	11,656	11,656	11,656
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	1,733	1,662	1,662	1,662	1,662	1,662
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	9,830	13,318	13,318	13,318	13,318	13,318

Net Demand On Metropolitan						
Consumptive Use	14,726	15,575	16,005	16,441	16,883	17,332
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	14,726	15,575	16,005	16,441	16,883	17,332

2010 UWMP MWD Firm Demands	17,620	17,755	17,890	18,025	18,162	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	17,620	17,755	17,890	18,025	18,162	
2015 UWMP vs. 2010 UWMP, Percent		88%	89%	91%	93%	

2015 MWD Sales Model 25 IRP Consumptive	18,964	19,881	18,775	17,635	17,197	16,944
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	18,964	19,881	18,775	17,635	17,197	16,944
2015 MA UWMP vs. MWD T-25 IRP		78%	85%	93%	98%	102%
AF, MWD IRP T25 less MA UWMP		4,306	2,770	1,194	314	(388)

2015 UWMP Data Locations:

Tables 5.3 to 5.9, Pages 5-11 to 5-17

UWMP Demand Forecast

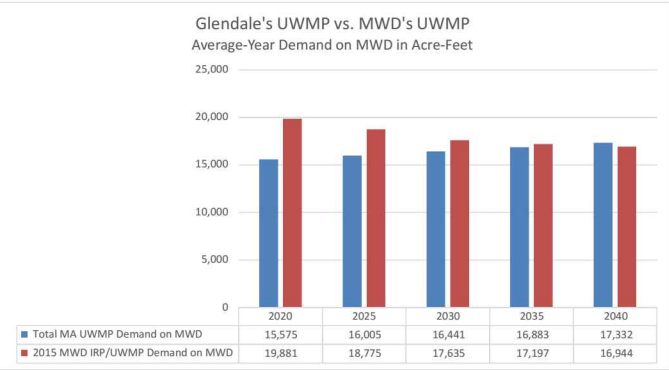
Note: All Data in Acre Feet
Member Agency:
Glendale

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	199,182	199,606	202,574	205,586	208,643	211,745
Total Demand						
Retail M&I		29,849	30,293	30,744	31,201	31,655
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	-	29,849	30,293	30,744	31,201	31,655

Local Supplies						
Groundwater Production		11,656	11,656	11,656	11,656	11,656
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		1,662	1,662	1,662	1,662	1,662
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	13,318	13,318	13,318	13,318	13,318

Net Demand On Metropolitan						
Consumptive Use		16,531	16,975	17,426	17,883	18,337
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	16,531	16,975	17,426	17,883	18,337

2010 UWMP MWD Firm Demands	18,498	18,637	18,776	18,916	19,056	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	18,498	18,637	18,776	18,916	19,056	
2015 UWMP vs. 2010 UWMP, Percent		89%	90%	92%	94%	



UWMP Demand Forecast

Note: All Data in Acre Feet
Member Agency:
Glendale

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	199,182	199,606	202,574	205,586	208,643	211,745
Total Demand						
Retail M&I		29,849	30,293	30,744	31,201	31,655
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	-	29,849	30,293	30,744	31,201	31,655

Local Supplies						
Groundwater Production		11,656	11,656	11,656	11,656	11,656
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		1,662	1,662	1,662	1,662	1,662
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	13,318	13,318	13,318	13,318	13,318

Net Demand On Metropolitan						
Consumptive Use		16,531	16,975	17,426	17,883	18,337
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	16,531	16,975	17,426	17,883	18,337

2010 UWMP MWD Firm Demands	18,498	18,637	18,776	18,916	19,056	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	18,498	18,637	18,776	18,916	19,056	
2015 UWMP vs. 2010 UWMP, Percent		89%	90%	92%	94%	

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Inland Empire

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	856,168	896,533	955,569	1,009,349	1,067,946	1,125,203
Total Demand						
Retail M&I-Des not includes WUE Demands	199,702	210,588	225,923	242,732	254,721	278,017
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	199,702	210,588	225,923	242,732	254,721	278,017

Local Supplies						
Groundwater Production	112,626	119,764	119,764	119,764	119,764	119,764
Surface Production	11,651	11,651	11,651	11,651	11,651	11,651
Chino Desalter	15,000	17,733	17,733	17,733	17,733	17,733
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	16,050	24,936	28,957	28,957	28,957	28,957
Recycling - Replenishment	14,500	16,900	18,700	18,700	18,700	18,700
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	190,984	196,805	196,805	196,805	196,805	196,805

Net Demand On Metropolitan						
Consumptive Use	65,000	69,752	69,752	69,752	69,752	69,752
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	65,000	69,752	69,752	69,752	69,752	69,752

2010 UWMP MWD Firm Demands	80,556	81,641	82,725	83,809	85,978	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	80,556	81,641	82,725	83,809	85,978	
2015 UWMP vs. 2010 UWMP, Percent		85%	84%	83%	81%	

2015 MWD Sales Model 25 IRP Consumptive	19,096	52,864	63,228	72,120	82,556	89,207
Seawater Barrier						
Replenishment Demands	6,500	6,500	6,500	6,500	6,500	6,500
2015 MWD IRP/UWMP Demand on MWD	25,596	59,364	69,728	78,620	89,056	95,707
2015 MA UWMP vs. MWD T-25 IRP		117%	100%	89%	78%	73%
AF, MWD IRP T25 less MA UWMP		(10,388)	(24)	8,868	19,304	25,955

2015 UWMP Data Locations:
Table 3-1, Page 3-1
Table 3-5, Page 3-9
Tables 3-9 to 3-14, Pages 3-16 to 3-21
Table 2-8, Page 2-11

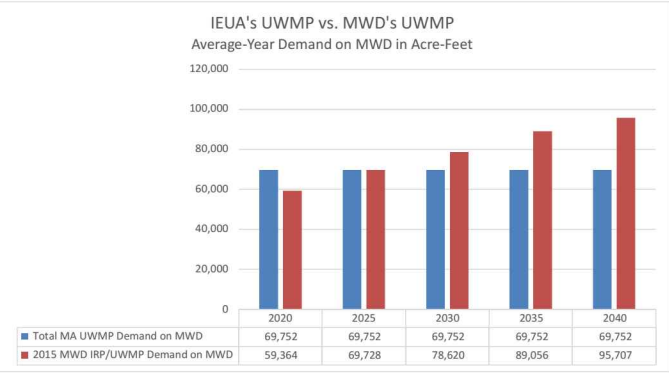
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Inland Empire

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	856,168	896,533	955,569	1,009,349	1,067,946	1,125,203
Total Demand						
Retail M&I-Des not includes WUE Demands	200,947	213,213	230,148	248,784	262,660	288,415
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	200,947	213,213	230,148	248,784	262,660	288,415

Local Supplies						
Groundwater Production	112,626	119,764	119,764	119,764	119,764	119,764
Surface Production	11,651	11,651	11,651	11,651	11,651	11,651
Chino Desalter	15,000	17,733	17,733	17,733	17,733	17,733
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	16,050	24,936	28,957	28,957	28,957	28,957
Recycling - Replenishment	14,500	16,900	18,700	18,700	18,700	18,700
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	169,827	190,984	196,805	196,805	196,805	196,805

Net Demand On Metropolitan						
Consumptive Use		69,752	69,752	69,752	69,752	69,752
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	69,752	69,752	69,752	69,752	69,752

2010 UWMP MWD Firm Demands	49,945	50,617	51,290	51,962	53,306	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	49,945	50,617	51,290	51,962	53,306	
2015 UWMP vs. 2010 UWMP, Percent		138%	136%	134%	131%	



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Inland Empire

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	856,168	896,533	955,569	1,009,349	1,067,946	1,125,203
Total Demand						
Retail M&I-Des not includes WUE Demands	201,693	214,786	232,678	252,409	267,415	294,642
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	201,693	214,786	232,678	252,409	267,415	294,642

Local Supplies						
Groundwater Production	112,626	119,764	119,764	119,764	119,764	119,764
Surface Production	11,651	11,651	11,651	11,651	11,651	11,651
Chino Desalter	15,000	17,733	17,733	17,733	17,733	17,733
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	16,050	24,936	28,957	28,957	28,957	28,957
Recycling - Replenishment	14,500	16,900	18,700	18,700	18,700	18,700
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	169,827	190,984	196,805	196,805	196,805	196,805

Net Demand On Metropolitan						
Consumptive Use		69,752	69,752	69,752	69,752	69,752
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	69,752	69,752	69,752	69,752	69,752

2010 UWMP MWD Firm Demands	49,945	50,617	51,290	51,962	53,306	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	49,945	50,617	51,290	51,962	53,306	
2015 UWMP vs. 2010 UWMP, Percent		138%	136%	134%	131%	

3/14/2017
UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Las Virgenes

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	68,766	71,768	74,901	78,170	81,582	85,144
Total Demand						
Retail M&I	23,825	26,798	27,796	28,838	29,925	31,058
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	23,825	26,798	27,796	28,838	29,925	31,058

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	4,240	4,255	4,269	4,284	4,299	4,314
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports	117	131	131	131	131	131
Total Local Supplies	4,357	4,386	4,400	4,415	4,430	4,445

Net Demand On Metropolitan						
Consumptive Use	19,467	22,412	23,396	24,423	25,495	26,613
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	19,467	22,412	23,396	24,423	25,495	26,613

2010 UWMP MWD Firm Demands	23,951	22,034	22,787	23,504	24,190	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	23,951	22,034	22,787	23,504	24,190	
2015 UWMP vs. 2010 UWMP, Percent		102%	103%	104%	105%	

2015 MWD Sales Model 25 IRP Consumptive	21,435	24,088	23,820	23,550	23,322	23,043
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	21,435	24,088	23,820	23,550	23,322	23,043
2015 MA UWMP vs. MWD T-25 IRP		93%	98%	104%	109%	115%
AF, MWD IRP T25 less MA UWMP		1,676	424	(873)	(2,173)	(3,570)

2015 UWMP Data Locations:
Table 4-5, Page 4-4
Tables 4-11 to 4-13, Pages 4-13 and 4-14

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

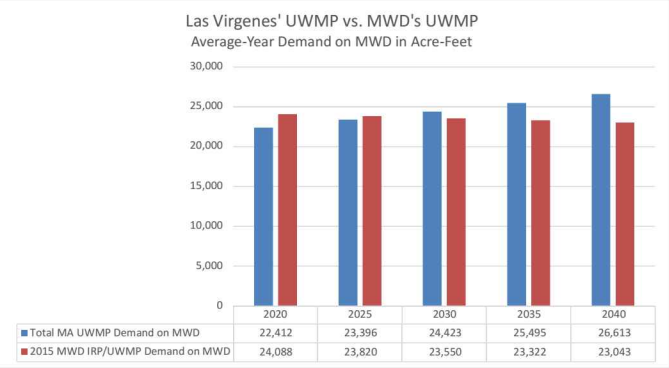
Las Virgenes

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	68,766	71,768	74,901	78,170	81,582	85,144
Total Demand						
Retail M&I	23,825	29,052	30,149	31,294	32,487	33,733
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	23,825	29,052	30,149	31,294	32,487	33,733

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	4,240	4,255	4,269	4,284	4,299	4,314
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports	117	144	144	144	144	144
Total Local Supplies	4,357	4,399	4,413	4,428	4,443	4,458

Net Demand On Metropolitan						
Consumptive Use	19,467	24,653	25,736	26,865	28,044	29,275
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	19,467	24,653	25,736	26,865	28,044	29,275

2010 UWMP MWD Firm Demands	28,231	25,971	26,858	27,704	28,512	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	28,231	25,971	26,858	27,704	28,512	
2015 UWMP vs. 2010 UWMP, Percent		95%	96%	97%	98%	



UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Las Virgenes

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection		71,768	74,901	78,170	81,582	85,144
Total Demand						
Retail M&I	23,825	29,954	31,090	32,276	33,512	34,803
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	23,825	29,954	31,090	32,276	33,512	34,803

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	4,240	4,255	4,269	4,284	4,299	4,314
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports	117	150	150	150	150	150
Total Local Supplies	4,357	4,405	4,419	4,434	4,449	4,464

Net Demand On Metropolitan						
Consumptive Use	19,467	25,550	26,671	27,842	29,064	30,339
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	19,467	25,550	26,671	27,842	29,064	30,339

2010 UWMP MWD Firm Demands	27,327	26,326	27,197	28,027	28,845	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	27,327	26,326	27,197	28,027	28,845	
2015 UWMP vs. 2010 UWMP, Percent		97%	98%	99%	101%	

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Long Beach

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	481,784	492,689	504,600	525,221	537,728	549,920
Total Demand						
Retail M&I	59,582	63,643	63,410	63,454	63,609	64,137
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	59,582	63,643	63,410	63,454	63,609	64,137

Local Supplies						
Groundwater Production	32,693	33,001	33,501	34,001	34,501	35,001
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling- Unused	4,515	4,467	4,410	4,337	4,252	4,159
Recycling - M&I Use Only	4,675	4,723	4,780	4,853	4,938	5,031
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	41,883	42,191	42,691	43,191	43,691	44,191

Net Demand On Metropolitan						
Consumptive Use	35,100	25,919	25,129	24,600	24,170	24,105
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	35,100	25,919	25,129	24,600	24,170	24,105

2010 UWMP MWD Firm Demands	24,520	24,046	18,551	17,477	11,929	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	24,520	24,046	18,551	17,477	11,929	
2015 UWMP vs. 2010 UWMP, Percent	108%	135%	141%	203%		

2015 MWD Sales Model 25 IRP Consumptive	26,373	30,220	29,930	29,901	29,971	30,406
Seawater Barrier	3,426					
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	29,799	30,220	29,930	29,901	29,971	30,406
2015 MA UWMP vs. MWD T-25 IRP	86%	84%	82%	81%	79%	
AF, MWD IRP T25 less MA UWMP	4,301	4,801	5,301	5,801	6,301	

2015 UWMP Data Locations:

Table 12, Page 51

Table 13, Page 58

Assume LB uses all available GW and recycled water per Table 6-4 (page 84), then purchases imported (see Section 6.9.1, p 51)

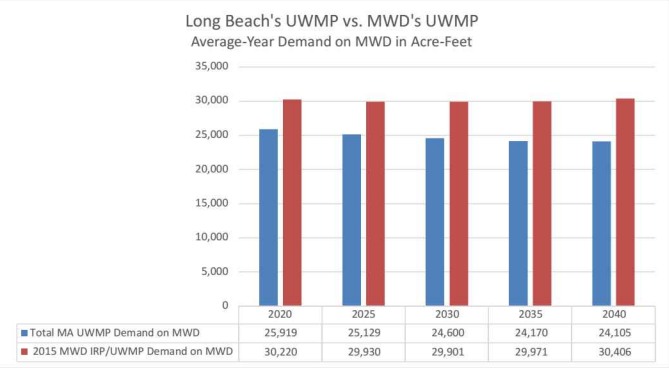
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Long Beach

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	481,784	492,689	504,600	525,221	537,728	549,920
Total Demand						
Retail M&I		63,643	63,410	63,454	63,609	64,137
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	63,643	63,410	63,454	63,609	64,137

Local Supplies						
Groundwater Production	32,693	33,001	33,501	34,001	34,501	35,001
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling- Unused	4,515	4,467	4,410	4,337	4,252	4,159
Recycling - M&I Use Only	4,675	4,723	4,780	4,853	4,938	5,031
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	41,883	42,191	42,691	43,191	43,691	44,191

Net Demand On Metropolitan						
Consumptive Use		25,919	25,129	24,600	24,170	24,105
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	25,919	25,129	24,600	24,170	24,105

2010 UWMP MWD Firm Demands	24,520	24,046	18,551	17,477	11,929	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	24,520	24,046	18,551	17,477	11,929	
2015 UWMP vs. 2010 UWMP, Percent	108%	135%	141%	203%		



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Long Beach

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	481,784	492,689	504,600	525,221	537,728	549,920
Total Demand						
Retail M&I		63,643	63,410	63,454	63,609	64,137
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	63,643	63,410	63,454	63,609	64,137

Local Supplies						
Groundwater Production	32,693	33,001	33,501	34,001	34,501	35,001
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling- Unused	4,515	4,467	4,410	4,337	4,252	4,159
Recycling - M&I Use Only	4,675	4,723	4,780	4,853	4,938	5,031
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	41,883	42,191	42,691	43,191	43,691	44,191

Net Demand On Metropolitan						
Consumptive Use		25,919	25,129	24,600	24,170	24,105
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	25,919	25,129	24,600	24,170	24,105

2010 UWMP MWD Firm Demands	24,520	24,046	18,551	17,477	11,929	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	24,520	24,046	18,551	17,477	11,929	
2015 UWMP vs. 2010 UWMP, Percent	108%	135%	141%	203%		

3/14/2017

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Los Angeles

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	3,990,000	4,026,891	4,168,131	4,210,042	4,351,408	4,441,545

Total Demand-pLAn						
Retail M&I		485,600	533,000	540,100	551,100	565,600
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	485,600	533,000	540,100	551,100	565,600
pLAn Targets shown						
Local Supplies						
Groundwater Production		112,670	110,670	106,670	114,670	114,070
Surface Production						
Other-LAA		275,700	293,400	291,000	288,600	286,200
Seawater Desalination						
Groundwater Recovery	-	30,000	30,000	30,000	30,000	30,000
Recycling						
Recycling - M&I	19,800	29,000	39,000	42,200	45,400	
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater	2,400	4,800	9,200	16,600	17,000	
Other Non-Metropolitan Imports						
Total Local Supplies	-	410,570	467,870	475,870	492,070	492,670

Net Demand On Metropolitan						
Consumptive Use		75,430	65,930	65,430	60,630	74,930
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	75,430	65,930	65,430	60,630	74,930

2010 UWMP MWD Firm Demands	248,120	218,040	193,760	198,781	193,027	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	248,120	218,040	193,760	198,781	193,027	
2015 UWMP vs. 2010 UWMP, Percent		35%	34%	33%	31%	

2015 MWD Sales Model 25 IRP Consumptive	417,749	225,617	221,137	225,450	238,551	246,622
Seawater Barrier	3,000	2,402	2,050	2,050	2,050	2,050
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	420,749	228,019	223,187	227,500	240,601	248,672
2015 MA UWMP vs. MWD T-25 IRP		33%	30%	29%	25%	30%
AF, MWD IRP T25 less MA UWMP		152,589	157,257	162,070	179,971	173,742

2015 UWMP Data Locations:
Exhibits 11F to 11H, Pages 11-11 to 11-13

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

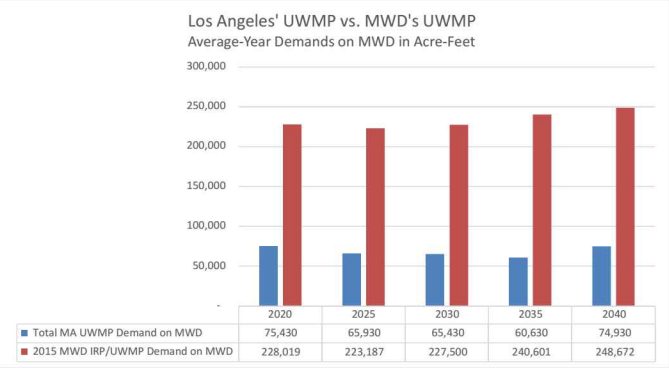
Los Angeles

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	3,990,000	4,026,891	4,168,131	4,210,042	4,351,408	4,441,545

Total Demand-pLAn						
Retail M&I		485,600	533,000	540,100	551,100	565,600
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	485,600	533,000	540,100	551,100	565,600
pLAn Targets shown						
Local Supplies						
Groundwater Production		112,670	110,670	106,670	114,670	114,070
Surface Production						
Other-LAA		32,200	51,900	51,400	51,000	50,600
Seawater Desalination						
Groundwater Recovery	-	30,000	30,000	30,000	30,000	30,000
Recycling						
Recycling - M&I	19,800	29,000	39,000	42,200	45,400	
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater	2,100	4,200	8,300	15,300	15,400	
Other Non-Metropolitan Imports						
Total Local Supplies	-	166,770	225,770	235,370	253,170	255,470

Net Demand On Metropolitan						
Consumptive Use		318,930	307,430	305,030	298,230	310,530
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	318,930	307,430	305,030	298,230	310,530

2010 UWMP MWD Firm Demands	488,500	459,020	434,540	439,451	432,687	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	488,500	459,020	434,540	439,451	432,687	
2015 UWMP vs. 2010 UWMP, Percent		69%	71%	69%	69%	



UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Los Angeles

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	3,990,000	4,026,891	4,168,131	4,210,042	4,351,408	4,441,545

Total Demand-pLAn						
Retail M&I		485,600	533,000	540,100	551,100	565,600
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	485,600	533,000	540,100	551,100	565,600
pLAn Targets shown						
Local Supplies						
Groundwater Production		112,670	110,670	106,670	114,670	114,070
Surface Production						
Other-LAA		33,500	53,200	52,800	52,400	51,900
Seawater Desalination						
Groundwater Recovery	-	30,000	30,000	30,000	30,000	30,000
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater	2,000	4,000	8,000	15,000	15,000	
Other Non-Metropolitan Imports						
Total Local Supplies	-	148,170	197,870	197,470	212,070	210,970

Net Demand On Metropolitan						
Consumptive Use		317,630	306,130	303,630	296,830	309,230
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	317,630	306,130	303,630	296,830	309,230

2010 UWMP MWD Firm Demands	406,650	375,370	349,490	353,010	345,457	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	406,650	375,370	349,490	353,010	345,457	
2015 UWMP vs. 2010 UWMP, Percent		85%	88%	86%	86%	

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
MWDOC

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	2,302,578	2,409,256	2,470,451	2,505,284	2,527,230	2,533,088
Total Demand						
Retail M&I	432,276	410,573	442,271	444,736	443,172	443,119
Retail Agriculture						
Seawater Barrier						
Replenishment	66,844	72,306	72,306	72,306	72,306	72,306
Total Demand	499,120	482,879	514,577	517,042	515,478	515,425

Local Supplies						
Groundwater Production	222,439	223,332	234,860	235,987	235,915	236,142
Surface Production	9,893	5,000	5,000	5,000	5,000	5,000
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	41,280	49,415	58,157	63,546	66,344	66,842
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	273,612	277,747	298,017	304,533	307,259	307,984

Net Demand On Metropolitan						
Consumptive Use	158,664	132,826	144,254	140,203	135,913	135,135
Seawater Barrier						
Replenishment-GW (65,000) and Surface	66,844	72,306	72,306	72,306	72,306	72,306
Total MA UWMP Demand on MWD	225,508	205,132	216,560	212,509	208,219	207,441

2010 UWMP MWD Firm Demands	225,697	234,454	243,853	247,545	250,519	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	225,697	234,454	243,853	247,545	250,519	
2015 UWMP vs. 2010 UWMP, Percent		87%	89%	86%	83%	

2015 MWD Sales Model 25 IRP Consumptive	119,374	159,643	164,195	162,828	158,853	164,494
Seawater Barrier						
Replenishment Demands	65,000	65,000	65,000	65,000	65,000	65,000
2015 MWD IRP/UWMP Demand on MWD	184,374	224,643	229,195	227,828	223,853	229,494
2015 MA UWMP vs. MWD T-25 IRP		91%	94%	93%	93%	90%
AF, MWD IRP T25 less MA UWMP		19,511	12,635	15,319	15,634	22,053

2015 UWMP Data Locations:
Tables 2-3 and 2-4, Page 2-8
Tables 3-13 to 3-15, Pages 3-48 to 3-49

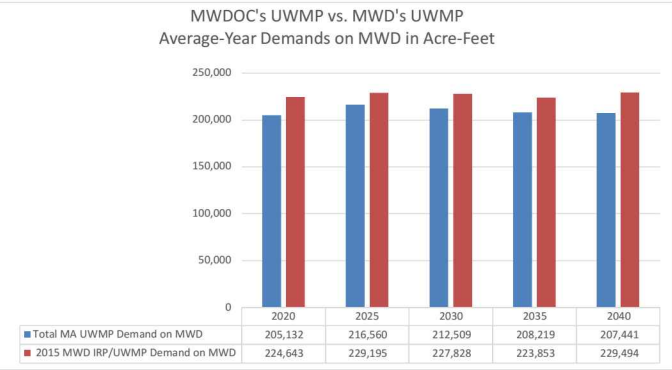
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
MWDOC

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	2,302,578	2,409,256	2,470,451	2,505,284	2,527,230	2,533,088
Total Demand						
Retail M&I		418,543	450,926	453,148	451,327	451,227
Retail Agriculture						
Seawater Barrier						
Replenishment		72,744	72,744	72,744	72,744	72,744
Total Demand	-	491,287	523,670	525,892	524,071	523,971

Local Supplies						
Groundwater Production	223,332	234,860	235,987	235,915	236,142	
Surface Production	5,000	5,000	5,000	5,000	5,000	
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	49,415	58,157	63,546	66,344	66,842	
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	277,747	298,017	304,533	307,259	307,984

Net Demand On Metropolitan						
Consumptive Use		140,796	152,909	148,615	144,068	143,243
Seawater Barrier						
Replenishment-GW (65,000) and Surface		72,744	72,744	72,744	72,744	72,744
Total MA UWMP Demand on MWD	-	213,540	225,653	221,359	216,812	215,987

2010 UWMP MWD Firm Demands	260,445	270,277	280,695	284,749	288,005	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	260,445	270,277	280,695	284,749	288,005	
2015 UWMP vs. 2010 UWMP, Percent		79%	80%	78%	75%	



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
MWDOC

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	2,302,578	2,409,256	2,470,451	2,505,284	2,527,230	2,533,088
Total Demand						
Retail M&I		418,543	450,926	453,148	451,327	451,227
Retail Agriculture						
Seawater Barrier						
Replenishment		72,744	72,744	72,744	72,744	72,744
Total Demand	-	491,287	523,670	525,892	524,071	523,971

Local Supplies						
Groundwater Production	223,332	234,860	235,987	235,915	236,142	
Surface Production	5,000	5,000	5,000	5,000	5,000	
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	49,415	58,157	63,546	66,344	66,842	
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	277,747	298,017	304,533	307,259	307,984

Net Demand On Metropolitan						
Consumptive Use		140,796	152,909	148,615	144,068	143,243
Seawater Barrier						
Replenishment-GW (65,000) and Surface		72,744	72,744	72,744	72,744	72,744
Total MA UWMP Demand on MWD	-	213,540	225,653	221,359	216,812	215,987

2010 UWMP MWD Firm Demands	260,445	270,277	280,695	284,749	288,005	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	260,445	270,277	280,695	284,749	288,005	
2015 UWMP vs. 2010 UWMP, Percent		79%	80%	78%	75%	

Assumed local supplies are same as average year

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Pasadena

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	165,282	169,493	173,508	181,466	185,702	189,927
Total Demand						
Retail M&I		32,586	32,611	32,719	32,891	33,000
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	32,586	32,611	32,719	32,891	33,000

Local Supplies						
Groundwater Production		12,684	12,684	12,684	12,684	12,684
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		700	1,100	3,210	3,600	3,990
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	13,384	13,784	15,894	16,284	16,674

Net Demand On Metropolitan						
Consumptive Use		19,202	18,827	16,825	16,607	16,326
Seawater Barrier						
Replenishment		1,732	2,159	4,412	4,922	5,291
Total MA UWMP Demand on MWD	-	20,934	20,986	21,237	21,529	21,617

2010 UWMP MWD Firm Demands		23,626	21,149	21,149	21,149	21,149
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		23,626	21,149	21,149	21,149	21,149
2015 UWMP vs. 2010 UWMP, Percent		99%	99%	100%	102%	

2015 MWD Sales Model 25 IRP Consumptive	18,737	20,934	20,986	21,237	21,529	21,617
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	18,737	20,934	20,986	21,237	21,529	21,617
2015 MA UWMP vs. MWD T-25 IRP		100%	100%	100%	100%	100%
AF, MWD IRP T25 less MA UWMP	-	-	-	-	-	-

2015 UWMP Data Locations:
Tables 6-1 to 6-3, Pages 6-4 and 6-5

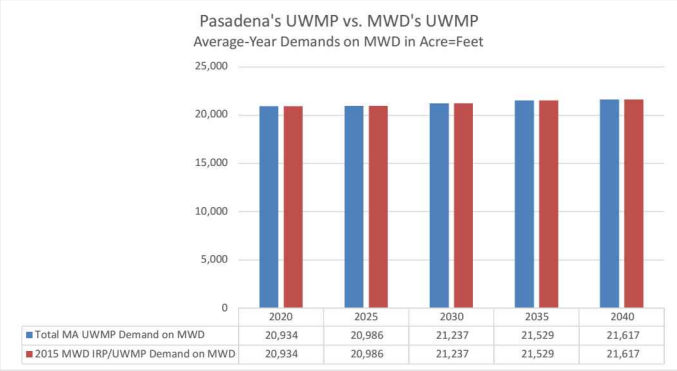
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Pasadena

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	165,282	169,493	173,508	181,466	185,702	189,927
Total Demand						
Retail M&I		32,586	32,611	32,719	32,891	33,000
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	32,586	32,611	32,719	32,891	33,000

Local Supplies						
Groundwater Production		10,964	10,964	10,964	10,964	10,964
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		700	1,100	3,210	3,600	3,990
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	11,664	12,064	14,174	14,564	14,954

Net Demand On Metropolitan						
Consumptive Use		20,922	20,547	18,545	18,327	18,046
Seawater Barrier						
Replenishment		12	439	2,692	3,202	3,571
Total MA UWMP Demand on MWD	-	20,934	20,986	21,237	21,529	21,617

2010 UWMP MWD Firm Demands		25,346	20,306	20,306	20,306	20,306
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		25,346	20,306	20,306	20,306	20,306
2015 UWMP vs. 2010 UWMP, Percent		103%	103%	105%	106%	



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Pasadena

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	165,282	169,493	173,508	181,466	185,702	189,927
Total Demand						
Retail M&I		32,586	32,611	32,719	32,891	33,000
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	32,586	32,611	32,719	32,891	33,000

Local Supplies						
Groundwater Production		10,964	10,964	10,964	10,964	10,964
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		700	1,100	3,210	3,600	3,990
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	11,664	12,064	14,174	14,564	14,954

Net Demand On Metropolitan						
Consumptive Use		20,922	20,547	18,545	18,327	18,046
Seawater Barrier						
Replenishment		12	439	2,692	3,202	3,571
Total MA UWMP Demand on MWD	-	20,934	20,986	21,237	21,529	21,617

2010 UWMP MWD Firm Demands		25,406	18,086	18,086	18,086	18,086
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		25,406	18,086	18,086	18,086	18,086
2015 UWMP vs. 2010 UWMP, Percent		116%	116%	117%	119%	

3/14/2017

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

SDCWA

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection		3,340,594	3,495,978	3,630,542	3,745,684	3,825,041
Total Demand						
Retail M&I		534,620	596,745	626,824	645,971	671,559
Retail Agriculture		52,961	51,379	49,897	48,460	47,214
Seawater Barrier Replenishment						
Total Demand	-	587,581	648,124	676,721	694,431	718,773

Local Supplies						
Groundwater Production		17,940	19,130	20,170	20,170	20,170
Surface Production		51,580	51,480	51,380	51,280	51,180
Other-Potable Reuse		3,300	3,300	3,300	3,300	3,300
Seawater Desalination		56,000	56,000	56,000	56,000	56,000
Groundwater Recovery		12,100	12,500	12,500	12,500	12,500
Recycling						
Recycling - M&I		40,459	43,674	45,758	46,118	46,858
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports		270,200	280,200	280,200	280,200	280,200
Total Local Supplies	-	451,579	466,284	469,308	469,568	470,208

Net Demand On Metropolitan						
Consumptive Use			136,002	181,840	207,413	224,863
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	136,002	181,840	207,413	224,863	248,565

2010 UWMP MWD Firm Demands		358,189	230,601	259,694	293,239	323,838	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		358,189	230,601	259,694	293,239	323,838	
2015 UWMP vs. 2010 UWMP, Percent		59%	70%	71%	69%		

2015 MWD Sales Model 25 IRP Consumptive	316,951	202,917	218,570	225,466	236,070	240,474
Seawater Barrier						
Replenishment Demands	34,000					
2015 MWD IRP/UWMP Demand on MWD	350,951	202,917	218,570	225,466	236,070	240,474
2015 MA UWMP vs. MWD T-25 IRP		67%	83%	92%	95%	103%
AF, MWD IRP T25 less MA UWMP		66,915	36,730	18,053	11,207	(8,091)

2015 UWMP Data Locations:

Tables 9-1 to 9-7, Pages 9-2 to 9-7

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

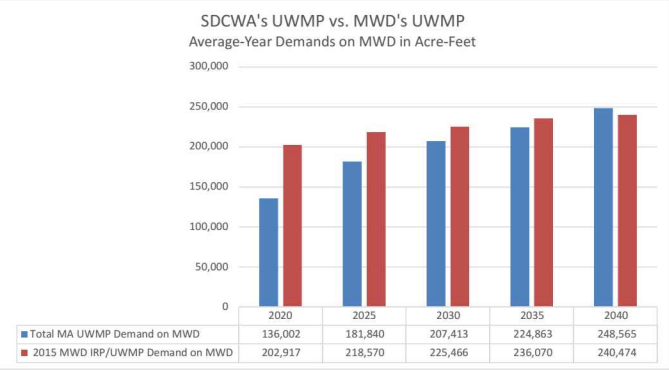
SDCWA

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	-	3,340,594	3,495,978	3,630,542	3,745,684	3,825,041
Total Demand						
Retail M&I		576,237	642,768	675,109	695,530	723,551
Retail Agriculture		52,961	51,379	49,897	48,460	47,214
Seawater Barrier Replenishment						
Total Demand	-	629,198	694,147	725,006	743,990	770,765

Local Supplies						
Groundwater Production		15,281	15,281	15,281	15,281	15,281
Surface Production		6,004	6,004	6,004	6,004	6,004
Other-Potable Reuse		3,300	3,300	3,300	3,300	3,300
Seawater Desalination		56,000	56,000	56,000	56,000	56,000
Groundwater Recovery		12,100	12,500	12,500	12,500	12,500
Recycling						
Recycling - M&I		40,459	43,674	45,758	46,118	46,858
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports		270,200	280,200	280,200	280,200	280,200
Total Local Supplies	-	403,344	416,959	419,043	419,403	420,143

Net Demand On Metropolitan						
Consumptive Use			263,340	264,740	263,340	260,680
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	263,340	264,740	263,340	260,680	258,720

2010 UWMP MWD Firm Demands		430,431	305,101	338,501	376,023	409,389	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		430,431	305,101	338,501	376,023	409,389	
2015 UWMP vs. 2010 UWMP, Percent		86%	78%	70%	64%		



UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

SDCWA

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	-	3,340,594	3,495,978	3,630,542	3,745,684	3,825,041
Total Demand						
Retail M&I		500,869	653,815	713,963	742,969	764,086
Retail Agriculture						
Seawater Barrier Replenishment						
Total Demand	-	500,869	653,815	713,963	742,969	764,086

Local Supplies						
Groundwater Production		15,281	15,281	15,281	15,281	15,281
Surface Production		6,004	6,004	6,004	6,004	6,004
Other-Potable Reuse		3,300	3,300	3,300	3,300	3,300
Seawater Desalination		56,000	56,000	56,000	56,000	56,000
Groundwater Recovery		12,100	12,500	12,500	12,500	12,500
Recycling						
Recycling - M&I		40,459	43,674	45,758	46,118	46,858
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports		270,200	280,200	280,200	280,200	280,200
Total Local Supplies	-	403,344	416,959	419,043	419,403	420,143

Net Demand On Metropolitan						
Consumptive Use			225,120	226,680	226,440	224,280
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	225,120	226,680	226,440	224,280	222,480

2010 UWMP MWD Firm Demands		320,456	324,100	328,695	334,532	341,486	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		320,456	324,100	328,695	334,532	341,486	
2015 UWMP vs. 2010 UWMP, Percent		69%	69%	68%	66%		

2020 is 2019 in UWMP

2025 is 2023 in UWMP

2030 is 2028 in UWMP

2035 is 2033 in UWMP

2040 is 2038 in UWMP

Assumed same local supplies as single dry year

3/14/2017

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

San Fernando

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	24,560	25,003	25,456	25,917	26,387	26,865
Total Demand						
Retail M&I	2,768	3,753	3,821	3,890	3,961	4,032
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	2,768	3,753	3,821	3,890	3,961	4,032

Local Supplies						
Groundwater Production	2,768	3,570	3,570	3,570	3,750	3,570
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	2,768	3,570	3,570	3,570	3,750	3,570

Net Demand On Metropolitan						
Consumptive Use		-	183	251	320	211
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		-	183	251	320	211

2010 UWMP MWD Firm Demands		252	307	362	419	476	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		252	307	362	419	476	
2015 UWMP vs. 2010 UWMP, Percent		60%	69%	76%	44%		

2015 MWD Sales Model 25 IRP Consumptive		-	75	59	44	36	32
Seawater Barrier							
Replenishment Demands							
2015 MWD IRP/UWMP Demand on MWD		-	75	59	44	36	32
2015 MA UWMP vs. MWD T-25 IRP		244%	425%	727%	586%	1444%	
AF, MWD IRP T25 less MA UWMP			(108)	(192)	(276)	(175)	(430)

2015 UWMP Data Locations:
Tables 5.1 to 5.9, Pages 5-9 to 5-17

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

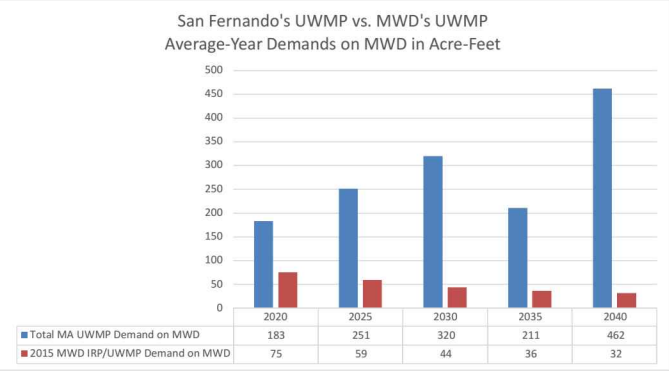
San Fernando

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	24,560	25,003	25,456	25,917	26,387	26,865
Total Demand						
Retail M&I						
Retail Agriculture		3,979	4,052	4,125	4,200	4,276
Seawater Barrier						
Replenishment						
Total Demand	-	3,979	4,052	4,125	4,200	4,276

Local Supplies						
Groundwater Production		3,570	3,570	3,570	3,570	3,570
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	3,570	3,570	3,570	3,570	3,570

Net Demand On Metropolitan						
Consumptive Use			409	482	555	630
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		-	409	482	555	630

2010 UWMP MWD Firm Demands		471	529	588	648	709	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		471	529	588	648	709	
2015 UWMP vs. 2010 UWMP, Percent		77%	82%	86%	89%		



UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

San Fernando

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	24,560	25,003	25,456	25,917	26,387	26,865
Total Demand						
Retail M&I		3,866	3,936	4,007	4,080	4,154
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	3,866	3,936	4,007	4,080	4,154

Local Supplies						
Groundwater Production		3,570	3,570	3,570	3,570	3,570
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	3,570	3,570	3,570	3,570	3,570

Net Demand On Metropolitan						
Consumptive Use			296	366	437	510
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		-	296	366	437	510

2010 UWMP MWD Firm Demands		482	541	600	660	721	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		482	541	600	660	721	
2015 UWMP vs. 2010 UWMP, Percent		55%	61%	66%	71%		

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
San Marino

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	54,979	55,947	57,161	58,400	59,667	59,667
Total Demand						
Retail M&I	9,078	11,639	11,961	12,267	12,588	12,588
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	9,078	11,639	11,961	12,267	12,588	12,588

Local Supplies						
Groundwater Production	8,106	10,197	10,519	10,825	11,146	11,146
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	8,106	10,197	10,519	10,825	11,146	11,146

Net Demand On Metropolitan						
Consumptive Use		972	1,442	1,442	1,442	1,442
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		972	1,442	1,442	1,442	1,442

2010 UWMP MWD Firm Demands		1,054	1,054	1,054	1,054	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		1,054	1,054	1,054	1,054	
2015 UWMP vs. 2010 UWMP, Percent		137%	137%	137%	137%	

2015 MWD Sales Model 25 IRP Consumptive	722	895	782	670	552	447
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	722	895	782	670	552	447
2015 MA UWMP vs. MWD T-25 IRP		161%	184%	215%	261%	323%
AF, MWD IRP T25 less MA UWMP		(547)	(660)	(772)	(890)	(995)

2015 UWMP Data Locations:
Table 5-1, Page 5-2

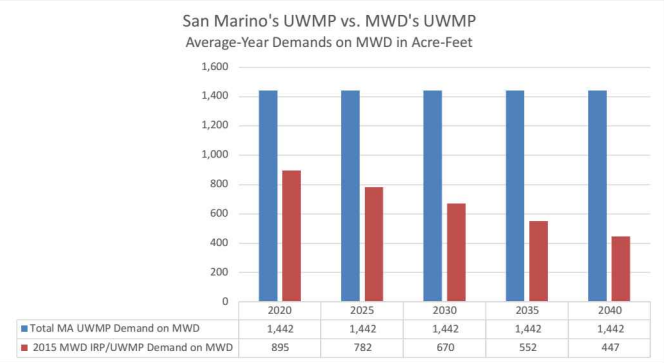
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
San Marino

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	54,979	55,947	57,161	58,400	59,667	59,667
Total Demand						
Retail M&I	9,078	11,639	11,961	12,267	12,588	12,588
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	9,078	11,639	11,961	12,267	12,588	12,588

Local Supplies						
Groundwater Production	8,106	10,197	10,519	10,825	11,146	11,146
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	8,106	10,197	10,519	10,825	11,146	11,146

Net Demand On Metropolitan						
Consumptive Use		972	1,442	1,442	1,442	1,442
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		972	1,442	1,442	1,442	1,442

2010 UWMP MWD Firm Demands		1,054	1,054	1,054	1,054	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		1,054	1,054	1,054	1,054	
2015 UWMP vs. 2010 UWMP, Percent		137%	137%	137%	137%	



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
San Marino

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	54,979	55,947	57,161	58,400	59,667	59,667
Total Demand						
Retail M&I	9,078	11,639	11,961	12,267	12,588	12,588
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	9,078	11,639	11,961	12,267	12,588	12,588

Local Supplies						
Groundwater Production	8,106	10,197	10,519	10,825	11,146	11,146
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	8,106	10,197	10,519	10,825	11,146	11,146

Net Demand On Metropolitan						
Consumptive Use		972	1,442	1,442	1,442	1,442
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		972	1,442	1,442	1,442	1,442

2010 UWMP MWD Firm Demands		1,054	1,054	1,054	1,054	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		1,054	1,054	1,054	1,054	
2015 UWMP vs. 2010 UWMP, Percent		137%	137%	137%	137%	

3/14/2017

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Santa Ana

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	335,299	336,975	338,660	340,354	342,055	343,766
Total Demand						
Retail M&I	37,007	36,998	39,171	39,989	39,978	40,036
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	37,007	36,998	39,171	39,989	39,978	40,036
Local Supplies						
Groundwater Production		25,899	27,802	27,992	27,985	28,025
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		320	320	320	320	320
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	26,219	28,122	28,312	28,305	28,345
Net Demand On Metropolitan						
Consumptive Use		10,799	11,595	11,677	11,673	11,691
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	10,799	11,595	11,677	11,673	11,691

2010 UWMP MWD Firm Demands	18,050	18,278	18,544	18,772	19,038	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	18,050	18,278	18,544	18,772	19,038	
2015 UWMP vs. 2010 UWMP, Percent		59%	63%	62%	61%	

2015 MWD Sales Model 25 IRP Consumptive	8,912	11,366	10,601	10,294	9,494	9,112
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	8,912	11,366	10,601	10,294	9,494	9,112
2015 MA UWMP vs. MWD T-25 IRP		95%	109%	113%	123%	128%
AF, MWD IRP T25 less MA UWMP		567	(994)	(1,383)	(2,179)	(2,579)

2015 UWMP Data Locations:

Table 3-4, Page 3-15

Tables 3-5 to 3-8, Pages 3-20 to 3-22

UWMP Demand Forecast

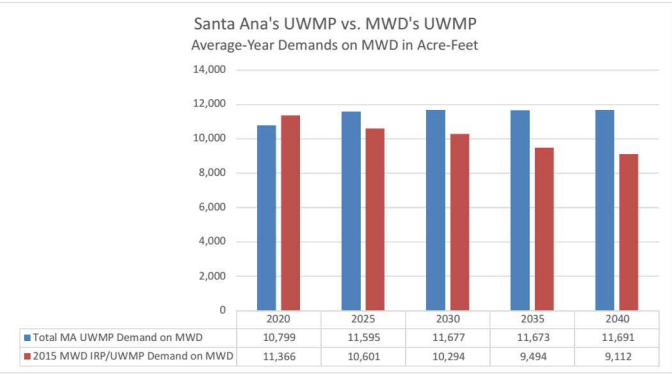
Note: All Data in Acre Feet

Member Agency:

Santa Ana

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	335,299	336,975	338,660	340,354	342,055	343,766
Total Demand						
Retail M&I	39,227	39,218	42,100	42,388	42,377	42,438
Retail Agriculture						
Seawater Barrier						
Replenishment	-	-	-	-	-	-
Total Demand	39,227	39,218	42,100	42,388	42,377	42,438
Local Supplies						
Groundwater Production	-	27,453	29,470	29,672	29,664	29,707
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		320	320	320	320	320
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	27,773	29,790	29,992	29,984	30,027
Net Demand On Metropolitan						
Consumptive Use		11,445	11,731	12,396	12,393	12,412
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	11,445	11,731	12,396	12,393	12,412

2010 UWMP MWD Firm Demands	19,172	19,416	19,701	19,946	20,231	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	19,172	19,416	19,701	19,946	20,231	
2015 UWMP vs. 2010 UWMP, Percent		59%	60%	62%	61%	



UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Santa Ana

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	335,299	336,975	338,660	340,354	342,055	343,766
Total Demand						
Retail M&I	39,227	39,218	42,100	42,388	42,377	42,438
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	39,227	39,218	42,100	42,388	42,377	42,438
Local Supplies						
Groundwater Production	-	27,453	29,470	29,672	29,664	29,707
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I	318	318	318	318	318	318
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	318	27,771	29,788	29,990	29,982	30,025
Net Demand On Metropolitan						
Consumptive Use		11,445	11,731	12,396	12,393	12,412
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	11,445	11,731	12,396	12,393	12,412

2010 UWMP MWD Firm Demands	19,172	19,416	19,701	19,946	20,231	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	19,172	19,416	19,701	19,946	20,231	
2015 UWMP vs. 2010 UWMP, Percent		59%	60%	62%	61%	

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Santa Monica

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	93,283	93,868	94,431	94,998	95,568	96,141
Total Demand						
Retail M&I		12,933	13,010	13,089	13,167	13,246
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	12,933	13,010	13,089	13,167	13,246

Local Supplies						
Groundwater Production		12,500	12,500	12,500	12,500	12,500
Surface Production						
Other-Recycled Dry Weather Urban Runoff		560	560	560	560	560
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	13,060	13,060	13,060	13,060	13,060

Net Demand On Metropolitan						
Consumptive Use			-	-	29	107
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		-	-	-	29	107

2010 UWMP MWD Firm Demands		4,143	-	-	-	-
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		4,143	-	-	-	-
2015 UWMP vs. 2010 UWMP, Percent			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

2015 MWD Sales Model 25 IRP Consumptive		5,080	5,397	5,096	4,929	4,777	4,675
Seawater Barrier							
Replenishment Demands							
2015 MWD IRP/UWMP Demand on MWD		5,080	5,397	5,096	4,929	4,777	4,675
2015 MA UWMP vs. MWD T-25 IRP			0%	0%	1%	2%	4%
AF, MWD IRP T25 less MA UWMP			5,397	5,096	4,900	4,670	4,489

2015 UWMP Data Locations:
Tables 5.1 to 5.9, Pages 5-12 to 5-20

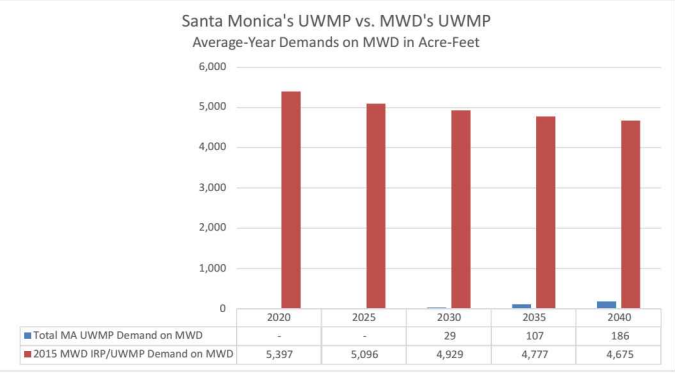
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Santa Monica

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	93,283	93,868	94,431	94,998	95,568	96,141
Total Demand						
Retail M&I		14,097	14,181	14,267	14,352	14,438
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	14,097	14,181	14,267	14,352	14,438

Local Supplies						
Groundwater Production		12,500	12,500	12,500	12,500	12,500
Surface Production						
Other-Recycled Dry Weather Urban Runoff		560	560	560	560	560
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	13,060	13,060	13,060	13,060	13,060

Net Demand On Metropolitan						
Consumptive Use			1,037	1,121	1,207	1,292
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		-	1,037	1,121	1,207	1,292

2010 UWMP MWD Firm Demands		4,453	-	-	-	-
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		4,453	-	-	-	-
2015 UWMP vs. 2010 UWMP, Percent			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



SM intends to have self sufficiency in water supplies

UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Santa Monica

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	93,283	93,868	94,431	94,998	95,568	96,141
Total Demand						
Retail M&I		13,838	13,922	14,005	14,090	14,174
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	13,838	13,922	14,005	14,090	14,174

Local Supplies						
Groundwater Production		12,500	12,400	12,500	12,500	12,500
Surface Production						
Other-Recycled Dry Weather Urban Runoff		560	560	560	560	560
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	13,060	12,960	13,060	13,060	13,060

Net Demand On Metropolitan						
Consumptive Use			778	962	945	1,030
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD		-	778	962	945	1,030

2010 UWMP MWD Firm Demands		4,540	-	-	-	-
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		4,540	-	-	-	-
2015 UWMP vs. 2010 UWMP, Percent			#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Three Valleys

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	525,000	546,000	567,800	590,600	614,200	638,700
Total Demand						
Retail M&I		127,720	128,221	129,605	130,751	133,190
Retail Agriculture		191	250	250	250	250
Seawater Barrier						
Replenishment		3,600	3,600	3,600	3,600	3,600
Total Demand	-	131,511	132,071	133,455	134,601	137,040

Local Supplies						
Groundwater Production		43,300	43,300	43,300	43,300	43,300
Surface Production		6,200	6,200	6,200	6,200	6,200
Other						
Seawater Desalination						
Groundwater Recovery		1,946	2,171	2,396	2,453	2,453
Recycling						
Recycling - M&I		7,063	8,055	8,896	9,630	10,172
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	58,509	59,726	60,792	61,583	62,125

Net Demand On Metropolitan						
Consumptive Use			69,402	68,745	69,063	69,418
Seawater Barrier						
Replenishment			3,600	3,600	3,600	3,600
Total MA UWMP Demand on MWD	-	73,002	72,345	72,663	73,018	74,915

2010 UWMP MWD Firm Demands		72,343	77,864	80,499	83,498	85,197
Seawater Barrier						
Replenishment Demands		5,000	6,000	6,000	6,000	6,000
2010 UWMP Total Demands		77,343	83,864	86,499	89,498	91,197
2015 UWMP vs. 2010 UWMP, Percent			87%	84%	81%	80%

2015 MWD Sales Model 25 IRP Consumptive		54,480	69,402	68,745	69,063	69,418
Seawater Barrier						
Replenishment Demands		3,600	3,600	3,600	3,600	3,600
2015 MWD IRP/UWMP Demand on MWD		58,080	73,002	72,345	72,663	73,018
2015 MA UWMP vs. MWD T-25 IRP			100%	100%	100%	100%
AF, MWD IRP T25 less MA UWMP		-	-	-	-	-

2015 UWMP Data Locations:
Tables 7-4 to 7-6, Pages 61-63

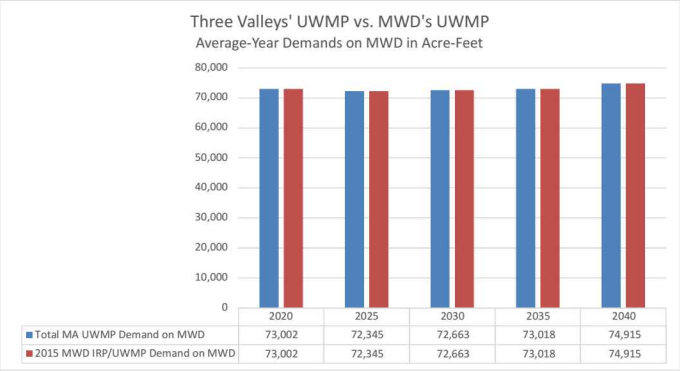
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Three Valleys

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	546,000	567,800	590,600	614,200	614,200	638,700
Total Demand						
Retail M&I		128,097	128,600	129,988	131,138	133,584
Retail Agriculture		192	251	251	251	251
Seawater Barrier						
Replenishment		3,600	3,600	3,600	3,600	3,600
Total Demand	-	131,889	132,451	133,839	134,989	137,435

Local Supplies						
Groundwater Production		43,300	43,300	43,300	43,300	43,300
Surface Production		6,200	6,200	6,200	6,200	6,200
Other						
Seawater Desalination						
Groundwater Recovery		1,946	2,171	2,396	2,453	2,453
Recycling						
Recycling - M&I		7,063	8,055	8,896	9,630	10,172
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	58,509	59,726	60,792	61,583	62,125

Net Demand On Metropolitan						
Consumptive Use			69,780	69,125	69,447	69,806
Seawater Barrier						
Replenishment			3,600	3,600	3,600	3,600
Total MA UWMP Demand on MWD	-	73,380	72,725	73,047	73,406	75,309

2010 UWMP MWD Firm Demands		72,888	78,435	81,084	84,097	85,806
Seawater Barrier						
Replenishment Demands		5,000	6,000	6,000	6,000	6,000
2010 UWMP Total Demands		77,888	84,435	87,084	90,097	91,806
2015 UWMP vs. 2010 UWMP, Percent			87%	84%	81%	80%



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Three Valleys

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	525,000	546,000	567,800	590,600	614,200	638,700
Total Demand						
Retail M&I		126,241	129,854	131,075	132,286	134,493
Retail Agriculture		183	241	253	253	253
Seawater Barrier						
Replenishment						
Total Demand	-	126,424	130,095	131,328	132,539	134,746

Local Supplies						
Groundwater Production		43,300	43,300	43,300	43,300	43,300
Surface Production		6,200	6,200	6,200	6,200	6,200
Other						
Seawater Desalination						
Groundwater Recovery		1,880	2,126	2,351	2,453	2,453
Recycling						
Recycling - M&I		6,963	7,857	8,738	9,483	10,081
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	58,343	59,483	60,589	61,436	62,034

Net Demand On Metropolitan						
Consumptive Use			68,081	70,612	70,740	71,103
Seawater Barrier						
Replenishment			3,600	3,600	3,600	3,600
Total MA UWMP Demand on MWD	-	71,681	74,212	74,340	74,703	76,312

2010 UWMP MWD Firm Demands		72,664	78,907	82,187	85,179	87,184
Seawater Barrier						
Replenishment Demands		5,000	6,000	6,000	6,000	6,000
2010 UWMP Total Demands		77,664	84,907	88,187	91,179	93,184
2015 UWMP vs. 2010 UWMP, Percent			84%	84%	82%	80%

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Torrance

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	105,400	108,217	111,237	114,341	117,532	120,812
Total Demand						
Retail M&I		24,893	25,415	25,951	26,500	27,063
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	24,893	25,415	25,951	26,500	27,063

Local Supplies						
Groundwater Production		5,640	5,640	5,640	5,640	5,640
Surface Production						
Other-Desalination		4,800	4,800	4,800	4,800	4,800
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		7,150	7,150	7,150	7,150	7,150
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	17,590	17,590	17,590	17,590	17,590

Net Demand On Metropolitan						
Consumptive Use		7,303	7,825	8,361	8,910	9,473
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	7,303	7,825	8,361	8,910	9,473

2010 UWMP MWD Firm Demands		12,328	12,842	13,369	13,910	14,464	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		12,328	12,842	13,369	13,910	14,464	
2015 UWMP vs. 2010 UWMP, Percent		57%	59%	60%	62%		

2015 MWD Sales Model 25 IRP Consumptive	15,349	17,296	16,797	16,423	16,006	15,684
Seawater Barrier						
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	15,349	17,296	16,797	16,423	16,006	15,684
2015 MA UWMP vs. MWD T-25 IRP		42%	47%	51%	56%	60%
AF, MWD IRP T25 less MA UWMP		9,993	8,972	8,062	7,096	6,211

2015 UWMP Data Locations:
Tables 5.3 to 5.9, Pages 5-12 to 5-18
MWD demand calculated as overall demand, less gw adjudication, less desal, less recycled
Torrance limits MWD take to T1 limit of 19,204 (if needed. See page 5-12)

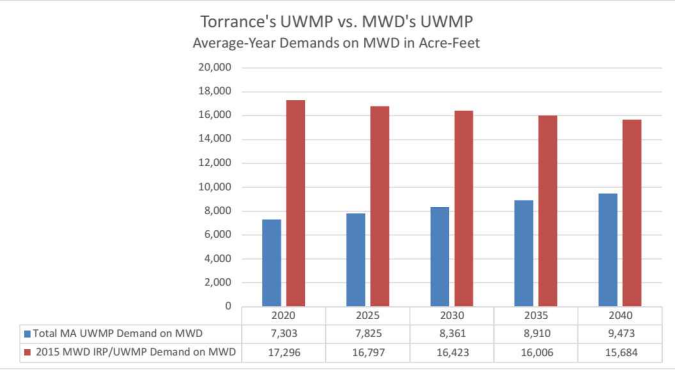
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Torrance

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	105,400	108,217	111,237	114,341	117,532	120,812
Total Demand						
Retail M&I		26,649	27,208	27,781	28,369	28,972
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	26,649	27,208	27,781	28,369	28,972

Local Supplies						
Groundwater Production		5,640	5,640	5,640	5,640	5,640
Surface Production						
Other-Desalination		4,800	4,800	4,800	4,800	4,800
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		7,150	7,150	7,150	7,150	7,150
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	17,590	17,590	17,590	17,590	17,590

Net Demand On Metropolitan						
Consumptive Use		9,059	9,618	10,191	10,779	11,382
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	9,059	9,618	10,191	10,779	11,382

2010 UWMP MWD Firm Demands		13,957	14,512	15,082	15,666	16,264	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		13,957	14,512	15,082	15,666	16,264	
2015 UWMP vs. 2010 UWMP, Percent		62%	64%	65%	66%		



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Torrance

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	105,400	108,217	111,237	114,341	117,532	120,812
Total Demand						
Retail M&I		27,009	27,576	28,158	28,753	29,364
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	27,009	27,576	28,158	28,753	29,364

Local Supplies						
Groundwater Production		5,640	5,640	5,640	5,640	5,640
Surface Production						
Other-Desalination		4,800	4,800	4,800	4,800	4,800
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I		7,150	7,150	7,150	7,150	7,150
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	17,590	17,590	17,590	17,590	17,590

Net Demand On Metropolitan						
Consumptive Use		9,419	9,986	10,568	11,163	11,774
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	9,419	9,986	10,568	11,163	11,774

2010 UWMP MWD Firm Demands		13,753	14,303	14,868	15,446	16,039	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		13,753	14,303	14,868	15,446	16,039	
2015 UWMP vs. 2010 UWMP, Percent		66%	67%	68%	70%		

3/14/2017

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Upper San Gabriel Valley

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	865,598	878,904	895,073	926,489	943,758	961,998
Total Demand						
Retail M&I		56,821	56,086	55,261	55,228	55,083
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	56,821	56,086	55,261	55,228	55,083

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment		13,385	13,735	13,820	13,940	14,180
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	13,385	13,735	13,820	13,940	14,180

Net Demand On Metropolitan						
Consumptive Use		11,436	10,351	9,441	9,288	8,903
Seawater Barrier						
Replenishment		32,000	32,000	32,000	32,000	32,000
Total MA UWMP Demand on MWD	-	43,436	42,351	41,441	41,288	40,903

2010 UWMP MWD Firm Demands		3,000	3,000	3,000	3,000	
Seawater Barrier						
Replenishment Demands		25,000	16,000	19,000	23,000	
2010 UWMP Total Demands		28,000	19,000	22,000	26,000	
2015 UWMP vs. 2010 UWMP, Percent		229%	193%	159%	159%	

2015 MWD Sales Model 25 IRP Consumptive	-	11,436	10,351	9,441	9,288	8,903
Seawater Barrier						
Replenishment Demands	42,000	42,000	42,000	42,000	42,000	42,000
2015 MWD IRP/UWMP Demand on MWD	42,000	53,436	52,351	51,441	51,288	50,903
2015 MA UWMP vs. MWD T-25 IRP		81%	81%	81%	81%	80%
AF, MWD IRP T25 less MA UWMP		10,000	10,000	10,000	10,000	10,000
2015 UWMP Data Locations:						
Data Tables 4-2, 4-3,7-2,7-3,7-4						

UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

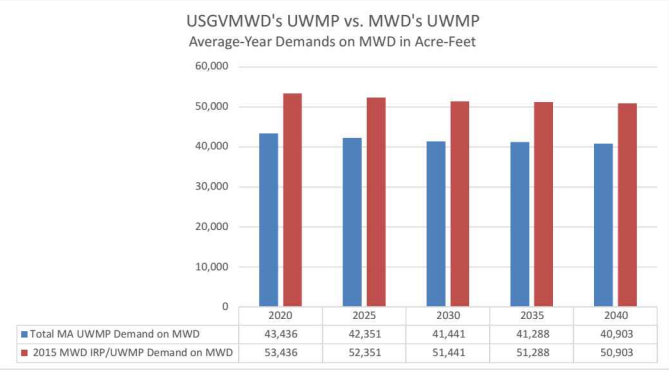
Upper San Gabriel Valley

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	865,598	878,904	895,073	926,489	943,758	961,998
Total Demand						
Retail M&I		63,121	62,993	62,440	62,683	62,675
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	63,121	62,993	62,440	62,683	62,675

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment		13,385	13,735	13,820	13,940	14,180
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	13,385	13,735	13,820	13,940	14,180

Net Demand On Metropolitan						
Consumptive Use		17,736	17,258	16,620	16,743	16,495
Seawater Barrier						
Replenishment		32,000	32,000	32,000	32,000	32,000
Total MA UWMP Demand on MWD	-	49,736	49,258	48,620	48,743	48,495

2010 UWMP MWD Firm Demands		28,000	19,000	22,000	26,000	26,000
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		28,000	19,000	22,000	26,000	26,000
2015 UWMP vs. 2010 UWMP, Percent		262%	224%	187%	187%	



UWMP Demand Forecast

Note: All Data in Acre Feet

Member Agency:

Upper San Gabriel Valley

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	865,598	878,904	895,073	926,489	943,758	961,998
Total Demand						
Retail M&I		60,893	64,759	64,339	64,429	64,470
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	60,893	64,759	64,339	64,429	64,470

Local Supplies						
Groundwater Production						
Surface Production						
Other						
Seawater Desalination						
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment		13,385	13,735	13,820	13,940	14,180
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	13,385	13,735	13,820	13,940	14,180

Net Demand On Metropolitan						
Consumptive Use		15,508	19,024	18,519	18,489	18,290
Seawater Barrier						
Replenishment		32,000	32,000	32,000	32,000	32,000
Total MA UWMP Demand on MWD	-	47,508	51,024	50,519	50,489	50,290

2010 UWMP MWD Firm Demands		28,000	19,000	22,000	26,000	26,000
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands		28,000	19,000	22,000	26,000	26,000
2015 UWMP vs. 2010 UWMP, Percent		250%	232%	194%	194%	

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
West Basin

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	813,000	823,886	837,059	864,523	878,666	891,617
Total Demand						
Retail M&I-Wholesale only	106,259	99,426	100,154	100,173	100,413	99,991
Retail Agriculture						
Recycled Demand	29,110	38,894	44,135	44,135	44,135	44,135
Replenishment- Table 4-7 Import and Recycle						
Total Demand	135,369	138,320	144,289	144,308	144,548	144,126

Local Supplies						
Groundwater Production-Table 4-6	32,994	36,293	36,293	36,293	36,293	36,293
Surface Production						
Brackish GW		1,000	1,000	1,000	1,000	1,000
Seawater Desalination			21,500	21,500	21,500	21,500
Groundwater Recovery						
Recycling						
Recycling - M&I		38,894	44,135	44,135	44,135	44,135
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	32,994	76,187	102,928	102,928	102,928	102,928

Net Demand On Metropolitan						
Consumptive Use		94,626	77,654	77,673	77,913	77,491
Seawater Barrier						
Replenishment		3,800	-	-	-	-
Total MA UWMP Demand on MWD	-	98,426	77,654	77,673	77,913	77,491

2010 UWMP MWD Firm Demands	114,647	76,797	75,386	70,598	69,761	
Seawater Barrier						
Replenishment Demands	3,500	3,500	3,500			
2010 UWMP Total Demands	118,147	80,297	78,886	70,598	69,761	
2015 UWMP vs. 2010 UWMP, Percent		123%	98%	110%	112%	

2015 MWD Sales Model 25 IRP Consumptive	98,171	112,070	107,221	104,421	102,869	102,447
Seawater Barrier	10,805	2,235	-	-	-	-
Replenishment Demands						
2015 MWD IRP/UWMP Demand on MWD	108,976	114,305	107,221	104,421	102,869	102,447
2015 MA UWMP vs. MWD T-25 IRP		86%	72%	74%	76%	76%
AF, MWD IRP T25 less MA UWMP		15,879	29,567	26,748	24,956	24,956

2015 UWMP Data Locations:
Table 4-2, Page 4-3
Tables 5-3 to 5-5, Pages 5-9 to 5-10

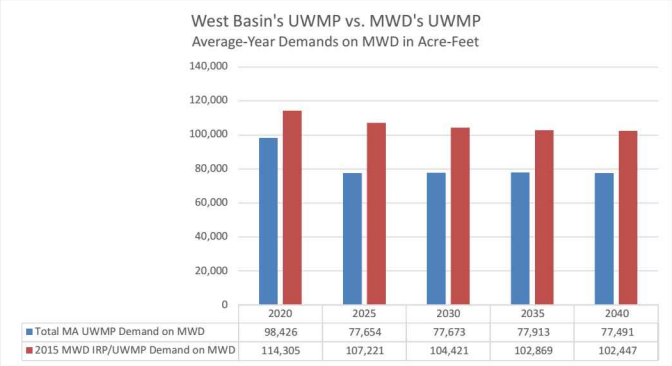
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
West Basin

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	813,000	823,886	837,059	864,523	878,666	891,617
Total Demand						
Retail M&I-Wholesale only		103,576	104,483	104,502	104,749	104,315
Retail Agriculture						
Recycled Demand		38,894	44,135	44,135	44,135	44,135
Replenishment- Table 4-7 Import and Recycle						
Total Demand	-	142,470	148,618	148,637	148,884	148,450

Local Supplies						
Groundwater Production-Table 4-6						
Surface Production						
Brackish GW		1,000	1,000	1,000	1,000	1,000
Seawater Desalination			21,500	21,500	21,500	21,500
Groundwater Recovery						
Recycling						
Recycling - M&I		38,894	44,135	44,135	44,135	44,135
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	39,894	66,635	66,635	66,635	66,635
Table 5-4		142,470	148,618	148,637	148,884	148,450

Net Demand On Metropolitan						
Consumptive Use		102,576	81,983	82,002	82,249	81,815
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	102,576	81,983	82,002	82,249	81,815

2010 UWMP MWD Firm Demands	121,728	83,884	82,417	77,577	76,707	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	121,728	83,884	82,417	77,577	76,707	
2015 UWMP vs. 2010 UWMP, Percent		122%	99%	106%	107%	



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
West Basin

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	813,000	823,886	837,059	864,523	878,666	891,617
Total Demand						
Retail M&I-Wholesale only		106,342	107,368	107,388	107,640	107,197
Retail Agriculture						
Recycled Demand		38,894	44,135	44,135	44,135	44,135
Replenishment- Table 4-7 Import and Recycle						
Total Demand	-	145,236	151,503	151,523	151,775	151,332

Local Supplies						
Groundwater Production-Table 4-6						
Surface Production						
Brackish GW		1,000	1,000	1,000	1,000	1,000
Seawater Desalination			21,500	21,500	21,500	21,500
Groundwater Recovery						
Recycling						
Recycling - M&I						
Recycling - Replenishment		38,894	44,135	44,135	44,135	44,135
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	-	39,894	66,635	66,635	66,635	66,635
Table 5-4		145,236	151,503	151,523	151,775	151,332

Net Demand On Metropolitan						
Consumptive Use		105,342	84,868	84,888	85,140	84,697
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	105,342	84,868	84,888	85,140	84,697

2010 UWMP MWD Firm Demands	114,078	85,662	84,842	79,937	78,869	
Seawater Barrier						
Replenishment Demands						
2010 UWMP Total Demands	114,078	85,662	84,842	79,937	78,869	
2015 UWMP vs. 2010 UWMP, Percent		123%	100%	106%	108%	

3/14/2017
UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Western

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	1,049,638	1,118,839	1,196,012	1,263,097	1,325,466	1,385,251
Total Demand						
Retail M&I-limited per UWMP*		141,601	147,753	159,930	162,065	174,703
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	141,601	147,753	159,930	162,065	174,703

* Limited to MWD demands, desalted GW, and recycled water

Local Supplies						
Groundwater Production	10,008	10,800	4,900	4,900	4,900	4,900
Surface Production						
Desalter	5,353	10,734	10,734	10,734	10,734	10,734
Seawater Desalination						
Banking supply	6,000	6,000	6,000	6,000	6,000	6,000
Recycling						
Recycling - M&I	1,304	1,600	1,900	2,100	2,400	2,700
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	22,665	29,134	23,534	23,734	24,034	24,334

Net Demand On Metropolitan

Consumptive Use		112,467	124,219	136,196	138,031	150,369
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	112,467	124,219	136,196	138,031	150,369

2010 UWMP MWD Firm Demands		99,970	103,812	113,894	123,254	133,201	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		99,970	103,812	113,894	123,254	133,201	
2015 UWMP vs. 2010 UWMP, Percent			108%	109%	111%	104%	

2015 MWD Sales Model 25 IRP Consumptive	59,874	117,930	128,728	138,511	146,994	152,634
Seawater Barrier						
Replenishment Demands	2,027	2,027	2,027	2,027	2,027	2,027
2015 MWD IRP/UWMP Demand on MWD	61,901	119,957	130,755	140,538	149,021	154,661
2015 MA UWMP vs. MWD T-25 IRP		94%	95%	97%	93%	97%
AF, MWD IRP T25 less MA UWMP		7,490	6,536	4,342	10,990	4,292

2015 UWMP Data Locations:

Tables ES-3 and ES-4, Page ES-5

Tables 7-3 to 7-8, Pages 7-5 to 7-7

UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Western

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	1,049,638	1,118,839	1,196,012	1,263,097	1,325,466	1,385,251
Total Demand						
Retail M&I-limited per UWMP*		141,601	147,753	159,930	162,065	174,703
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	141,601	147,753	159,930	162,065	174,703

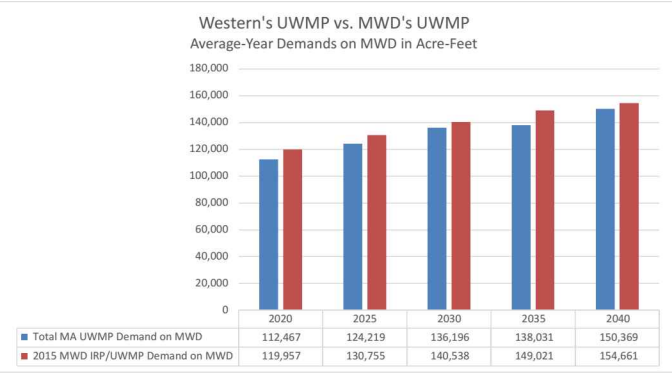
* Limited to MWD demands, desalted GW, and recycled water

Local Supplies						
Groundwater Production	10,008	10,800	4,900	4,900	4,900	4,900
Surface Production						
Desalter	5,353	10,734	10,734	10,734	10,734	10,734
Seawater Desalination						
Banking supply	6,000	6,000	6,000	6,000	6,000	6,000
Recycling						
Recycling - M&I	1,304	1,600	1,900	2,100	2,400	2,700
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	22,665	29,134	23,534	23,734	24,034	24,334

Net Demand On Metropolitan

Consumptive Use		112,467	124,219	136,196	138,031	150,369
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	112,467	124,219	136,196	138,031	150,369

2010 UWMP MWD Firm Demands		109,633	105,177	116,643	127,365	138,752	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		109,633	105,177	116,643	127,365	138,752	
2015 UWMP vs. 2010 UWMP, Percent			107%	106%	107%	99%	



UWMP Demand Forecast
Note: All Data in Acre Feet
Member Agency:
Western

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	1,049,638	1,118,839	1,196,012	1,263,097	1,325,466	1,385,251
Total Demand						
Retail M&I-limited per UWMP*		141,601	147,753	159,930	162,065	174,703
Retail Agriculture						
Seawater Barrier						
Replenishment						
Total Demand	-	141,601	147,753	159,930	162,065	174,703

* Limited to MWD demands, desalted GW, and recycled water

Local Supplies						
Groundwater Production	10,008	10,800	4,900	4,900	4,900	4,900
Surface Production						
Desalter	5,353	10,734	10,734	10,734	10,734	10,734
Seawater Desalination						
Banking supply	6,000	6,000	6,000	6,000	6,000	6,000
Recycling						
Recycling - M&I	1,304	1,600	1,900	2,100	2,400	2,700
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports						
Total Local Supplies	22,665	29,134	23,534	23,734	24,034	24,334

Net Demand On Metropolitan

Consumptive Use		112,467	124,219	136,196	138,031	150,369
Seawater Barrier						
Replenishment						
Total MA UWMP Demand on MWD	-	112,467	124,219	136,196	138,031	150,369

2010 UWMP MWD Firm Demands		115,633	120,177	131,643	142,365	153,752	
Seawater Barrier							
Replenishment Demands							
2010 UWMP Total Demands		115,633	120,177	131,643	142,365	153,752	
2015 UWMP vs. 2010 UWMP, Percent			94%	94%	96%	90%	

3/14/2017

UWMP Demand Forecast

Note: All Data in Acre Feet

Agency:

Total of all Member Agencies

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	19,562,817	20,310,334	20,964,939	21,614,347	22,170,509	

Total Demand						
Retail M&I	2,966,166	3,158,151	3,251,604	3,317,504	3,417,609	
Retail Agriculture	53,152	51,629	50,147	48,710	47,464	
Seawater Barrier	42,221	49,182	49,182	49,182	49,182	
Replenishment	160,938	162,355	164,462	164,562	164,562	
Total Demand	3,222,477	3,421,317	3,515,395	3,579,958	3,678,817	

Local Supplies						
Groundwater Production	956,480	970,321	969,942	978,845	978,928	
Surface Production	74,431	74,331	74,231	74,131	74,031	
Other	320,827	341,627	339,227	336,827	334,427	
Seawater Desalination	56,000	77,500	77,500	77,500	77,500	
Groundwater Recovery	24,041	55,238	56,035	56,664	56,760	
Recycling	4,557	4,500	4,427	4,342	4,249	
Recycling - M&I	262,064	303,429	327,486	338,812	347,334	
Recycling - Replenishment	75,261	80,428	82,520	82,640	82,880	
Recycling - Seawater Barrier	-	-	-	-	-	
Greywater	-	-	-	-	-	
Stormwater	2,400	4,800	9,200	16,600	17,000	
Other Non-Metropolitan Imports	270,331	280,331	280,331	280,331	280,331	
Total Local Supplies	2,046,392	2,192,505	2,220,899	2,246,692	2,253,440	

MA's UWMP Demand On Metropolitan						
Consumptive Use		1,115,869	1,165,274	1,213,861	1,240,775	1,309,897
Seawater Barrier		-	-	-	-	-
Replenishment		153,494	148,521	150,874	151,484	151,853
Total MA UWMP Demand on MWD		1,269,363	1,313,795	1,364,735	1,392,259	1,461,750

MA's 2010 UWMP MWD Firm Demands	1,717,165	1,561,752	1,612,426	1,690,853	1,750,335	
Seawater Barrier	-	-	-	-	-	
Replenishment Demands	56,600	47,000	49,800	50,200	50,100	
MA's 2010 UWMP Total Demands	1,773,765	1,608,752	1,662,226	1,741,053	1,800,435	
2015 UWMP vs. 2010 UWMP, Percent	79%	79%	78%	77%		

2015 MWD Sales Model 25 IRP Consumptive Use	1,447,287	1,418,370	1,469,551	1,510,638	1,559,542	1,599,118
Seawater Barrier	17,231	4,637	2,050	2,050	2,050	2,050
Replenishment Demands	210,428	166,283	166,281	166,260	166,275	166,227
2015 MWD IRP/UWMP Demand on MWD	1,674,946	1,589,290	1,637,882	1,678,948	1,727,867	1,767,395
2015 MA UWMP vs. MWD T-25 IRP		80%	80%	81%	81%	83%
AF, MWD IRP T25 less MA UWMP		319,927	324,087	314,213	335,608	305,645

MWD's 2015 UWMP Net Demand On Metropolitan						
Consumptive Use		1,415,000	1,468,000	1,509,000	1,558,000	1,597,000
Seawater Barrier		5,000	2,000	2,000	2,000	2,000
Replenishment		166,000	166,000	166,000	166,000	166,000
Total RUWMP Demand on Metropolitan	-	1,586,000	1,636,000	1,677,000	1,726,000	1,765,000
2015 MA vs. 2015 RUWMP		80%	80%	81%	81%	83%

UWMP Demand Forecast

Note: All Data in Acre Feet

Agency:

Total of all Member Agencies

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	19,562,817	20,310,334	20,964,939	21,614,347	22,170,509	

Total Demand						
Retail M&I	3,075,674	3,278,555	3,378,097	3,449,785	3,557,521	
Retail Agriculture	57,132	55,682	54,273	52,911	51,741	
Seawater Barrier	42,221	49,182	49,182	49,182	49,182	
Replenishment	161,376	162,793	164,900	165,000	165,000	
Total Demand	3,336,403	3,546,212	3,646,452	3,716,878	3,823,444	

Local Supplies						
Groundwater Production	921,089	934,128	932,748	941,470	941,741	
Surface Production	28,855	28,855	28,855	28,855	28,855	
Other	77,327	100,127	99,627	99,227	98,827	
Seawater Desalination	56,000	77,500	77,500	77,500	77,500	
Groundwater Recovery	24,041	55,238	56,035	56,664	56,760	
Recycling	4,557	4,500	4,427	4,342	4,249	
Recycling - M&I	261,940	303,418	327,495	338,821	347,343	
Recycling - Replenishment	75,261	80,428	82,520	82,640	82,880	
Recycling - Seawater Barrier	-	-	-	-	-	
Greywater	-	-	-	-	-	
Stormwater	2,100	4,200	8,300	15,300	15,400	
Other Non-Metropolitan Imports	270,344	280,344	280,344	280,344	280,344	
Total Local Supplies	1,721,515	1,868,739	1,897,852	1,925,163	1,933,899	

MA's UWMP Demand On Metropolitan						
Consumptive Use		1,556,155	1,558,754	1,581,575	1,589,346	1,633,432
Seawater Barrier		-	-	-	-	-
Replenishment		148,412	147,239	149,592	150,202	150,571
Total MA UWMP Demand on MWD		1,704,567	1,705,993	1,731,168	1,739,548	1,784,003

2010 UWMP MWD Firm Demands	2,119,650	1,947,778	2,006,438	2,096,558	2,156,846	
Seawater Barrier	-	-	-	-	-	
Replenishment Demands	7,100	6,500	6,300	6,200	6,100	
2010 UWMP Total Demands	2,126,750	1,954,278	2,012,738	2,102,758	2,162,946	
2015 UWMP vs. 2010 UWMP, Percent	87%	85%	82%	80%		

MWD's 2015 UWMP Net Demand On Metropolitan						
Consumptive Use		1,560,000	1,616,000	1,658,000	1,710,000	1,751,000
Seawater Barrier		5,000	2,000	2,000	2,000	2,000
Replenishment		166,000	166,000	166,000	166,000	166,000
Total Net Demand on Metropolitan	-	1,731,000	1,784,000	1,826,000	1,878,000	1,919,000
2015 MA vs. 2015 RUWMP		98%	96%	95%	93%	93%

UWMP Demand Forecast

Note: All Data in Acre Feet

Agency:

Total of all Member Agencies

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	-	19,562,817	20,310,334	20,964,939	21,614,347	22,170,509

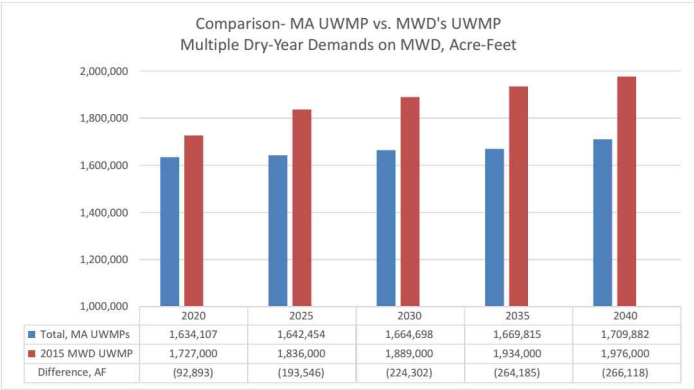
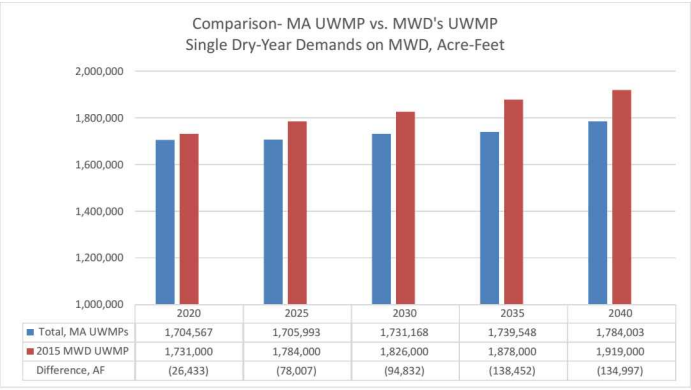
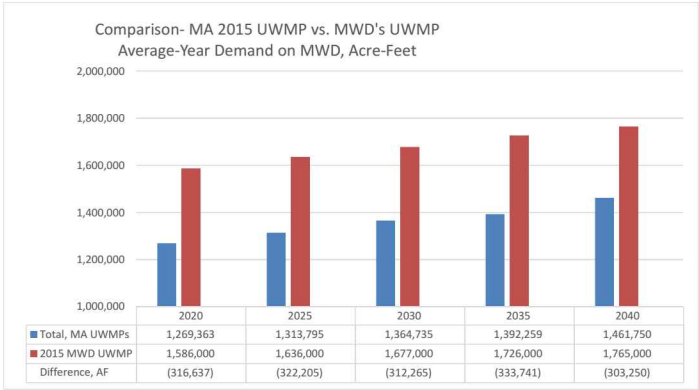
Total Demand						
Retail M&I	2,974,393	3,271,304	3,395,958	3,473,729	3,571,631	
Retail Agriculture	183	241	253	253	253	
Seawater Barrier	42,221	49,182	49,182	49,182	49,182	
Replenishment	157,776	159,193	161,300	161,400	161,400	
Total Demand	3,174,573	3,479,920	3,606,693	3,684,564	3,782,466	

Local Supplies						
Groundwater Production	921,089	934,028	932,748	941,470	941,741	
Surface Production	28,855	28,855	28,855	28,855	28,855	
Other	78,627	101,427	101,027	100,627	100,127	
Seawater Desalination	56,000	77,500	77,500	77,500	77,500	
Groundwater Recovery	23,860	55,079	55,876	56,550	56,760	
Recycling	4,557	4,500	4,427	4,342	4,249	
Recycling - M&I	202,886	229,825	243,942	252,079	257,457	
Recycling - Replenishment	113,552	123,960	126,589	126,775	127,015	
Recycling - Seawater Barrier	-	-	-	-	-	
Greywater	-	-	-	-	-	
Stormwater	2,000	4,000	8,000	15,000	15,000	
Other Non-Metropolitan Imports	270,350	280,350	280,350	280,350	280,350	
Total Local Supplies	1,701,776	1,839,524	1,859,314	1,883,548	1,889,054	

MA's UWMP Demand On Metropolitan						
Consumptive Use		1,485,694	1,495,214	1,515,106	1,519,613	1,559,311
Seawater Barrier		-	-	-	-	-
Replenishment		148,412	147,239	149,592	150,202	150,571
Total MA UWMP Demand on MWD		1,634,107	1,642,454	1,664,698	1,669,815	1,709,882

2010 UWMP MWD Firm Demands	1,931,006	1,906,190	1,935,301	1,991,160	2,026,004	
Seawater Barrier	-	-	-	-	-	
Replenishment Demands	7,100	6,500	6,300	6,200	6,100	
2010 UWMP Total Demands	1,938,106	1,912,690	1,941,601	1,997,360	2,032,104	
2015 UWMP vs. 2010 UWMP, Percent	85%	85%	83%	82%		

MWD's 2015 UWMP Net Demand On Metropolitan						
Consumptive Use		1,547,000	1,668,000	1,721,000	1,766,000	1,808,000
Seawater Barrier		6,000	2,000	2,000	2,000	2,000
Replenishment		174,000	166,000	166,000	166,000	166,000
Total Net Demand on Metropolitan	-	1,727,000	1,836,000	1,889,000	1,934,000	1,976,000
2015 MA vs. 2015 RUWMP		95%	89%	88%	86%	87%



3/14/2017

UWMP Demand Forecast

Note: All Data in Acre Feet

Agency:

MWD

	Average Water Year					
	2015	2020	2025	2030	2035	2040
Population Projection	18,740,000	19,355,000	20,017,000	20,639,000	21,206,000	21,791,000
Demand=>	4,725,000	4,859,000	5,001,000	5,133,000	5,264,000	
Less Cons=>	1,056,000	1,127,000	1,200,000	1,263,000	1,339,000	
Total Demand		3,669,000	3,732,000	3,801,000	3,870,000	3,925,000
Retail M&I		130,000	167,000	163,000	161,000	160,000
Retail Agriculture						
Seawater Barrier		72,000	72,000	72,000	72,000	72,000
Replenishment		292,000	295,000	297,000	297,000	297,000
Total Demand	-	4,163,000	4,266,000	4,333,000	4,400,000	4,454,000

Local Supplies						
Groundwater Production		1,303,000	1,301,000	1,301,000	1,301,000	1,302,000
Surface Production		110,000	110,000	110,000	110,000	110,000
Other-LAA		261,000	264,000	264,000	266,000	268,000
Seawater Desalination		51,000	51,000	51,000	51,000	51,000
Groundwater Recovery		143,000	157,000	163,000	165,000	167,000
Recycling		436,000	466,000	486,000	499,000	509,000
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports		274,000	282,000	282,000	282,000	282,000
Total Local Supplies	-	2,578,000	2,631,000	2,657,000	2,674,000	2,689,000

Net Demand On Metropolitan						
Consumptive Use			1,415,000	1,468,000	1,509,000	1,558,000
Seawater Barrier			5,000	2,000	2,000	2,000
Replenishment			166,000	166,000	166,000	166,000
Total UWMP Demand on Metropolitan		-	1,586,000	1,636,000	1,677,000	1,726,000

2010 RUWMP MWD Firm Demands		1,826,000	1,660,000	1,705,000	1,769,000	1,826,000
Seawater Barrier						
Replenishment Demands		102,000	103,000	103,000	104,000	105,000
2010 UWMP Total Demands		1,928,000	1,763,000	1,808,000	1,873,000	1,931,000
2015 UWMP vs. 2010 UWMP, Percent			90%	90%	90%	89%
			177,000	172,000	196,000	205,000
2015 MWD Sales Model 25 IRP Consumptive	1,447,287	1,418,370	1,469,551	1,510,638	1,559,542	1,599,118
Seawater Barrier	17,231	4,637	2,050	2,050	2,050	2,050
Replenishment Demands	210,428	166,283	166,281	166,260	166,275	166,227
2015 MWD IRP/UWMP Demand on MWD	1,674,946	1,589,290	1,637,882	1,678,948	1,727,867	1,767,395
2015 MA UWMP vs. MWD T-25 IRP		100%	100%	100%	100%	100%
AF, MWD IRP T25 less MA UWMP		3,290	1,882	1,948	1,867	2,395

UWMP Demand Forecast

Note: All Data in Acre Feet

Agency:

MWD

	Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	18,740,000	19,355,000	20,017,000	20,639,000	21,206,000	21,791,000
Demand=>	4,739,000	4,874,000	5,016,000	5,148,000	5,279,000	
Less Cons=>	1,056,000	1,127,000	1,200,000	1,263,000	1,339,000	
Total Demand		3,683,000	3,747,000	3,816,000	3,885,000	3,940,000
Retail M&I		131,000	168,000	164,000	162,000	160,000
Retail Agriculture						
Seawater Barrier		72,000	72,000	72,000	72,000	72,000
Replenishment		292,000	295,000	297,000	297,000	297,000
Total Demand	-	4,178,000	4,282,000	4,349,000	4,416,000	4,469,000

Local Supplies						
Groundwater Production		1,304,000	1,302,000	1,302,000	1,302,000	1,302,000
Surface Production		107,000	107,000	107,000	107,000	107,000
Other-LAA		127,000	127,000	127,000	127,000	127,000
Seawater Desalination		56,000	56,000	56,000	56,000	56,000
Groundwater Recovery		143,000	157,000	163,000	165,000	167,000
Recycling		436,000	466,000	486,000	499,000	509,000
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports		274,000	282,000	282,000	282,000	282,000
Total Local Supplies	-	2,447,000	2,497,000	2,523,000	2,538,000	2,550,000

Net Demand On Metropolitan						
Consumptive Use			1,560,000	1,616,000	1,658,000	1,710,000
Seawater Barrier			5,000	2,000	2,000	2,000
Replenishment			166,000	166,000	166,000	166,000
Total UWMP Demand on Metropolitan		-	1,731,000	1,784,000	1,826,000	1,878,000

2010 RUWMP MWD Firm Demands		1,991,000	1,889,000	1,921,000	1,974,000	2,039,000
Seawater Barrier						
Replenishment Demands		103,000	103,000	104,000	106,000	107,000
2010 UWMP Total Demands		2,094,000	1,992,000	2,025,000	2,080,000	2,146,000
2015 UWMP vs. 2010 UWMP, Percent			87%	88%	88%	88%
			261,000	241,000	254,000	268,000
dif. %			13.1%	11.9%	12.2%	12.5%

UWMP Demand Forecast

Note: All Data in Acre Feet

Agency:

MWD

	Multiple Dry Year					
	2015	2020	2025	2030	2035	2040
Population Projection	18,740,000	19,355,000	20,017,000	20,639,000	21,206,000	21,791,000
Demand=>	4,701,000	4,920,000	5,063,000	5,197,000	5,332,000	
Less Cons=>	1,056,000	1,127,000	1,200,000	1,263,000	1,339,000	
Total Demand		3,645,000	3,793,000	3,863,000	3,934,000	3,993,000
Retail M&I		128,000	164,000	169,000	166,000	164,000
Retail Agriculture						
Seawater Barrier		72,000	72,000	72,000	72,000	72,000
Replenishment		298,000	294,000	297,000	297,000	297,000
Total Demand	-	4,143,000	4,323,000	4,401,000	4,469,000	4,526,000

Local Supplies						
Groundwater Production		1,305,000	1,302,000	1,302,000	1,302,000	1,303,000
Surface Production		102,000	102,000	102,000	102,000	102,000
Other-LAA		113,000	129,000	125,000	131,000	133,000
Seawater Desalination		56,000	56,000	56,000	56,000	56,000
Groundwater Recovery		139,000	155,000	162,000	165,000	167,000
Recycling		427,000	461,000	482,000	497,000	507,000
Recycling - M&I						
Recycling - Replenishment						
Recycling - Seawater Barrier						
Greywater						
Stormwater						
Other Non-Metropolitan Imports		274,000	282,000	282,000	282,000	282,000
Total Local Supplies	-	2,416,000	2,487,000	2,511,000	2,535,000	2,550,000

Net Demand On Metropolitan						
Consumptive Use			1,547,000	1,668,000	1,721,000	1,766,000
Seawater Barrier			6,000	2,000	2,000	2,000
Replenishment			174,000	166,000	166,000	166,000
Total UWMP Demand on Metropolitan		-	1,727,000	1,836,000	1,889,000	1,934,000

2010 RUWMP MWD Firm Demands		2,056,000	1,947,000	2,003,000	2,059,000	2,119,000
Seawater Barrier						
Replenishment Demands		97,000	102,000	103,000	104,000	104,000
2010 UWMP Total Demands		2,153,000	2,049,000	2,106,000	2,163,000	2,223,000
2015 UWMP vs. 2010 UWMP, Percent			84%	87%	87%	87%
			322,000	270,000	274,000	289,000
dif. %			15.7%	12.8%	12.7%	13.0%

Appendix D- List of Local Projects by Planning Stage Compiled from MWD's UWMP Appendix 5

Table 1. Projects in advanced planning stages

	Ultimate Yield/Capacity (Acre-Feet)	Online Date
Full Design & Appropriated Funds Projects		
Recycling Projects		
City of Los Angeles		
Terminal Island Expansion Project	7,880	2018
San Diego County Water Authority		
Encina Basin Water Reclamation Program - Phase III	3,314	2016
City of San Diego PURE Water - Phase 1 North City	33,630	2022
Escondido Regional Reclaimed Water Project (HARRF Upgrades)/Primary	2,492	2019
Upper San Gabriel Valley Municipal Water District		
Direct Reuse, Future Extensions of the Recycled Water Program	130	2016
Direct Reuse, Phase I - Rose Hills Expansion	600	2016
Indirect Reuse Replenishment Project (IRRP)	10,000	2018
Western Municipal Water District of Riverside County		
Elsinore Valley/Tuscany, Phase IA	1,225	2017
Groundwater Recovery Projects		
Eastern Municipal Water District		
Brackish Wells 94, 95, and 96	2,250	2018
Perris Desalter II	4,000	2020
San Diego County Water Authority		
Rancho del Rey Well Desalination	400	2025
City of Torrance		
Madrona Desalter (Goldsworthy) Expansion	2,400	2017
<i>Subtotal Full Design & Appropriated Funds Projects</i>	<i>68,321</i>	
Advanced Planning (EIR/EIS Certified) Projects		
Recycling Projects		
Calleguas Municipal Water District		
VCWWD No. 8 Recycled Water Distribution System	1,250	2020
Central Basin Municipal Water District		
West San Gabriel Recycled Water Expansion Project	500	2018
East Los Angeles Recycled Water Expansion Project	1,000	2021
Foothill Municipal Water District		
Recycled Water Scalping Plant	300	2018
Inland Empire Utilities Agency		
IEUA Regional Recycled Water Distribution System/IEUA Regional Recycled Water Distribution System (Non-LRP)	20,000	2020
City of Long Beach		
Long Beach Reclamation Project Expansion, Phase II Boeing/Douglas Park	450	2020

<u>City of Los Angeles</u>		
Downtown Water Recycling Project	2,350	2020
Sepulveda Basin Water Recycling Project Phase IV Expansion	250	2017
<u>Municipal Water District of Orange County</u>		
SMWD Chiquita Development of Non-Domestic Water System Expansion I	3,360	2018
SMWD Chiquita Development of Non-Domestic Water System Expansion II	5,600	2018
<u>City of Pasadena</u>		
Pasadena Non-Potable Water Project	3,056	2019
<u>San Diego County Water Authority</u>		
Escondido Regional Potable Reuse Project	5,000	2025
Live Oak WRF	42	2020
North District Recycled Water System	1,200	2020
<u>Western Municipal Water District of Riverside County</u>		
Elsinore Valley/Summerly	1,380	2020
<u>Groundwater Recovery Projects</u>		
<u>Calleguas Municipal Water District</u>		
North Pleasant Valley Desalter	7,300	2020
<u>City of Los Angeles</u>		
Tujunga Well Treatment	24,000	2020
<u>Municipal Water District of Orange County</u>		
SJC San Juan Desalter Project Expansion	2,000	2020
Tustin Legacy Well # 1	2,200	2020
<u>Seawater Desalination Projects</u>		
<u>Municipal Water District of Orange County</u>		
Huntington Beach Seawater Desalination Project	56,000	2017
<u>Subtotal EIR/EIS Certified Projects</u>		<u>137,238</u>
Total Full Design & Appropriated Funds & EIR/EIS Certified Projects		205,559

Table 2. Projects in feasibility & conceptual stages

	Ultimate Yield/Capacity (Acre-Feet)	Online Date
Feasibility Projects		
Recycling Projects		
City of Anaheim		
OCWD Groundwater Replenishment System - Anaheim Resort and Platinum Triangle	1,100	2017
Calleguas Municipal Water District		
Oxnard Advanced Water Purification Facility Ph. 2	5,000	2020
Eastern Municipal Water District		
EMWD Indirect Potable Reuse (IPR)	15,000	2020
Rancho Indirect Potable Reuse	9,070	2020
Las Virgenes Municipal Water District		
Woodland Hills Golf Course Extension	324	2018
City of Los Angeles		
San Pedro Waterfront Water Recycling Project Projects	100	2022
Water Recycling Small Pipeline Extension	1,000	2020
Woodland Hills Water Recycling Project	290	2019
Tillman Groundwater Replenishment System	30,000	2022
Los Angeles Greenbelt Project Extension	250	2018
LA Zoo Water Recycling Project	85	2020
LAX Cooling Towers	240	2021
Elysian Park Tank & Pumping Station Water Recycling Project	400	2022
Garber Street Tank Water Recycling Project	500	2018
Municipal Water District of Orange County		
South Coast WD J.B. Latham AWT Joint project	7,841	2020
San Diego County Water Authority		
Oceanside IPR Project	2,500	2020
Olivenhain Joint RW Transmission Project with SFID and OMWD	1,200	2020
Otay WD - North District Recycled Water System	4,400	2025
Padre Dam Phase 1 East County, 2.2 mgd Potable Reuse	2,464	2019
Padre Dam Phase 1 East County, T22 Expansion from 2 to 6 mgd	1,008	2019
Padre Dam Phase 2 East County, 11.6 mgd Potable Reuse	12,992	2022
Santa Maria Water Reclamation Project	3,000	2020
Santa Fe ID Eastern Service Area Recycled Water Project	689	2025
Santa Fe ID Western Service Area Recycled Water System Expansion Project	111	2020
Upper San Gabriel Valley Municipal Water District		
Miller Coors Direct Reuse and Groundwater Recharge Project	1,000	2020
West Basin Municipal Water District		

Carson Regional Water Recycling Facility (CRWRF) Phase III Expansion Project - BP Expansion	2,100	2018
<u>Western Municipal Water District of Riverside County</u>		
Rancho California Reclamation Expansion/demineralization Western AG	13,800	2018
<u>Groundwater Recovery Projects</u>		
<u>City of Beverly Hills</u>		
Groundwater Development	2,000	2023
<u>Calleguas Municipal Water District</u>		
Moorpark/South Las Posas Desalter Phase 1	5,000	2020
West Simi Desalter (District 8)	2,800	2025
<u>Eastern Municipal Water District</u>		
Perris Groundwater Development (Well and Pipeline)	1,000	2018
<u>Municipal Water District of Orange County</u>		
IRWD Wells 51, 52 & 53 Potable (Non-exempt)	2,400	2020
<u>City of San Marino</u>		
San Marino GWR Project	2,500	2018
<u>San Diego County Water Authority</u>		
Middle Sweetwater River Basin Groundwater Well System (Otay WD)	1,500	2025
Mission Valley Brackish Groundwater Recovery Project (City of San Diego)	1,680	2025
Oceanside Mission Basin Desalter Expansion/Seawater Recovery and Treatment	5,600	2025
Otay Mesa Lot 7 Well Desalination (Otay WD)	400	2025
San Diego Formation / Diamond BID Pilot Production Well	1,600	2025
San Paqual Brackish Groundwater Recovery Project (City of San Diego)	1,619	2020
Sweetwater Authority/Otay WD San Diego Formation Recovery	3,900	2025
<u>Seawater Desalination Projects</u>		
<u>San Diego County Water Authority</u>		
Rosarito Beach Seawater Desalination Feasibility Study (Otay WD)	28,000	2025
<u>West Basin Municipal Water District</u>		
West Basin Seawater Desalination Project	22,400	2022
<u>Subtotal Feasibility Projects</u>		<u>198,863</u>
<u>Conceptual Projects</u>		
<u>Recycling Projects</u>		
<u>City of Burbank</u>		
Direct potable reuse of recycled water	4,000	2025
<u>Foothill Municipal Water District</u>		
Verdugo Basin Project	560	2020
<u>City of Los Angeles</u>		
Natural Advanced Treatment Concept	19,000	2025
Encino Reservoir Recycled Water Storage Concept	1,550	2025
LA Westside Title 22	5,500	2030
Harbor Area Water Recycling Expansion and Storage	12,220	2022
<u>Municipal Water District of Orange County</u>		
IRWD Michelson Reclamation Project Expansion, Phase II	2,300	2025
OCWD Groundwater Replenishment System Spreading Project, Phase III	30,000	2025

LBCWD Laguna Canyon Recycling Project	200	2025
El Toro WD Recycling/El Toro Recycled Water System Expansion II	225	2025
<u>San Diego County Water Authority</u>		
City of San Diego PURE Water - Phase 2 Central Area	42,598	2035
City of San Diego PURE Water - Phase 3 South Bay	16,815	2035
Lake Turner Non-Potable Distribution System	440	2025
Lakeside Riverview Well Field Groundwater Recovery	500	2020
Olivenhain Wanket Reservoir RW Conversion	200	2020
Santa Fe ID Advanced Water Purification Project	1,100	2030
Valley Center MWD - Welk WRF	84	2025
Valley Center MWD - Lilac Ranch WRF	140	2020
Lower Moosa Canyon WRF - AWT Upgrade	280	2020
Valley Center MWD - Woods Valley Ranch WRF Phase 3 Expansion	179	2020
<u>City of Torrance</u>		
Joint Water Pollution Control Plant (JWPCP)	5,000	2020
<u>Upper San Gabriel Valley Municipal Water District</u>		
Direct Reuse, Phase II - Satellite Treatment Plant	500	2020
<u>Western Municipal Water District of Riverside County</u>		
City of Riverside Recycled Water Program	2,270	2025
City of Riverside Recycled Water Program Expansion	19,130	2025
City of Riverside Recycled Water Program Expansion	20,000	2025
<u>Groundwater Recovery Projects</u>		
<u>City of Beverly Hills</u>		
Shallow Groundwater Development	500	2020
<u>Calleguas Municipal Water District</u>		
Camrosa Santa Rosa Basin Desalter	1,000	2022
<u>Municipal Water District of Orange County</u>		
LBCWD Groundwater Facility	2,025	2025
Mesa Colored Water Treatment Facility Project, Phase II	5,650	2018
South Coast WD Capistrano Beach Desalter Expansion	1,200	2025
<u>San Diego County Water Authority</u>		
San Dieguito River Basin Brackish GW Recovery and Treatment	1,500	2025
<u>Western Municipal Water District of Riverside County</u>		
Arlington Basin Groundwater Desalter Project Expansion	2,000	2020
Arlington Basin Groundwater Desalter Project Expansion Advanced Brine Treatment	1,900	2020
Arlington Basin Groundwater Desalter Project Expansion Biological Denitrification	4,100	2020
<u>Seawater Desalination Projects</u>		
<u>Municipal Water District of Orange County</u>		
South Orange (Dana Point) Coastal Ocean Desalination Project	16,800	2020
<u>San Diego County Water Authority</u>		
Camp Pendleton Seawater Desalination Project	56,000	2035
<u>Subtotal Conceptual Projects</u>		<u>277,466</u>
Total Feasibility & Conceptual Projects		476,329