City of Upland

2015 Urban Water Management Plan

Karen E. Johnson, Water Resources Planning

Originally Submitted in June 2016 and Amended in June 2018

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Amended in June 2018

Prepared With Assistance From:
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The water supplier is a:	Municipality
Utility services provided by the water supplier include:	Water, wastewater collection
Public Water System Number:	3610050
Is the agency a Bureau of Reclamation Contractor?	No
Is the agency a State Water Project Contractor?	No
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City of Upland

2015 Urban Water Management Plan

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ACRONONYMS AND ABBREVIATIONS

Act	Urban Water Management Planning Act
afy	acre-feet per year
BMP	Best Management Practices
CBWM	Chino Basin Watermaster
CII	commercial/industrial/institutional
CUWCC	California Urban Water Conservation Council
CVWD	Cucamonga Valley Water District
Delta	Sacramento River-San Joaquin River Delta
DMM	Demand Management Measures
DWR	California Department of Water Resources
DYY	dry year yield
gpcd	gallons per capita per day
GSWCo	Golden State Water Company
IEUA	Inland Empire Utilities Agency
MCL	Maximum Contaminant Level
MGD	million gallons per day
mg/L	milligrams per liter
MOU	Memorandum of Understanding
MWD	Metropolitan Water District of Southern California
OBMP	Optimum Basin Management Plan
OSY	operating safe yield
RUWMP	Regional Urban Water Management Plan
RWQCB	Regional Water Quality Control Board
SAC	San Antonio Canyon
SAWCo	San Antonio Water Company
SCAG	Southern California Association of Governments
SWP	State Water Project
SWRCB	California State Water Resources Control Board
TDS	total dissolved solids
UWMP	Urban Water Management Plan
Watermaster	Chino Basin Watermaster
WECWCo	West End Consolidated Water Company
WSAP	MWD's Water Supply Allocation Plan
WTP	water treatment plant

Chapter 1 – Introduction and Overview

1.1 Background

The City of Upland (City or Upland) is located approximately 35 miles east of Los Angeles in San Bernardino County at the base of the San Gabriel Mountains. The population in the City is a little over 75,000 with the projected population anticipated to reach over 80,200 by 2035. The City is approximately 95 percent built out. Water demands are currently approximately 20,000 acre-feet per year (afy) with a projected demand of 23,800 acre-feet by 2035.

The City has worked hard to develop its diverse portfolio of water supplies including groundwater from three groundwater basins, local surface water from San Antonio Creek, and imported water from Metropolitan Water District of Southern California (MWD) conveyed through Inland Empire Utilities Agency (IEUA) an MWD member agency to Water Facilities Authority (WFA). Local groundwater and surface water supplies are available directly to the City or through the City's shareholder ownership in two small water companies. Recycled water is provided by IEUA and is a recent addition to the City's supply portfolio.

This Urban Water Management Plan (UWMP or Plan) was prepared in response to the Urban Water Management Planning Act (Act), Water Code Sections 10610 through 10657, which were added by Statute 1983, Chapter 1009, and became effective on January 1, 1984. The Act requires that every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually prepare and adopt an UWMP. The Act requires suppliers to describe and evaluate sources of water supply, efficient use of water, demand management measures, implementation strategies and schedules, and other relevant information and programs. Sections of this UWMP that correspond to the Act are summarized in the Department of Water Resources (DWR) checklist for preparing an UWMP in compliance with the Water Code; the checklist can be found in Appendix A.

Amendments have been added to the Act since its inception. The most significant change to the Act was the Water Conservation Act of 2009, also known as SB X7-7. This act requires urban suppliers to establish water use targets for 2015 and 2020 that would reduce the statewide average per capita daily water consumption by 20 percent by December 31, 2020, and track its progress with an incremental goal of 10 percent by December 31, 2015.

Amendments to the Act since the 2011 UWMP include new submittal requirements involving standardized forms and mandatory electronic submittals, a water loss analysis using the American Water Works Association template, and optional tasks to address energy intensity reporting and climate change vulnerability. In addition, a different method of describing City

demand management measures is required and water suppliers are required to comply with SB X7-7 water conservation requirements to be eligible for State water grants or loans. If the City meets its 2015 Interim Target, it shall remain eligible to receive grants or loans.

This UWMP was prepared in accordance with the requirements under the Act that urban water purveyors submit an UWMP to the DWR every five years. This 2015 version is an update to the City's 2010 UWMP.

City staff, with the assistance of a consultant – Karen E. Johnson, Water Resources Planning – prepared the 2015 UWMP. In preparing the UWMP, staff utilized the Department of Water Resources *Guidebook for Urban Water Suppliers* (March 2016). The format of the UWMP has changed since the 2010 UWMP to succinctly integrate DWR's mandatory tables into the text.

1.3 Utilization of Other Planning Documents

This 2015 UWMP was prepared by utilizing relevant planning documents prepared by the City and other entities within the service area and region. These include documents such as the City of Upland General Plan and Housing Element, various groundwater documents, among others. Appendix B provides a list of references used in the preparation of this document.

Chapter 2 – Plan Preparation

2.1 City Public Water System

The City of Upland operates a public water system regulated by the State Water Resources Control Board (SWRCB), Division of Drinking Water. Public water systems are defined as a system providing water for human consumption with 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. As described in Chapter 1, retail water systems with 3,000 or more connections or 3,000 acre-feet of water supplied are required to prepare an UWMP. Table 2-1 presents the system identification, number of connections, and amount of water supplied in 2015.

Table 2-1 Retail Only: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
3610050	City of Upland	18,813	19,214
	TOTAL	18,813	19,214
NOTES:			

2.2 Coordination

The City is a member of IEUA. IEUA is a member agency of MWD, the regional wholesaler of imported water. The City coordinated the development of this UWMP with IEUA. In accordance with the Act, the City provides its imported water needs to IEUA. IEUA and MWD documented available quantities of imported supplies and reliability of those supplies for retailers in their respective regional UWMPs. References are made to these documents. Table 2-2 indicates that the City's UWMP is an individual plan. The City is also a member agency of IEUA which formed an alliance to regionally meet SB X7-7 requirements.

An individual agency, such as the City, can meet its urban water use target within its retail service area or through a regional alliance. Although the IEUA alliance reports the achievement of SB X7-7 targets and baseline estimates as a group, and thus compliance with the targets is adequate for individual agencies pursuing grants and loans, this document discusses the City's compliance with the targets.

Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable*
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☑	Water Supplier is also a member of a Regional Alliance	Inland Empire Utilities Agency Alliance
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Table 2-3 identifies the City as a retail agency. This UWMP presents water consumption and production data in fiscal years beginning July 1 of each year ending with the 2014-15 fiscal year. The quantities presented in this document are consistently presented in acre-feet.

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☐	UWMP Tables Are in Calendar Years
☑	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
07/01	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

The City worked with IEUA and other water suppliers to provide consistency in its exchange of data and information, as presented in Table 2-4. Compliance with the coordination, noticing, and reporting requirements for UWMP is presented in Chapter 10.

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name
West End Consolidated Water Company (WECWCo)
San Antonio Water Company (SAWCo)
Inland Empire Utilities Agency (IEUA)
Water Facilities Authority (WFA)
NOTES: Upland is 91 percent shareholder in WECWCo and receives wholesale groundwater supplies. Upland staff under contract operate the WECWCo well facilities and the City of Upland disinfects the water.

Chapter 3 – System Description

3.1 Service Area Physical Description

The City is located in San Bernardino County directly south of the San Gabriel mountain range. As shown on Figure 3-1, the western boundary of the City generally coincides with the boundary between San Bernardino and Los Angeles counties. The northern boundary is coterminous with the southern boundary of the San Antonio Heights residential community and the San Gabriel Mountains. The San Bernardino Freeway (Interstate 10) marks the southern boundary, and the Cucamonga Flood Channel generally coincides with the north-eastern boundary. The City has common boundaries with the incorporated cities of Claremont to the west, Montclair to the southwest, Ontario to the south, and Rancho Cucamonga to the east. Land uses consist of predominantly residential neighborhoods with smaller portions of commercial and industrial developments.

The City obtains its potable water from Cucamonga, Six, and Chino groundwater basins through its own wells, San Antonio Water Company (SAWCo) wells, and West End Consolidated Water Company (WECWCo) wells. WECWCo wholesales water only; it has no retail customers. San Antonio Creek water is obtained from SAWCo and treated at the City owned San Antonio Canyon (SAC) Surface Water Treatment Plant (WTP). Imported surface supplies are purchased from MWD through IEUA and treated by WFA at Aqua de Lejos WTP. The WFA is a Joint Powers Authority entity that purchases and treats imported MWD water from IEUA for the cities of Upland, Ontario, Chino, Chino Hills, and the Monte Vista Water District.

Recycled water provided by IEUA is a recent addition to the City. Recycled water is either directly provided to customers or is used as a supplemental source to recharge the groundwater aquifer for future production. Stormwater is also captured and conveyed to recharge facilities when available. To increase groundwater recharge capability, groundwater quality, and stormwater flood protection, the City expanded the Upland Recharge Basin in 2008. These efforts were designed to improve local water supply resources, enhance groundwater quality and recharge, improve operational flexibility and optimize the use of local water resources consistent with the Chino Basin Optimum Basin Management Plan (OBMP).

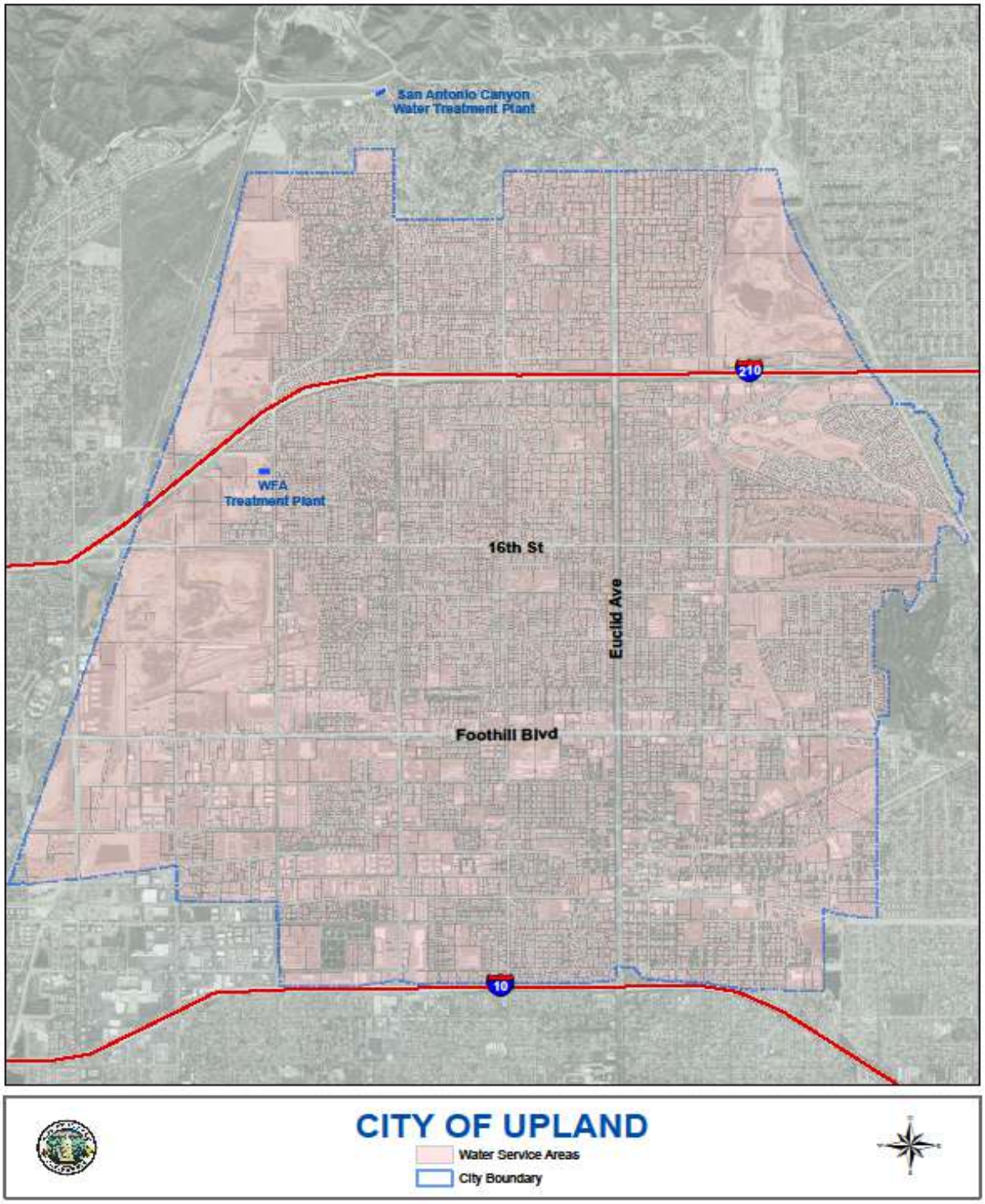

Figure 3-1. Service Area Boundary

3.2 Service Area Climate

Climate plays an important role in the demand for water within the City's service area. Temperature, rainfall, and wind are typical of the Mediterranean climate characterized by mild winters, warm summers, moderate rainfall, and general year-round sun. According to the National Oceanic and Atmospheric Administration Western Regional Climate Center website and the California Irrigation Management Information System, the City receives average annual precipitation of 16.07 inches with average temperatures ranging from 52° Fahrenheit in the winter months to 79° Fahrenheit in the summer months. Records indicate that temperatures as high as 117 degrees have been recorded in the City. Average evapotranspiration rates (ETo) have averaged about 47.5 inches. ETo is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). It is an indicator of how much water crops, lawns, gardens, and trees require for healthy growth and productivity.

The City experiences seasonal winds usually during the fall and winter months referred to as Santa Ana winds. Santa Ana winds are hot, dry northeasterly winds which often attain velocities in excess of 40 mph. Santa Ana winds are particularly damaging because they frequently occur during the driest season of the year, increasing customer water demands and increasing the risk of rapidly spreading fires, thus increasing fire fighting water demands.

3.3 Climate Change Impacts

Climate change and or greenhouse gas emissions are considered in city and county general plans, California Environmental Quality Act documents, and integrated regional water management plans. By considering potential water supply impacts resulting from climate changes in its UWMP, the City integrates this UWMP with these documents and supports water management functions. Water conserved under the City's water use efficiency program has a direct correlation with reduced greenhouse gas emissions as energy is required to move, treat, use, and discharge water.

Information on the vulnerability of its water supplies and service area water demands is provided here to aid the City in preparing for and adapting to expected climate change impacts. By reducing reliance on imported MWD supplies treated through WFA, and relying on the heavily managed groundwater basins to meet its water demands, the City is reducing its vulnerability to climate change.

Because climate change is such a gradual process, it can be difficult to distinguish the changes described below from the usual variability in supplies and demands. However, MWD is increasing its water supply options to compensate for State Water Project (SWP) and Colorado River

reductions. The City will continue to adapt to changing conditions within its service area, as well as maintain its aggressive water use efficiency efforts to reduce greenhouse gas emissions.

3.3.1 Imported Supply and Local Surface Water Impacts

According to the Public Policy Institute of California,

> "…Air temperatures are projected to increase throughout the state over the coming century. Sea level is expected to rise 39 to 55 inches by 2100, and the frequency of extreme events such as heat waves, wildfires, floods, and droughts is expected to increase. Higher temperatures will result in more rain and less snow, diminishing the reserves of water held in the Sierra Nevada snowpack."(PPIC, 2011)

The following impacts to the City's imported supply are anticipated, resulting in reduced SWP deliveries. Many of these impacts also affect the City's local San Antonio Canyon supply. MWD is anticipating these impacts on its supplies and is diversifying its supply portfolio and increasing groundwater banking to compensate for reduced SWP deliveries.

- An increase in average surface temperatures of 5.5 to 10.4 degrees Fahrenheit is anticipated by the end of the century, resulting in up to four times as many heat wave days in urban centers.
- Heat waves will increase in frequency, magnitude, and duration.
- Longer, drier, and more frequent periods of droughts anticipated with up to 2.5 times the number of critically dry years by the end of the century. Modest changes in precipitation can have a large impact on runoff. Lower inflows will make it more difficult to repel salinity in the Sacramento River - San Joaquin River Delta (Delta).
- About 25 to 40 percent of the Sierra snowpack may be lost by 2050. Higher temperatures increase the ratio of rain to snow, accelerate the rate of spring snowmelt, and shorten the overall snowfall season, leading to more rapid and earlier seasonal runoff.
- Over 55 percent increase in risk of large wildfires is anticipated. Fires result in changes in vegetation and eventually a reduction in water supply and storage capacity in the Sierras.
- More severe (e.g., frequency, intensity) and warmer winter storms are likely to occur, increasing runoff and flooding which could cause Delta levee failure.
- Increased tidal salinity intrusion to the Delta from sea level rise, lower inflows, and Delta levee failures. Without major changes to in-Delta facilities, more fresh water will be needed to repel seawater and maintain water quality standards, especially during drier years.
- Degraded water quality of Delta supplies is anticipated due to changing temperatures, flows, runoff rates and timing, and the ability of watersheds to assimilate wastes and

pollutants. Lower Delta inflows during certain times of the year will degrade water quality by increasing temperatures and minimizing the dilution effects of runoff and wastewater discharges. Warmer water can accelerate some biological and chemical processes, increasing growth of algae and microorganisms. Higher winter flows will increase contaminant loadings from nonpoint sources. Intense rainfall following wildfires can degrade water quality. (Santa Barbara, 2009)

Since winter snowpack in the Sierra Nevada functions as a major water storage system, this will have serious consequences to annual supply availability in all systems that rely on the runoff. These impacts to statewide water supplies originating from the Delta watershed, as well as current flood control practices on Sierra Nevada reservoirs, will reduce MWD's supplies from the SWP. In addition, flooding in the Delta could have devastating impacts on the reliability of Delta exports with supply outages anticipated for up to one year. These climate change impacts to the City's local surface supplies will likely result in lower and greater fluctuations in availability.

3.3.2 Groundwater Supply

The conjunctive use management of the three basins the City obtains groundwater from, will take on even greater importance as increased quantities of surface water will likely be imported for groundwater recharge, and as more frequent and more intense heat waves and extended dry periods deplete resources and increase demands for those resources. With the reduced Sierra snowpack, groundwater storage throughout the state will be more important as early thaws will require new storage facilities to be made available.

3.3.3 Water Demands

Climate change is anticipated to impact water demands through more frequent and more intense heat waves and extended dry periods, which will cause increases in demands in the City's service area. This is evident in demand patterns associated with the first dry water year. It is not known yet if changes in precipitation patterns will offset these increases. DWR recommends for long-term planning that local agencies assume a 20 percent increase in the frequency and duration of future dry conditions.

3.4 Service Area Population and Demographics

The City's water service area coincides generally with the City limits. There are two very small areas (less than five percent) within the City served by adjacent water purveyors. The first is in the southwest and is served by Golden State Water Company (GSWCo) and the second is in the east served by Cucamonga Valley Water District (CVWD). Table 3-1 presents the current and projected City population. Current population estimates were provided by the State Department of Finance for the census years. Interim historical population and population projections were

obtained from Southern California Association of Governments (SCAG). The SCAG projections for 2020 and 2035 were updated in 2012 and reflect a decline over previous projections. The City is currently at approximately 95 percent buildout of vacant lands, and it is anticipated that most of the development on vacant and underutilized lands will occur over the next twenty years with minor increases thereafter.

The City of Upland General Plan guides development of lands within the water service area. Demand projections based on the general plan are presented in Chapter 4. The projections reflect the development of vacant parcels and an intensification of existing uses on underutilized parcels, all in accordance with the newly adopted General Plan.

Table 3-1 Retail: Population - Current and Projected

Population Served	2015	2020	2025	2030	2035	2040 *(opt)*
	75,787	76,700	77,867	79,033	80,200	

NOTES: 2020 and 2035 were projected by SCAG; interim extrapolated. 2015 provided by CA Department of Finance.

Chapter 4 – System Water Use

Past, current, and projected water demands are discussed in this chapter along with system losses and projected water demands for planned low income households.

4.1 Water Demands

The City has several billing classifications: single family residential, multi-family residential, commercial (which includes industrial), government, and landscaping, and schools. As required by the Act, Table 4-1 presents 2015 deliveries by water use sector. Table 4-1 also includes losses. Losses are described in Section 4.3 and are based on the water balance located in Appendix C.

Table 4-1 Retail: Demands for Potable and Raw Water - Actual

Use Type *(Add additional rows as needed)*	2015 Actual		
	Additional Description *(as needed)*	Level of Treatment When Delivered	Volume
Single Family		Drinking Water	10,575
Multi-Family		Drinking Water	3,105
Commercial		Drinking Water	2,206
Landscape		Drinking Water	2,641
Institutional/Governmental		Drinking Water	645
Losses		Drinking Water	42
Sales, Transfers, etc. to other agencies		Drinking Water	242
		TOTAL	19,456
NOTES:			

4.2 Demand Projections

Table 4-2 presents future water demands. Water demand projections were developed by IEUA for its member agencies through the development of a land use based water demand model (IEUA, 2016). This GIS-based model takes into account changes to water demands over time and includes new water demands based on developable vacant lands and intensification of underutilized lands (e.g., redevelopment, repurposing, increased densities) in accordance with the City General Plan.

Sales to Other Agencies in Table 4-2 reflect the amount sold during 2015 increasing slightly over time to reflect changes in use. This amount changes annually depending on supply availability for

WECWCo and other factors. Water losses for the City assumed 5.5 percent in the future, as described in Section 4.3.

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type *(Add additional rows as needed)*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
		2020	2025	2030	2035	2040 (opt)
Single Family		11,629	11,902	12,078	12,309	
Multi-Family		3,628	3,692	4,399	4,448	
Commercial		1,846	1,887	1,916	2,035	
Landscape		2,652	3,000	3,035	3,070	
Institutional/ Governmental		537	541	544	567	
Sales/Transfers/ Exchanges to other agencies		244	246	247	249	
Losses		1,129	1,170	1,222	1,247	
TOTAL		21,665	22,438	23,441	23,925	
NOTES:						

Total water use for the City is comprised of water deliveries, sales, and losses. Table 4-3 presents a summary of 2015 demands and projected water demands as presented in Tables 4-1 and 4-2, respectively. Table 4-3 also includes current and projected recycled water demands discussed in Chapter 6.

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	19,456	21,665	22,438	23,441	23,925	
Recycled Water Demand* *From Table 6-4*	636	660	710	800	800	
TOTAL WATER DEMAND	20,092	22,325	23,148	24,241	24,725	
NOTES:						

4.3 Distribution System Water Losses

Losses presented in Table 4-1 reflect the physical water losses from the water distribution system and storage facilities, up to the customer meter. This difference between water production and billed consumption has been quantified for the City in accordance with a water system balance methodology developed by American Water Works Association. The analysis reflects the most recent 12 month period available consistent with the City's fiscal year reporting, as presented in Table 4-4. The worksheet is provided in Appendix C. Losses were then projected in five year increments for Table 4-2 based on a more conservative estimate of 5.5 percent.

The estimate of 2015 distribution system water losses is required for the 2015 UWMPs. For the 2020 UWMP, the City will report losses for each of the years 2016 through 2020.

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
07/2014	42
** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	
NOTES:	

4.4 Estimating Future Water Savings

Conservation savings were estimated and included in the water demand projections, as stated in Table 4-5. The projections reflect growth planned for in the updated General Plan (Upland, 2015). The General Plan reflects public input during public hearings, and environmental analyses of growth inducing and other impacts associated with land development.

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook)	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc… utilized in demand projections are found.	Municipal Code - Title 13, Chapter 13.16, and 2015 General Plan Land Use Element
Are Lower Income Residential Demands Included In Projections?	Yes
NOTES: Low and very low income housing needs based on City of Upland Housing Element, 2014.	

4.5 Water Use for Lower Income Households

SB 1087 requires water providers to grant priority service hook-ups to lower income housing developments. The UWMP Act requires documentation of future water demands associated with planned new lower income housing by the local land use planning jurisdiction. The City's updated Housing Element of the General Plan indicates the need for 1,589 units within the City by 2021. According to the Housing Element of the General Plan, all proposed housing sites to be used to meet the required units are vacant or substantially underutilized and are zoned for multi-family development or mixed use with a residential component. The General Plan directs future residential development into three focus areas to encourage revitalization of these areas: Foothill Boulevard, southeast quadrant, and College Heights area near the Claremont Colleges. In addition, the historic downtown's vacant and underutilized lands, secondary dwelling units and guest quarters, and senior housing can contribute to meeting its lower income housing requirements (Upland, 2014).

Water demands for planned low income housing by 2021 were based on the average multi-family unit factor from the updated demand projections. New demands associated with planned low income housing are approximately 700 acre-feet by 2020. Inclusion of these demands in the demand projections is indicated on Table 4-5.

Chapter 5 – Baselines and Targets

This chapter describes the base period ranges used to establish the baseline per capita water demands for SB X7-7 compliance. Water use targets in conformance with SB X7-7 are described for 2020 and the interim target of 2015. Although the UWMP uses acre-feet as its unit of measurement throughout this document, gallons per capita per day (gpcd) is used frequently in this chapter. The gpcd is calculated by dividing total City water production by population, not just residential water use.

5.1 Establishing Baselines

Table 5-1 presents the base period ranges for the City's 10 year (1995-96 through 2004-05) and five year (2004-05 through 2008-09) periods. A 10 year base period range was used instead of a 15 year base period range because the City was not using recycled water in 2008. The baseline daily per capita consumption for the 10-year period was 275 gpcd. This is an important number as the targets are based on reducing this consumption level.

Table 5-1 Baselines and Targets Summary
Retail Agency or Regional Alliance Only

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*1996*	*2005*	*275*	*247*	*220*
5 Year	*2005*	*2009*	*272*		
*All values are in Gallons per Capita per Day (gpcd)					
NOTES:					

California Department of Finance did not change Upland's population estimate for year 2010 from that used in the 2010 UWMP. However, the interim years changed slightly with updated SCAG data. The 10 year baseline estimate in 2010 was 273 gpcd; this was updated to 275 gpcd to reflect SCAG population interim year estimates. The 5-year baseline increased from 267 to 272 gpcd.

The SB X7-7 worksheets prepared and submitted to DWR with this UWMP can be found in Appendix D. In these tables, City population served, volume of water supplied, and per capita consumption for each of the years within the 10-year range and the 5-year range were documented. Data were reviewed to determine if a different 10-year baseline would be

advantageous but the methodology used (discussed below) and the period selected for the 2010 UWMP, presented in Table 5-1, were found to still be the most appropriate.

The five-year baseline is a target confirmation. It is needed to determine whether the 2020 target meets the legislation's minimum water use reduction requirements of at least a five percent reduction per capita for a five-year continuous period that ends no earlier than December 31, 2007 and no later than December 31, 2010. The baseline daily per capita consumption for the five-year period was 272. Ninety-five percent of the five-year base is 258 gpcd as presented in Appendix D Table 7-F. As discussed next under targets, 258 gpcd is higher than the 2020 target for the City of 220 gpcd, thus the City target is greater than a five percent reduction per capita over the five-year period and can be used.

5.2 Establishing Targets

DWR provided four different methods to establish water conservation targets.

- **Method 1– Baseline Reduction Method.** The 2020 water conservation target of this method is defined as a 20 percent reduction of average per capita demand during the ten-year baseline period described above. This equates to a 2020 target of 220 gpcd for the City.

- **Method 2 – Efficiency Standard Method.** This target is based on calculating efficiency standards for indoor use separately from outdoor use for residential sectors and an overall reduction of 10 percent for commercial, industrial, and institutional (CII) sectors. The aggregated total of the efficiency standards in each area is then used to create a conservation target.

- **Method 3 – Hydrologic Region Method.** This method uses the ten regional urban water use targets for the state. A static water use conservation target for both 2015 and 2020 is assigned for Region 4: South Coast. The target for the entire South Coast region is 149 gpcd. Method 3 is based on the City reaching 95 percent of the South Coast Region target or 142 gpcd.

- **Method 4 – BMP Based Method.** This method uses previous water supplier BMPs to establish a conservation target for 2020. Depending on how aggressively the water supplier has pursued water reduction and conservation in the past, a new conservation target for 2020 is assigned.

Individual City SB X7-7 Targets

Individual agency targets are needed to meet the goal of a 20 percent reduction in per capita use by 2020 and the interim water use efficiency target of 10 percent by 2015 as set forth in the Water Conservation Act of 2009 (SB X7-7). Although a 2020 target was calculated in the 2010 UWMP, DWR has allowed agencies to update their 2020 target by using a different method than that used in 2010. Methodology 1 was selected in 2010, and again here, as the most appropriate methodology for the City to establish water use reduction targets to meet the requirements set forth in SB X7-7. Methodology 2 requires landscaping data that is not currently available. Methodology 3 resulted in a lower target than that desired by the City; and Methodology 4 requires DMM data that are not currently available.

Methodology 1 requires a straightforward technical analysis of reducing baseline per capita consumption by the targets. The City baseline per capita consumption identified in SB X7-7 tables is 275 gpcd. A 10 percent reduction by 2015 would result in 247 gpcd. A 20 percent reduction would result in 220 gpcd by 2020. The worksheets to determine these targets are presented in the SB X7-7 Verification Form tables submitted electronically to DWR upon the adoption of this UWMP (and found here in Appendix D).

As presented in Table 5-2, based on the City's 2014-15 water demands per capita consumption was 214. The City has worked hard since the last UWMP in targeting conservation efforts to meet its per capita target. The 2015 demands are below the 2015 target of 247 gpcd, thus the City met its 2015 target individually.

Regional Alliance

The City is participating in an alliance with IEUA. IEUA formed a regional alliance for its eight member agencies, of which the City is a member. Under the regional alliance, the entire region is able to benefit from local and regional investments such as the groundwater replenishment with recycled water, direct recycled water use, and water use efficiency programs that IEUA and its member agencies are implementing. IEUA provides annual monitoring and reporting for its region on progress toward compliance with the regional target. If the regional alliance meets its water use target, all agencies in that alliance are deemed compliant regardless of individual performance. If IEUA's regional alliance fails to meet its target, each individual supplier, including the City, will have to meet their individual targets.

IEUA's alliance determined the target for 2015 was 226 gpcd while actual 2015 water use was 188 gpcd, indicating that the region met the target. The IEUA alliance 2020 target is 201 gpcd. These estimates were provided in draft form and will be updated as IEUA finalizes its UWMP.

Table 5-2: 2015 Compliance
Retail Agency or Regional Alliance Only

Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD *From Methodology 8*					2015 GPCD* *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
214	247	0	0	0	0	214	214	Yes

**All values are in gallons per capita per day (GPCD)*

NOTES: This reflects the City of Upland target. The IEUA Alliance target was also met for 2015.

Chapter 6 – System Supplies

The City of Upland's current water supply portfolio consists of several sources.

- Imported water from MWD purchased through IEUA for treatment at WFA
- Groundwater pumped from City owned wells
- Groundwater purchased from SAWCo and WECWCo (City is shareholder)
- Surface water purchased from SAWCo (City is shareholder)

The City has rights to 70.6 percent of the stock in SAWCo and 91 percent of WECWCo stock. Rights to stock ownership in these private water companies entitle the City to 70.6 and 91 percent of the water produced by SAWCo and WECWCo, respectively. SAWCo produces surface water which the City treats at its SAC WTP. Both SAWCo and WECWCo produce groundwater.

All water supply sources, including purchases, are described in this chapter. Purchases are included with City supplies for several reasons: the City has a majority stock ownership in SAWCo and WECWCo, SAWCo and City systems are interconnected, and the City operates the supply system in a manner such that the City can pump SAWCo and WECWCo supplies from both City wells and company wells.

6.1 Purchased or Imported Water

The City purchases imported water from IEUA which is a member agency of MWD. MWD's primary water supplies are from the SWP (imported from the Delta) and the Colorado River, however, the supply reaching the City is from the SWP. Over 17 million Southern Californians rely on MWD for imported water. MWD wholesales imported water supplies to member cities and water districts in six Southern California counties. MWD has provided between 45 and 60 percent of the municipal, industrial, and agricultural water used in its nearly 5,200 square-mile service area. The remaining supply comes from local wells, local surface water, recycled water supplies, and other regional sources.

Historically, MWD has been responsible for importing water into the region through its operation of the Colorado River Aqueduct and its contract with the State of California for SWP supplies. MWD has been working to increase its ability to supply water, particularly in dry years. MWD increased supplies received from the SWP by developing flexible Central Valley/SWP storage and transfer programs to deliver additional dry year supplies that can be conveyed through the Delta during dry years and during times of Delta regulatory restrictions. The MWD 2015 RUWMP provides detailed documentation of current and projected MWD supplies and deliveries to ensure supply reliability (MWD, 2016).

As a MWD member agency, IEUA currently has a Tier 1 allocation of 59,752 acre-feet on an average annual basis which is decreased during dry years or under other constraints. IEUA provides imported water to CVWD, Fontana Water Company, and the Water Facilities Authority/Joint Powers Authority Agua de Lejos Water Treatment Plant. The Rialto Feeder conveys the untreated MWD water to WFA located in the City of Upland. As an owner of WFA, the treated supply is conveyed to the City distribution system.

As long as the Tier 1 allocation for IEUA is not exceeded in total by its member agencies, the City can purchase as much water as is available, but may have to pay higher Tier II rates. The City has a Tier 1 allocation for WFA supply based on a ten year rolling average of its previously purchased supplies. Through 2015, this average was 5,098 acre-feet. The City owns 23 percent of the total 81 mgd capacity in WFA, which entitles the City to 18.6 mgd of plant capacity.

6.2 Groundwater Resources

The City's groundwater supplies come from wells located in three adjudicated basins: Chino Basin, Six Basins (specifically the Upper Claremont Heights and San Antonio Canyon subbasins), and Cucamonga Basin. The City has groundwater rights in Chino Basin and Six Basins with nine wells. The City purchases groundwater from these two basins as well as from Cucamonga Basin from SAWCo and WECWCo. Because the City is a shareholder in these companies, the supplies are listed here as City supplies, not purchased imported supplies.

Copies of the judgments for Chino Basin and Six Basins and the Cucamonga decree are provided in Appendix E. These judgments and decree indicate the basins were historically in overdraft at various times; however, recent operational data indicate that the basins have been managed within the safe yield. DWR Bulletin 118 does not list these three basins as being in "critical overdraft" nor does Bulletin 118 specifically identify them as overdrafted basins. The Watermasters for Chino Basin and Six Basins, as well as the pumpers of Cucamonga Basin are actively managing the basins to prevent overdraft. Entitlements based on City rights and stock ownership to the supplies within these three basins may vary depending on the established Operating Safe Yield (OSY) in a particular year, although they usually do not vary greatly year to year.

6.2.1 Chino Groundwater Basin

The City is located in the northwestern portion of Chino Basin. Chino Basin is one of the largest groundwater basins in Southern California with a capacity of approximately six million acre-feet, of which one million acre-feet of storage capacity is unused. The City has five wells in the Chino Basin and SAWCo has two wells. WECWCo does not have wells in Chino Basin; the City can pump WECWCo's entitlement if desired.

Water rights in Chino Basin were adjudicated in January 1978 in the Chino Basin Judgment (provided in Appendix E). The 1978 Judgment allocated the safe yield to three pools: Overlying Agricultural, Overlying Non-Agricultural, and Appropriative pools. The City is part of the Appropriative Pool and has rights to 5.202 percent of the safe yield allocated to the Appropriative Pool (54,834 acre-feet) for a total of 2,852 acre-feet. SAWCo and WECWCo also have rights in Chino Basin for 2.748 percent and 1.728 percent of safe yield, respectively.

In addition to the operating safe yield allocated to the members of the Appropriative Pool, the Chino Basin Watermaster reallocates the unused portion of the safe yield allocated to the Overlying Agricultural Pool to members of the Appropriative Pool as a supplement to their OSY rights in any year. For fiscal years 1989-90 through 2001-02, the average annual reallocation of agricultural pool safe yield was a total of 3,400 afy for the City, SAWCo, and WECWCo. This average was included in the determination of available groundwater.

In 1998, the Watermaster developed an integrated set of water management goals and actions for the basin. Known as the Optimum Basin Management Program (OBMP), nine program elements are intended to meet the water quality and local production objectives in the Chino Basin. The OBMP encourages the increased use of local supplies to help "drought proof" the Chino Basin. In July 2000, the "Peace Agreement" was adopted. The Peace Agreement, ending over 15 years of litigation within the Chino Basin, outlines the schedule and actions for implementing the OBMP. In 2007, the "Peace II Agreement" was adopted in furtherance of the OBPM objectives.

As regulated by the Watermaster, Chino Basin pumpers are allowed to buy, sell, or save unused water allocations in storage, with a two percent annual carryover storage loss assessed. The Watermaster also allows for accrued storage credits for recharging the basin. Groundwater pumping rights are allowed to be exceeded. These exceedances result in assessments by the Watermaster to pay for replenishment water through imported surface water recharge. Water to replenish Chino Basin is purchased from MWD or an under producer by the Watermaster, in coordination with IEUA. A Dry Year Yield (DYY) groundwater storage program was developed in Chino Basin to increase supply availability during dry conditions. MWD agreed to provide funds to participating agencies (including Upland) to help construct new facilities in exchange for these agencies to shift imported water purchases from MWD's SWP supplies to MWD's Chino Basin groundwater account, when requested.

Groundwater quality problems in the Chino Basin (i.e., nitrate, DBCP, perchlorate) in the southern part of the City and poor production capabilities in the northern part of the City prevent the City from producing its full entitlement. The treatment of water produced by wells in the southwestern part of the City using ion exchange facilities increased the City's yield by 2,700 afy.

This treatment plant is on standby status due to improvements in water quality allowing the City to blend Chino Basin supplies with other water sources.

Upland Recharge Basin is a percolation basin for Chino Groundwater Basin using San Antonio Creek stormwater and drainage flows from City's streets. San Antonio Creek water conveyed through Army Corps of Engineers' San Antonio Channel is diverted into Upland Basin by use of an inflatable dam controlled by IEUA.

6.2.2 Cucamonga Groundwater Basin

Cucamonga Basin is located in the northeastern part of the City, adjacent to San Gabriel Mountain foothills. In 1958, a decree (provided in Appendix E) allocated groundwater within Cucamonga Basin to 24 parties, which today consist of WECWCo, SAWCo, and CVWD. The Cucamonga Basin decree stipulates SAWCo's base water production as 4,500 afy. WECWCo has a right to pump 750 afy from Cucamonga Basin. Both SAWCo and WECWCo have the right to export 100 percent of their rights.

In Cucamonga Basin, the City owns Well No. 15, located near the northeastern City boundary. Groundwater produced from this well is attributed to the City's entitlements from SAWCo and WECWCo. This well produces water that does not have to be blended; water produced from more southern locations in the basin requires blending due to water quality concerns. Groundwater elevations measured in wells located in Cucamonga Basin show greater fluctuations than wells located in Chino Basin, likely due to the influence of recharge from precipitation. Because of the high water quality, the City uses this supply to the maximum extent possible. SAWCo has five wells (in addition to City Well No. 15) in Cucamonga Basin. WECWCo does not have any wells in this basin; the City pumps WECWCo's allocation from City Well No. 15.

Cucamonga Spreading Grounds and Colonies Basin are located along Cucamonga Creek near the Upland/Rancho Cucamonga border. They are operated by San Bernardino County Flood Control District for flood protection and recharge. The Cucamonga decree indicates that if SAWCo does not spread 2,000 afy of imported water (except for years of high water levels or "excluded years") over a rolling ten year period to the Cucamonga Basin, then its allowable pumping is reduced by said deficit. SAWCo has the right to increase its extractions from the basin above 6,500 afy by 95 percent of the ten year surplus divided by the number of "included years" up to 2,000 acre-feet for any given calendar year. Imported water is defined in the decree as "…water derived from a stream flow in an area outside of any water shed draining into the Cucamonga Basin".

6.2.3 Six Basins

Non-Tunnel Groundwater. Six Basins adjudicated groundwater basin is located in the northwestern portion of the City. Six Basins consist of "Four Basins": Canyon (San Antonio Canyon), Upper Claremont Heights, Lower Claremont Heights, and Pomona basins; and "Two

Basins": Ganesha and Live Oak basins. As an adjudicated basin, groundwater rights of Six Basins are judicially imposed under a 1998 Judgment with a set initial OSY for Four Basins at 19,300 afy.

Under the Judgment, provided in Appendix E, the City is entitled to 9.544 percent of the OSY while SAWCo and WECWCo are entitled to 7.166 percent and 15.399 percent, respectively. The base annual percentage is applied to the Watermaster established OSY to update annual allowances; Watermaster uses a hydrologic balance calculation, taking into consideration water level elevations, recharge activities, extraction, water quality data, precipitation data, and the probable availability of imported water. Six Basins Watermaster members include cities of La Verne, Pomona, Claremont, and Upland, SAWCo, Golden State Water Company, Pomona College, and Three Valleys Municipal Water District. Four Basins is actively managed by the Watermaster.

Carryover of 25 percent of annual allocation or unused balance, whichever is less, is allowed. Annual over pumping in Four Basins is allowed with no specified upper limit. These exceedances result in assessments by the Watermaster to pay for replenishment water through imported surface water recharge, similar to Chino Basin. An exception is made for "Special Projects", projects controlling water levels or for remediation of water quality problems. Special projects are exempt from replenishment obligation. Imported water deliveries are allowed for replenishment obligation or for additions to storage/recovery accounts.

The City has one producing well and one inactive well (due to water quality issues) in Canyon Basin, located behind San Antonio Dam. Canyon Basin groundwater is conveyed through the dam to a treated water reservoir. The City has two wells that pump from Upper Claremont Heights Basin. WECWCo has five wells in Upper Claremont Heights Basin while SAWCo has three.

Existing facilities used for spreading of surface water include San Antonio Spreading Grounds, Thompson Creek Spreading Grounds, Pomona Spreading Grounds, Three Valleys Municipal Water District's Miramar Basins, and Live Oak Spreading Grounds. The recharge facilities receiving San Antonio Creek waters are described below. Groundwater elevations measured in wells located in Six Basins show greater fluctuations than wells located in the Chino Basin, likely due to the direct influence of recharge from precipitation.

PVPA is the owner of the San Antonio spreading grounds and facilities. The spreading grounds are currently operated by WECWCo under an operating agreement with PVPA. The spreading grounds are divided into two sections commonly referred to as the Los Angeles and San Bernardino County sides. San Antonio Creek flows are conveyed through the dam to the diversion chamber immediately downstream of the dam. From the diversion chamber, flows are routed to Berms 1, 2, and 3 or to downgradient such as Pits 5, 4, and 3 on the San Bernardino County side and to Berms 1 through 5 on the Los Angeles County side.

Downstream of the berms (Pits 5, 4, and 3) on the San Bernardino County side, SAWCo is able to spread excess water from its irrigation system via Reservoir 9. Additionally, the SAC WTP backwash is conveyed to Reservoir 9 for recharge; however, it is currently unmetered and flows are credited to SAWCo's storage and recovery agreement in Six Basins. This spreading ground is presently percolating at 3.5 feet per day.

Tunnel Water - SAWCo has water rights to Canyon Basin water captured in San Antonio Tunnel, located upstream of San Antonio Dam. This "Tunnel Water" flow has ranged from 10 to 4,171 acre-feet, with a base flow of 1,050 afy (SAWCo, 2009) and an average flow of 2,100 afy. The tunnel captures water that naturally percolates through the soil in the basin, approximately 100 feet below the ground surface. A portion of San Antonio Creek streamflow is diverted, when available, to spreading grounds above the tunnel (called San Antonio Creek Spreading Grounds or Tunnel Ponds) which are located adjacent to North Mountain Avenue. Water collects in the deep rock tunnel, is piped to SAWCo's Forebay, chlorinated, and conveyed to SAWCo's potable water reservoirs to serve domestic customers.

San Antonio Creek Spreading Grounds or Tunnel Ponds, operated by SAWCo, are located upstream of Tunnel capture facilities behind the San Antonio Dam. San Antonio Creek water is diverted from the Edison Box to these ponds which allow for infiltration to the Tunnel capture facilities.

6.2.4 Groundwater Recently Pumped

As presented in Table 6-1, the City has pumped groundwater quantities over the last five years ranging from a low of 11,540 acre-feet in 2015 to 19,152 acre-feet in 2013.

Table 6-1 Retail: Groundwater Volume Pumped

☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	Chino Basin	1,301	668	2,686	3,271	3,416
Alluvial Basin	Six Basin	5,863	6,006	7,214	3,493	3,386
Alluvial Basin	Cucamonga Basin	6,366	8,668	9,252	9,302	4,738
	TOTAL	13,530	15,342	19,152	16,066	11,540
NOTES:						

6.2.5 Groundwater Projected to be Pumped

The amount of groundwater anticipated to be pumped for City needs was based on the average year City groundwater entitlement of each of the three basins for a total of 17,405 afy (Upland 2011b). The actual volume pumped is determined by demands and availability of local surface water as local surface water is preferred. The wells have a greater production capacity than what is needed under average water year conditions to ensure reliability of the system and to meet demands when the availability of local surface supplies is reduced due to climatic conditions, or if a well is off-line.

6.3 Surface Water

The availability of SAWCo's San Antonio Creek supply is highly dependent on local precipitation and snow pack. It is substantially reduced in dry years with surplus flows in above average years. The City does not have surface water rights to this supply but obtains raw water from SAWCo for treatment at its SAC WTP. This is described in this section.

6.3.1 SAWCo Rights to San Antonio Creek

SAWCo has pre-1914 surface water rights to San Antonio Creek. Water is released from an outlet from Southern California Edison power generation facilities, and conveyed to the "40/60 split". The 40/60 structure then physically divides the flow through a weir with 60 percent of flow diverted to SAWCo and 40 percent to the City of Pomona. This non-potable supply of SAWCo is conveyed to the Forebay before entering SAWCo's irrigation distribution system. When flows are too high or too turbid, San Antonio Creek runoff is released into or remains in San Antonio Creek where it is conveyed to low lying areas behind San Antonio Dam.

According to SAWCo's master plan, the annual amount of water available from San Antonio Creek has varied greatly up to 11,000 afy, averaging 6,250 afy. Production amounts vary depending on rainfall and snow conditions in the San Antonio Creek watershed which rises to an elevation of 10,068 feet at Mount San Antonio. Between 1990 and 2003, the annual surface water supply captured ranged from a low of 202 afy to a high of 4,297 acre-feet.

6.3.2 City Share of San Antonio Creek Supply

SAWCo historically has diverted the City's share of raw water to the City-owned SAC WTP, located at the base of San Antonio Dam. The direct filtration treatment plant has a 6 million gallons per day (MGD) capacity with a 5 million gallon (mgal) treated water reservoir at the site. The City often refers to this local treated surface supply as Canyon water. The City's entitlement to Canyon water is 4,250 afy, however, the yields average significantly lower quantities. For example, approximately 2,000 afy was obtained by the City between 2006 and 2010, 1,567 afy between 2011 and 2015, with a ten year average of 1,780 afy for 2006 through 2015. The greatest quantity

available during this time was 4,175 acre-feet in 2011 while 2013 resulted in 33 acre-feet available. The ten year average was used here for projected supplies.

6.4 Stormwater

Stormwater is currently being diverted by the City and conveyed to recharge facilities when available. To increase groundwater recharge capability, improve groundwater quality, and provide stormwater flood protection, the City expanded the Upland Recharge Basin in 2008. This is a spreading facility located in the upper northwest region of the Chino Basin which recharges stormwater from city streets and San Antonio Creek flows. The City increased the storage capacity to 1,250 acre-feet.

6.5 Wastewater and Recycled Water Opportunities

Recycled water provides a reliable and drought proof water source and could greatly reduce the region's reliance on imported supplies. The City recently began providing direct delivery of recycled water from IEUA to City customers. IEUA recharges recycled water into the Chino Basin, which is allocated to its contracting agencies for their use. The City and IEUA are studying a potential groundwater replenishment program using recycled water.

6.5.1 Recycled Water Coordination

IEUA manages the Regional Sewage Service System within its 242-square miles service area to collect, treat, and dispose of wastewater delivered by contracting local agencies. IEUA's facilities serve seven contracting agencies: cities of Chino, Chino Hills, Fontana, Montclair, Ontario, and Upland, and CVWD. A system of regional trunk and interceptor sewers convey sewage to regional wastewater treatment plants, which are all owned and operated by IEUA. Local sewer systems are owned and operated by local agencies. IEUA operates four regional water recycling production plants: Regional Plant No. 1 (RP-1), Regional Plant No. 4 (RP-4), Regional Plant No. 5 (RP-5), and Carbon Canyon Water Reclamation Facility (CCWRF) (IEUA, 2011).

IEUA projects to maximize utilization of recycled water, allowing only 17,000 afy to be discharged to the Santa Ana River. The 17,000 afy is an average minimum flow established under the 1969 Santa Ana River Judgment. Total supplies will reach 107,000 by 2020 leaving about 90,000 afy available for reuse.

6.5.2 Wastewater Collection, Treatment, and Disposal

Quantities of wastewater generated within the City are generally proportional to the population and water use. An estimate of wastewater flows collected by the City is presented in Table 6-2. Current wastewater flow from the City's service area is estimated at 8,215 afy. Flows were projected using metered data.

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
100	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
100	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?	Is WWTP Operation Contracted to a Third Party? *(optional)*
Add additional rows as needed						
City of Upland	Metered	8,215	Inland Empire Utilities Agency	Regional Plant No. 1	No	No
Total Wastewater Collected from Service Area in 2015:		8,215				
NOTES: A small area in the southwest portion of Upland is served by Los Angeles County Sanitation District (LACSD).						

As presented in Table 6-3, there is no wastewater treatment and discharge within the service area. Most of the wastewater generated within Upland is collected and conveyed by the City to RP-1, located in the City of Ontario. A portion of the flow from the City can be conveyed to CCWRF or pumped to RP-1 via the Montclair Lift Station and Montclair Interceptor. RP-1 facility began operation in 1948 through a joint powers agreement between the cities of Ontario and Upland. IEUA purchased RP-1 in January 1973. The current capacity of RP-1 is 44 mgd and is projected to be expanded to 60 mgd after 2020. RP-1 serves all or parts of the cities of Upland, Ontario, Rancho Cucamonga, Montclair, Fontana, and unincorporated areas of San Bernardino County with a current average day flow of 28 mgd, down from 32 mgd in 2010.

The CCWRF has been in operation since 1992. The recycled water plant capacity is 11.4 mgd, while solids are treated at RP-2. CCWRF current average day flows are approximately 7 mgd, down from 9 mgd in 2010. CCWRF serves the cities of Upland, Chino, Chino Hills, and Montclair.

The raw sewage at RP-1 and CCWRF is passed through screening and grit removal units, primary clarifiers, aeration basins, secondary clarifiers, chemical addition, tertiary filters, chlorination, and finally dechlorination facilities prior to discharge. Some of the effluent flow is placed into

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015										
☑	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.									
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
						Total	0	0	0	0
NOTES: City of Upland's wastewater flows to Inland Empire Utilities Agency facilities for treatment and disposal.										

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area								
☐	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.							
Name of Agency Producing (Treating) the Recycled Water:	Inland Empire Utilities Agency							
Name of Agency Operating Recycled Water Distribution System:	Inland Empire Utilities Agency							
Supplemental Water Added in 2015	NA							
Source of 2015 Supplemental Water	NA							
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035	2040 (opt)
Landscape irrigation (excludes golf courses)		Tertiary	300	340	390	480	480	
Golf course irrigation		Tertiary	336	320	320	320	320	
		Total:	636	660	710	800	800	
NOTES:								

nearby creeks and allowed to flow ultimately into the Santa Ana River where it is recharged into Orange County's groundwater basin. Other flows are pumped into IEUA's recycled water distribution system for reuse. All of the water produced from RP-1 is highly polished, tertiary-treated water suitable for irrigation, industrial water supply, groundwater recharge, environmental enhancement, and unrestricted recreation use such as boating and fishing.

6.5.3 Recycled Water System

Recycled water provided to Upland is produced by IEUA at its RP-4 located in the City of Rancho Cucamonga and at times from RP-5 located in the City of Chino. The City currently provides 636 afy for landscape irrigation and golf course irrigation, as presented in Table 6-4. The City is planning to utilize 660 afy of recycled water directly within the City by 2020, and 800 afy by 2030. Recycled water utilized for direct irrigation delivery started in 2012 with service to Upland Hills Country Club.

Figure 6-1 presents the current and planned recycled water system and location of future significant users. The City is in the last phase of retrofitting landscapes of identified recycled water users, at no charge to the customer. This additional 35 afy of recycled water usage will complete the short term phase of the Upland Recycled Water Master Plan. Future program expansion plans have identified four additional users: Magnolia, Greenbelt, Baldy View, and Cabrillo parks with a potential use of 134 afy.

Since the City pumps groundwater from Chino Basin which is replenished partially with recycled water, and the City service area contributes to these recycled water supplies, an amount of recycled water for indirect potable reuse associated with City pumping was identified by IEUA. Of the annual recycled water recharged, IEUA allocates the replenishment credit to individual agencies proportionately based on their annual respective wastewater flow contributions. The system will continue to be expanded to allow greater quantities of recycled water for direct use and for groundwater recharge benefitting agencies in the IEUA service area.

IEUA currently recharges 10,000 afy of recycled water. The City's allocation of recycled water pumped by the City was 1,006 acre-feet in 2014/15, as presented in SB X7-7 Table 4B (Appendix D). This is in addition to the amount obtained from IEUA for direct recycled water use. The indirect potable reuse quantities will contribute to the City achieving its 2020 per capita target of 220 gpcd as the total 2020 recycled water utilization offsets potable demands.

As presented in Table 6-5, the 2010 UWMP anticipated that 900 afy of recycled water would be utilized by 2015. Actual use in 2015 was 636 afy.

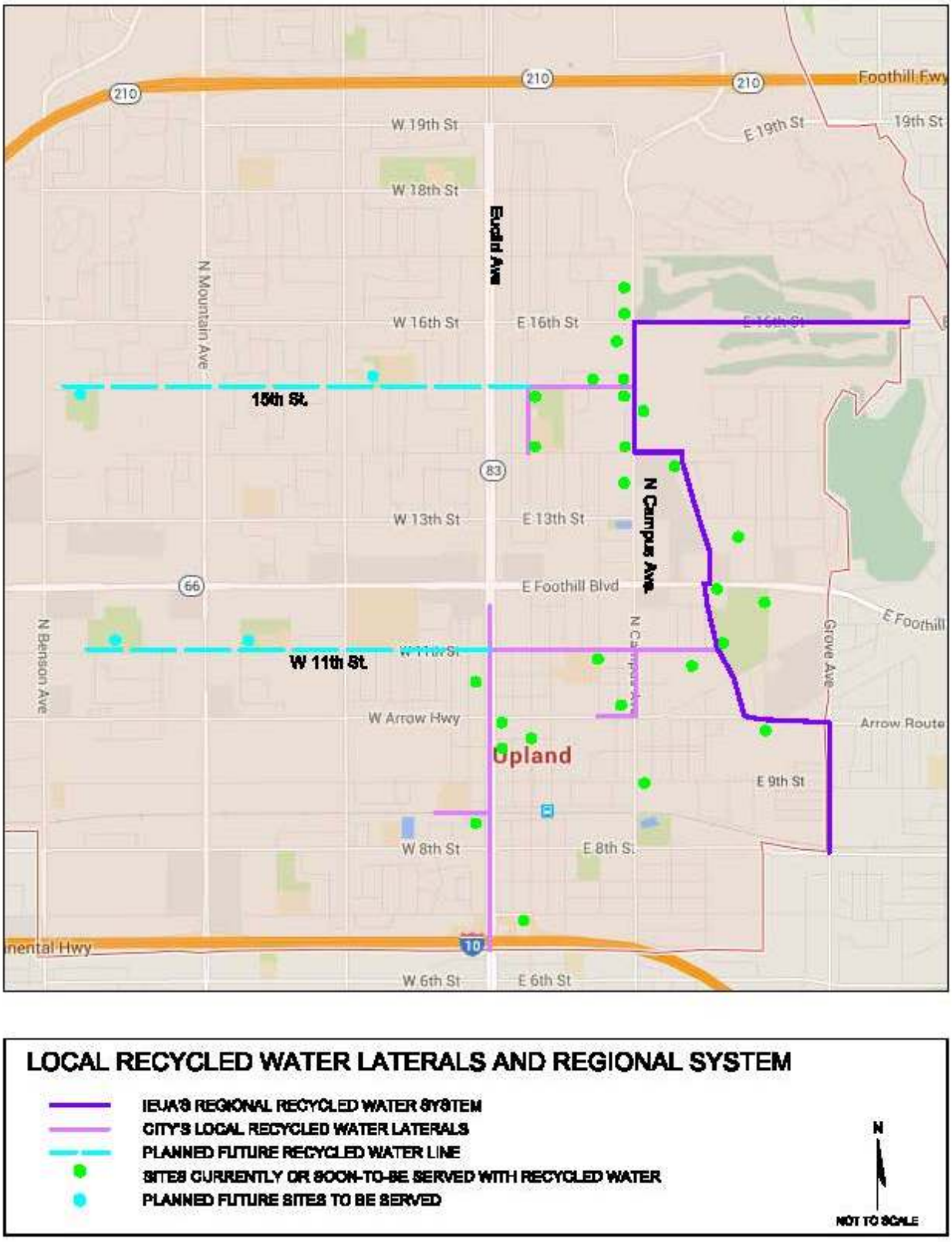

Figure 6-1. Recycled Water System

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual			
☐	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.		
Use Type		2010 Projection for 2015	2015 Actual Use
Agricultural irrigation			
Landscape irrigation (excludes golf courses)		414	300
Golf course irrigation		486	336
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	*Type of Use*		
Total		900	636
NOTES:			

The City can optimize the direct use of recycled water using specific methods to encourage recycled water use, as indicated in Table 6-6. These efforts include assurances of a highly reliable water supply not subject to droughts or imported availability, as well as financial incentives in the form of reduced water rates and assisting with retrofitting costs. The City offers recycled water at 10 percent lower than its base potable water rate. To get the program started, the City assumed all on-site retrofit costs. Thus, customers had little to no out-of-pocket expenses for converting to recycled water. In the future, recycled water rates will remain lower than potable water rates and the City plans to assist customers with conversions. Additionally, the City will continue to educate the public on the benefits of recycled water use.

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☐	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Section 6.5	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Add additional rows as needed			
Connect New Users	Retrofit and connect additional irrigation users	by 2020	40
Extend Supply Line and Connect New Users	Extending the recycled water system to connect additional irrigation users	by 2025	50
Further Extend Supply Line and Connect New Users	Extending the existing recycled water system to connect additional irrigation users	by 2030	90
		Total	180
NOTES:			

6.6 Desalinated Water Opportunities

As more water is recharged in the upper alluvial fans of the Chino Basin, groundwater production in the lower portion of the Chino Basin needs to be managed to ensure that poor quality water does not reach the Santa Ana River. To retain hydraulic control and remove salts, desalter facilities were constructed and are operated by the Chino Basin Desalter Authority. Chino Desalter I (serving Chino and Chino Hills) and the Chino Desalter II (serving Jurupa Community Services District, Ontario, Norco, Santa Ana River Water Company, and Western Municipal Water District) are located at the down gradient end of the Chino Basin, near the Santa Ana River. The current capacity of the desalter facilities is 27,600 afy; an expansion in 2016 will increase the capacity to 40,000 afy.

The City of Upland does not directly participate in the desalters, except as a member agency of IEUA. There are no desalinated water opportunities available to the City.

6.7 Exchange or Transfer Opportunities

Water transfers have great potential to help alleviate shortages during droughts or emergencies. A buyer and a seller can enter into an exchange agreement that is mutually beneficial, allowing an agency to "move" water from one service area to another, even when the two agencies are not connected physically. Chino Basin is a valuable resource for water transfers because of its ability to store water with its storage capacity of up to 6 million acre-feet.

The City shares several interconnections with other water purveyors. These interconnections are used during planned system outages, emergency outages, and for exchanging supplies on an as-needed basis. In addition to physical connections, the City sells or conveys water on paper without the physical conveyance of the supply. These are called in-lieu agreements or paper exchanges. The Judgments or decree for each groundwater basin allow for water supply transfers and exchanges if approved in advance by the Watermaster. Sales and/or exchanges with Monte Vista Water District, Fontana Water Company, Chino Basin Watermaster, and the City of Pomona have occurred.

The City has no plans for contractually committing to any future short term or long term water transfers or exchanges, with the exception of irrigation water provided for Upland Hills Country Club. Upland Hills Country Club has historically used irrigation water provided by SAWCo for its golf course and City supplied water for other facilities. The City entered into an agreement with Upland Hills Country Club to supply recycled water for irrigation as discussed under recycled water use.

6.8 Future Water Projects

The City is evaluating the feasibility of using additional recycled water for recharge to Cucamonga and Chino Basin. However, the feasibility of recharge and amount to be purchased will depend on many factors, including permits, economics, etc. This potential project is not defined enough at this time to include in Table 6-7.

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

☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.
	Provide page location of narrative in the UWMP

Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency
Add additional rows as needed						

NOTES:

MWD and IEUA are pursuing water supply projects and programs, which will increase the reliability of imported supplies and augment supplies with regional projects. IEUA's 2015 UWMP discusses opportunities to enhance and maintain local supplies in conjunction with its 2015 Integrated Water Resources Plan and its updated Business Plan (IEUA, 2016a).

According to MWD's 2015 RUWMP, MWD is continuing to diversify its supply resource mix to increase long-term regional water supply reliability. These efforts have focused on the following.

- Pursuing long-term storage solutions for the Delta
- Developing storage programs related to the SWP and Colorado River
- Developing storage and groundwater management programs within Southern California
- Increasing water use efficiency
- Increasing water recycling, groundwater recovery, and seawater desalination
- Developing water supply management programs outside of the region

Detailed descriptions of numerous projects to implement these goals are provided in MWD's 2015 RUWMP, along with supply quantities anticipated under normal and dry year conditions (MWD, 2015).

6.9 Summary of Existing and Planned Sources of Water

Table 6-8 presents the water supply sources and quantities utilized by the City in 2015. As discussed throughout this chapter and summarized next, the City had access to greater quantities than that needed in 2015.

Table 6-8 Retail: Water Supplies — Actual

Water Supply	Additional Detail on Water Supply	2015		
		Actual Volume	Water Quality	Total Right or Safe Yield *(optional)*
Groundwater	Chino, Six, and Cucamonga Basins	11,540	Drinking Water	
Surface water	San Antonio Creek	1,403	Drinking Water	
Purchased or Imported Water	Water Facility Authority	7,048	Drinking Water	
Recycled Water	IEUA	636	Recycled Water	
	Total	20,627		0
NOTES:				

Table 6-9 presents a summary of the supplies available to the City in the future. Groundwater quantities are based on City entitlements to the three basins. The local surface entitlement is actually 4,250 afy but the amount displayed here is based on a lower ten year average use. Purchased imported water quantities represent the entitlement to WFA supplies based on a rolling ten year average amount of water purchased by the city. Recycled water is provided by IEUA through a nonpotable distribution system; quantities reflect production estimates the City plans to deliver to its customers.

Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	**Projected Water Supply** *Report To the Extent Practicable*									
		2020		**2025**		**2030**		**2035**		**2040** *(opt)*	
		Reasonably Available Volume	Total Right or Safe Yield *(opt)*	Reasonably Available Volume	Total Right or Safe Yield *(opt)*	Reasonably Available Volume	Total Right or Safe Yield *(opt)*	Reasonably Available Volume	Total Right or Safe Yield *(opt)*	Reasonably Available Volume	Total Right or Safe Yield *(opt)*
Add additional rows as needed											
Groundwater	Chino Basin	7,327		7,327		7,327		7,327			
	Six Basins	4,975		4,975		4,975		4,975			
	Cucamonga Basin	5,103		5,103		5,103		5,103			
Surface water	SAWCo	1,780		1,780		1,780		1,780			
Purchased or Imported Water	Water Facility Authority	5,066		5,066		5,066		5,66			
Recycled Water	Landscape and golf course irrigation	660		710		800		800			
	Total	24,911	0	24,961	0	25,051	0	25,051	0	0	0
NOTES: Groundwater based on City entitlements. Surface water entitlement is 4,250 afy but amount used here is based on 10 year average supply. Purchased WFA based on entitlement which is 10-year rolling average.											

Chapter 7 - Water Supply Reliability Assessment

During the past decade, Southern Californians have faced significant challenges to their water supply. Because of the potential for water shortages, water allocations were imposed by MWD. These water shortage allocations were then imposed on IEUA member agencies, including the City's supply treated at WFA. The City's imported and local surface water supplies are vulnerable to seasonal or climatic shortages. Imported supplies are also vulnerable to catastrophic events during conveyance.

The City had the foresight to expand its portfolio of supplies over the years to reduce its vulnerability to seasonal and climatic variability. The local surface water supply may be most vulnerable to shortages, but this supply is augmented with groundwater and imported supplies. The City has worked hard to maximize its local resources to minimize imported water use. However, imported purchases remain an important source of supply. The City is committed to maximizing the efficient use of existing local supplies and to managing all supplies available to it to ensure that adequate supplies will be available to meet future water demands.

7.1 Constraints on Water Sources

The imported water conveyed from the Delta has been curtailed in recent years due to drought conditions in the Feather River watershed and court ordered Delta pumping restrictions. As a result of the recent and other factors, MWD has aggressively pursued and obtained additional supplies to augment these two sources for its entire service area and is continuing to acquire additional supplies for long term reliability.

7.1.1 Surface Supplies

Factors that could potentially influence the reliability of imported supplies include environmental, water quality, and climatic factors. The primary factor that influences reliability of the local San Antonio Creek surface supply is watershed climatic conditions directly affecting availability and reliability of the supply.

Although climatic factors affect all water supplies, only severe climatic influences, as with a drought or court mandated pumping restrictions, will directly affect supply availability to WFA. The following are factors identified by MWD that may have an impact on the reliability of imported supplies.

- The region and Colorado River Basin have been experiencing drought conditions for multiple years. In the past 16 years (2000 to 2015), there have been only three years when the Colorado River flow has been above average. The last above average year was 2011, when the unregulated water year inflow to Lake Powell was 139 percent of average.

- Endangered species protection needs in the Sacramento-San Joaquin River Delta have resulted in operational constraints to the SWP system. The Bay-Delta's declining ecosystem caused by agricultural runoff, operation of water pumps and other factors has led to historical restrictions in SWP supply deliveries.

- Water imported from the Colorado River Aqueduct contains high level of salts. Blending with SWP supplies aids in meeting the target salinity of 500 milligrams per liter (mg/L) of total dissolved solids (TDS). Controlling the spread and impacts of Quagga mussels within the Colorado River Aqueduct has requires extensive maintenance and reduces MWDs operational flexibility.

- Changing climate patterns are expected to shift precipitation patterns and affect water supply. Unpredictable weather patterns will make water supply planning even more challenging. As discussed in Chapter 3 under Climate Change, the areas of concern for California and the City include the reduction in Sierra Nevada snowpack, increased intensity and frequency of extreme weather events, and rising sea levels causing increased risk of levee failure in the Delta.

The primary constraint to the City on the availability of imported supplies during times of supply shortages is the cost, particularly when MWD's Water Supply Allocation Plan is in effect. As previously discussed, in terms of quantity and reliability, MWD has an extensive supply augmentation program to assure its member agencies that imported supplies will be 100 percent reliable through 2040.

MWD has been active in responding to water quality concerns by protecting source water quality and developing water management programs that maintain and enhance water quality. MWD anticipates no significant reductions in water supply availability from new sources due to water quality concerns (MWD, 2015). A description of the water quality of MWD's supplies can be found in its 2015 RUWMP.

7.1.2 Groundwater Supplies

In general, average historical nitrate concentrations are lowest in City wells located nearest to sources of surface water spreading, such as at San Antonio Dam, along San Antonio Creek, or at the Cucamonga Spreading Grounds. Nitrate levels exceeding the maximum contaminant level

(MCL) of 45 mg/L are limited to wells located in the southern area of the City. Average historical TDS concentrations are below the secondary MCL of 500 mg/L in all City wells. Highest average TDS concentrations generally occur in wells with higher nitrate concentrations.

Groundwater quality problems in the Chino Basin require that the City blend water from some wells with other supplies. In the southwest area of the City, wells exceeding MCLs for nitrate and DBCP have to be blended. An ion exchange plant was developed to optimize the use of local supplies during extended drought periods. This facility is presently in standby mode due to improved water quality conditions elsewhere in Chino Basin along with the City's ability to blend groundwater sources.

In the southeastern part of the City, Well 9 exceeded the MCL for tetrachloroethylene (PCE) and nitrate. This well is downstream from the Sanitary Landfill, which operated from 1950 to 1979 as an unlined municipal solid waste disposal site. Water quality conditions described here will not limit the availability of supplies in the future.

7.2 Reliability by Type of Year

Climatological data in California has been recorded since the year 1858. During the twentieth century, California experienced four periods of severe drought: 1928-34, 1976-77, 1987-92, and 2011-current. The year 1977 is considered to be the driest year of record in the Four Rivers Basin by DWR. These rivers flow into the Delta and are the source waters for the SWP, thus MWD's selection as the single driest base year. However, Southern California sustained few adverse impacts from the 1976-77 drought, due in large part to the availability of Colorado River water and groundwater stored in local groundwater basins. The 1987 to 1992, 2000 to 2003, 2007 to 2009, and 2011 to current droughts had a greater impact on Southern California.

To analyze the variability of reliability due to climate, hydrologic conditions that define year types were determined. The years identified in Table 7-1a and Table 7-1b reflect these year types: average, single dry year, and multiple dry years for all water sources except local surface water in Table 7-1a, and for local surface water in Table 7-1b.

Table 7-1a Retail: Basis of Water Year Data - All Sources Except Local Surface Water			
Year Type	**Base Year** *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000*	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location: Chapter 7
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	**% of Average Supply**
Average Year	2008		100%
Single-Dry Year	2005		100%
Multiple-Dry Years 1st Year	2013		100%
Multiple-Dry Years 2nd Year	2014		100%
Multiple-Dry Years 3rd Year	2015		100%
NOTES: Local surface water provided in Table 7-1b.			

Table 7-1b Retail: Basis of Water Year Data - Local Surface Water			
Year Type	**Base Year** *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000*	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location: Chapter 7
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	**% of Average Supply**
Average Year	2006-2015	1,780	100%
Single-Dry Year	2005	467	
Multiple-Dry Years 1st Year	2013	33	
Multiple-Dry Years 2nd Year	2014	62	
Multiple-Dry Years 3rd Year	2015	1,403	
NOTES: Other supplies provided in Table 7-1a.			

7.2.1 Average/Normal Water Year

The normal year most closely represents median runoff levels and patterns. Supply quantities for this condition were derived from historical average yields. For groundwater, the City's entitlements to the three basins were used as average year supplies. Imported water treated at WFA was derived from the most recent entitlement of 5,098 afy; entitlements to this MWD imported supply are based on a rolling ten year average purchase. Imported supplies to WFA are 100 percent available according to MWD, but may be at a higher price when subject to water shortages described in Chapter 8. Recycled water was assumed to be 100 percent reliable, with its availability increasing over time as the program expands (see Table 6-9). These sources are reflected in Table 7-1a.

Because local surface supply availability (San Antonio Creek via SAWCo) is sensitive to climatic conditions, it is presented separately in Table 7-1b. Local surface water supply was based on the previous ten year (2006 to 2015) average availability. The average availability may be lower than that experienced in the future if there are fewer dry years, but this assumption is more conservatively low for planning purposes.

7.2.2 Single Dry Water Year

The supply quantities for this condition were derived from the minimum historical annual yield reflected in the year 2005. Under this scenario, the local surface supply decreased to 467 acre-feet (reflecting 2005 availability). Groundwater availability was assumed to increase to the maximum amount pumped during the past five years (19,152 afy) to reflect actual availability to the City from the three basins. The WFA entitlement and recycled water availability remain the same as described under normal year conditions.

7.2.3 Multiple Dry Water Years

This is defined as three consecutive years with the minimum useable yield or supply. Water systems are more vulnerable to these droughts of long duration, because they deplete water storage reserves in local and state reservoirs and groundwater basins. The dry year assumptions for groundwater entitlements, WFA entitlement, and recycled water availability remain the same as described under single dry year conditions. Local surface water availability was changed to reflect quantities actually available during the three very dry year period of 2013 through 2015 of 33, 62, and 1,403 acre-feet, respectively.

7.3 Supply and Demand Assessment

Responses to an actual drought or the continuation of the current drought would follow the water use efficiency mandates of MWD's Water Surplus and Drought Management Plan for the

WFA supply, along with implementation of the appropriate stage of the City's water shortage ordinance discussed in Chapter 8. An assessment of the City's water supply reliability during each of the water year types for the next twenty years is presented here.

7.3.1 City Capabilities: Normal Year

Average water year availability described in Section 7.2 was compared to projected average year water demands (see Table 4-3) through 2035 and is presented in Table 7-2. This comparison indicates that water supplies will be available to meet City demands during a normal water year.

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

	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	24,911	24,961	25,051	25,051	0
Demand totals *(autofill from Table 4-3)*	22,325	23,148	24,241	24,725	0
Difference	2,586	1,813	810	326	0
NOTES:					

7.3.2 City Capabilities: Single Dry Year

Supplies and demands for the City service area were analyzed to determine impacts associated with a single dry year. The projected single dry year water supply is based on the availability of the sources as described in Section 7.2. Table 7-3 indicates that the City has adequate water supplies under the single driest year hydrology to meet projected demands.

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

	2020	2025	2030	2035	2040 (Opt)
Supply totals	24,878	24,928	25,485	25,485	
Demand totals	22,205	23,028	24,109	24,598	
Difference	2,673	1,900	1,376	887	
NOTES:					

7.3.3 City Capabilities: Multiple Dry Years

Supplies and demand were analyzed to determine impacts associated with multiple consecutive dry years. The years 2013, 2014, and 2015 represent three very dry years. The multiple dry year scenario supply availability described in Section 7.2 was compared with projected demands and is presented in Table 7-4. As shown in the table, the City can provide reliable water supplies under multiple dry year conditions.

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

		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	24,911	24,961	25,051	25,051	
	Demand totals	22,205	23,028	24,109	24,598	
	Difference	2,706	1,933	942	453	
Second year	Supply totals	24,940	24,990	25,080	25,080	
	Demand totals	22,205	23,028	24,109	24,598	
	Difference	2,735	1,962	971	482	
Third year	Supply totals	26,281	26,331	26,421	26,421	
	Demand totals	22,205	23,028	24,109	24,598	
	Difference	4,076	3,303	2,312	1,823	
NOTES:						

7.4 Regional Supply Reliability

The City is capable of meeting its customers' demands in all hydrologic year types through 2035. Water management tools and options to maximize resources and minimize the need to import water from other regions have been developed over the years. These highly reliable supplies reflect planning and forward thinking the City has undertaken to develop its diverse supply portfolio.

Chapter 8 – Water Shortage Contingency Planning

Actions that will be taken by the City in the event of a catastrophic reduction in water supplies are presented here. The most likely events are regional power outage and wildfires. Other catastrophic events include an earthquake in the Delta affecting imported water supplies; an earthquake in Southern California affecting the City service area, facilities, and local supplies; flooding; and other disasters.

On July 11, 2005 the City Council approved Ordinance 1786 establishing permanent conservation measures and a water shortage contingency plan. The purpose of this ordinance was to provide for increasing stages of water shortages and to define voluntary and mandatory water conservation measures to be implemented during these stages. Key elements of the City's ordinance include the following.

- Penalties
- Year Round Stage
- Moderate Shortage Stage
- High Shortage Stage
- Severe Shortage Stage
- Implementation

The City's three stage rationing plan is invoked during declared water shortages. The authority of the City Council, City Manager, and Water Utility Director is codified in Upland Municipal Code Section 13.16. Different specific restrictions are triggered at each stage. More information pertaining to specific prohibitions and reduction methods and exemptions for each of the stages can be found in the Upland Municipal Code Section 13.16 (Ordinance 1786), located in Appendix F.

8.1 Regional Water Shortage Programs

IEUA, Chino Basin Watermaster, and MWD developed the Chino Basin DYY program to help alleviate demands on imported water during dry years by pumping additional groundwater. The DYY program is a part of a conjunctive use program to allow for the maximum use of imported water when available and the use of stored groundwater in Chino Basin during dry years. Imported water deliveries to participants increase during wet or normal years (or "put") and purchase of imported water would decrease during dry (or "take") years. Collectively, the eight DYY participants, six of which are local retail agencies of IEUA including the City, would meet predetermined amounts to achieve a 25,000 afy "put" and a 33,000 afy "take". Each of the local retail agencies volunteered to produce excess groundwater during a dry year in-lieu of normal

imported water deliveries. In exchange, they received funding for new groundwater treatment and well facilities that would allow excess groundwater production during dry years. Under the DYY program, the City agreed to pump up to 3,001 afy of additional local groundwater during dry years in lieu of using imported water from WFA. Because the future utilization of the DYY program is not certain, increases in groundwater production and decreases in imported supplies were not assumed for the previously presented reliability estimates.

As done in the recent past, the City also follows the Water Supply Allocation Plan (WSAP) guidelines of MWD once an extreme shortage is declared. This allocation plan is enforced by MWD using rate surcharges. IEUA follows the guidelines of the allocation plan and imposes the surcharge that MWD applies to its member agencies that exceed their water allocation. This results in higher costs to the City if its purchases exceed its allocation. Details of the plan can be found in MWD's 2015 RUWMP.

The IEUA Drought Plan was developed for the purpose of implementing the WSAP within IEUA's service area in a manner that is fair and equitable to IEUA's member agencies. All WSAP definitions, policies, principals, and program provisions are incorporated and considered to be a part of the IEUA Drought Plan. The Plan's principles encourage development and full utilization of local water resources, such as recycled water, and extraordinary conservation measures. The plan also addresses MWD's DYY program and the need for best management of the DYY program "shift" obligations in concurrence with WSAP reductions of imported water supplies to IEUA.

And finally, the City developed, in conjunction with WFA members, a Contingency Operating Plan. The Contingency Operating Plan identifies specific strategies/activities to respond to different stages of drought.

8.2 Stages of Action

The City is vulnerable to potential disaster situations that could result in catastrophic interruption of water supplies. These situations include, but are not limited to drought, a regional power outage, earthquakes, interruption or reduction of imported supply, and water contamination. This can result in extreme shortage for water available for fire fighting and consumption. Since various actions will need to be taken to continue water service, especially for key functions such as fire fighting, the City has a staged response plan to invoke during declared water shortages.

A water supply shortage or threat of shortage exists when the City determines it is necessary to increase community water conservation efforts to reduce system demands. There are different triggers that would cause an escalation in required water conservation through the implementation of the City's established conservation stages. Requiring increased conservation

is implemented at the sole discretion of the City upon evaluating all of the water supply sources and constraints and the anticipated duration of reduced supplies.

The first stage of the City's water conservation program includes year-round conservation, which establishes expected water use from the community. The second stage is **Moderate** conservation intended to achieve a 5 to 20 percent reduction in water use. This water conservation level was implemented during the Governor's voluntary water conservation period. During the Governor's subsequent mandatory statewide 25 percent water use reduction requirement, the City of Upland was mandated to reduce its water use by 36 percent. As a result of the mandatory 36 percent water use reduction criteria, the City implemented its **High** conservation stage to achieve a higher degree of water conservation. The City also employs different community messaging venues to notify the public of the need to conserve and reduce water use. These news outlets include messages in utility bill inserts, on electronic message board signs at three prominent locations (two locations on Foothill Boulevard and one at City Hall) within the City, announcements at televised City Council meetings, and television broadcasts. The degree of public outreach is dependent on the severity of conditions. The City will implement the fourth stage of **Severe** Conservation level during a major water supply shortage condition. This fourth stage will be implemented, for example, under the following conditions:

- Imported water supply is unavailable during the summer season;
- 50 percent of the local well supply is unavailable;
- A catastrophic event occurs; and
- A mandated reduction is required and additional customer measures are required.

The City Council may declare a Moderate, High, or Severe Shortage Stage at a regular or special public meeting. Such declaration shall be made by public announcement and shall be published in a newspaper and become effective immediately upon such publication. The stages are presented in Table 8-1. There are no numerical triggers for each source because the City can switch to a different supply source when one source is reduced. For example, during the recent drought as the San Antonio Creek availability diminished, the City was able to rely on increased production of its other varied supply sources.

Table 8-1 Retail: Stages of Water Shortage Contingency Plan	
Stage	Complete Both

	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition (*Narrative description)*
Stage 1: Permanent or Year Round	~5%	Normal water supply conditions. Conservation encouraged year round.
Stage 2: Moderate Shortage	5% - 20%	Local water supply is reduced from average and a reduction in demand is necessary.
Stage 3: High Shortage	20% - 35%	Local water supply is further curtailed at the higher percentage, imported water supply is curtailed, and an adequate reduction in demand is not being achieved through Stage 2 requirements.
Stage 4: Severe Shortage	50%+	Imported water supply is unavailable during a warm season; 50%+ of local water supplies are unavailable; or a disaster condition like an earthquake, fire, significant and extended power outage, etc. occurs.
One stage in the Water Shortage Contingency Plan must address a water shortage of 50%[1].		
NOTES: [1]Numerical triggers of supply shortages are estimated triggers. The City has varied and multiple sources of water supply, which factor into the recommended conservation stage or level. The customer response is also a consideration. The City has achieved positive reductions from the community when it has experienced water supply shortages and implemented elevated conservation demand reduction requirements.		

8.3 Prohibitions on End Users

Table 8-2 lists the mandatory prohibitions against specific water use practices. There are exemptions allowed for many of the actions listed in Table 8-2. For example, watering with a hand held hose or the use of a drip irrigation system is permitted on any days at any time. Information pertaining to specific prohibitions and reduction methods, and exemptions, for each of the stages can be found in Appendix F.

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
Add additional rows as needed			
Year-round	Other - Prohibit use of potable water for washing hard surfaces	Sidewalks, walkways, driveways, public and private parking areas and all other impervious hard surfaced areas	Yes
Year-round	Landscape - Restrict or prohibit runoff from landscape irrigation	Excessive or unreasonable runoff of water	Yes
Year-round	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	72 hours after the customer discovers such a break or leak	Yes
Year-round	Landscape - Limit landscape irrigation to specific times	10:00 a.m. to 6:00 p.m.	Yes
Year-round	Other	Prohibit washing of vehicles or equipment unless done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses	Yes
Year-round	CII - Restaurants may only serve water upon request	Excessive or unreasonable runoff of water	Yes
Moderate	Landscape - Limit landscape irrigation to specific days	Even or odd dates, depending on street address digits	Yes
Moderate	Other	Prohibit washing of vehicles or equipment unless done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses. Only allowed from midnight to noon and sundown to midnight	Yes
Moderate	Other	Nonprofit and community-based organizations' fundraising car washes shall be allowed, provided they are otherwise in accordance with all other provisions, and have obtained a permit. Such activities shall be limited to no more than two times in one month	Yes
Moderate	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		
Moderate	Other	Washing trucks, trailers, and other types of mobile equipment, when such washing is necessary in order to protect the health, safety, and welfare of the public, shall be restricted to the hours of sundown to noon	Yes
Moderate	Other water feature or swimming pool restriction	Pool filling allowed only on designated outdoor water use days	Yes

Continued…

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses (continued)			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, etc?
Moderate	Water Features - Restrict water use for decorative water features, such as fountains		Yes
Moderate	Other	Irrigation of golf course fairways prohibited unless using reclaimed wastewater	Yes
Moderate	Other	Use of water from fire hydrants shall be limited to firefighting and emergency-related activities and/or other activities necessary to maintain the health, safety, and welfare of the citizens. Shall not apply to businesses which require the use of water for land development and building construction processes.	Yes
High	Other - Prohibit use of potable water for washing hard surfaces	Prohibit washing of vehicles or equipment unless done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses	Yes
High	Landscape - Limit landscape irrigation to specific days	Twice a week assigned by street address number	Yes
High	Landscape - Limit landscape irrigation to specific times	No outdoor irrigation shall take place between 6:00 a.m. until one hour before sundown.	Yes
High	Other	Refilling or adding of water to existing swimming pools is prohibited except on designated outdoor water use days which shall be the same days as outdoor water is permitted.	Yes
High	Other	Watering of golf course tee areas and fairways is prohibited unless with reclaimed wastewater	Yes
Severe	Other - Prohibit use of potable water for washing hard surfaces	Sidewalks, walkways, driveways, public and private parking areas and all other impervious hard surfaced areas prohibited. Also includes tennis courts, patios, and other paved areas, except to alleviate an immediate health hazard	Yes
Severe	Landscape - Limit landscape irrigation to specific days	Permitted only on Sunday or Saturday, designated by street address digits	Yes
Severe	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Washing of vehicles in such facilities shall occur only between the hours of 6:00 a.m. and noon	Yes
Severe	Other	Washing trucks, trailers, and other types of mobile equipment, when such washing is necessary in order to protect the health, safety, and welfare of the public, shall be restricted to the hours of sundown to noon	Yes
Severe	Other	Pool refilling or adding of water is prohibited except on designated outdoor water use days	Yes
NOTES: Each level includes the restrictions from the previous level plus new restrictions. All levels include permanent water use efficiency measures.			

8.4 Penalties, Charges, and Other Enforcement of Prohibitions

Any violation of the water shortage program restrictions, including wasting of water and excessive use, is an infraction or misdemeanor. The first violation will result in a fine to not exceed $100. The second and third violation fines will not exceed $200 and $1,000, respectively.

In addition to any other remedies that the City may have for enforcement, service of water will be discontinued or appropriately limited to any customer who willfully uses water in violation of any provision of the plan. The City may place a flow restricting device upon the water service, lock off a water meter, remove a water meter, and shut off the service line valve.

8.5 Consumption Reduction Methods

Consumption reduction methods to be used to reduce water use in the most restrictive stage of Level 3 are listed in Table 8-3. Because outdoor watering typically constitutes at least 60 percent of City residential demands, it is anticipated that total demands may be reduced by 50 percent under the Severe Shortage watering restrictions alone, to meet potential supply reductions of 50 percent.

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods

Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference *(optional)*
Severe Shortage	Other	Year round, Moderate, and High Shortage restrictions
Severe Shortage	Other	Watering limited to one day per week depending on street address and not between 6:00 am and one hour before sundown.
Severe Shortage	Other	Washing of vehicles is prohibited
Severe Shortage	Other	No refilling residential pools except on the designated watering day. New pool construction filling by permit only
NOTES:		

8.6 Determining Water Shortage Reductions

The City implements its water shortage program – which imposes prohibitions, regulations of water use, and penalties for violations of water use – during times of severe water shortages. Water production figures are recorded daily by City staff; weekly and monthly reports are prepared and monitored. These data are available to be used to measure actual water savings

resulting from the effectiveness of any water shortage contingency stage that may be implemented.

As stages of water shortage are declared by MWD, the City will follow implementation of those stages and continue to monitor water demand levels. It is not until MWD's Shortage Stage 5 that MWD may call for extraordinary conservation. During this stage, MWD's Drought Program Officer will coordinate public information activities with IEUA and monitor the effectiveness of ongoing conservation programs. Monthly reporting on estimated conservation water savings will be provided to IEUA.

8.7 Revenue and Expenditure Impacts

During a catastrophic interruption of water supplies or prolonged drought or water shortage of any kind the City will experience a short term, temporary reduction in revenue due to reduced water sales. Expenditures may increase as damage to the water system requires emergency repairs or if additional water must be purchased at a higher rate. Expenditures may also go down as less water is pumped through the system so power costs are lower.

The City receives water revenue from a service charge and a commodity charge based on consumption. The service charge recovers costs associated with providing water to the serviced property, which does not vary with consumption. The commodity charge is based on water usage. Rates have been designed to recover the full cost of water service in the service and commodity charges. These rates were designed with an assumed reduction associated with continued conservation to meet the 20 percent reduction by 2020 community water reduction targets. Therefore, the total cost of purchasing water would decrease as the usage or sale of water decreases. However, there are significant fixed costs associated with maintaining a minimal level of service. Should an extreme shortage be declared and a large reduction in water sales occur for an extended period of time, the City would monitor projected revenues and expenditures.

To overcome potential revenue losses and/or expenditure impacts the City may lease available water supplies to local water agencies. It may also utilize reserves. If necessary, the City will reduce expenditures by delaying implementation of its Capital Improvement Program and equipment purchases, implement a drought surcharge, and/or reexamine its water rate structure.

8.8 Resolution or Ordinance

The water shortage contingency ordinance (Ordinance 1786) discussed throughout this chapter is provided in Appendix F.

8.9 Catastrophic Supply Interruption

The most likely events triggering a catastrophic supply interruption include a regional power outage. Other catastrophic events include an earthquake in the Delta affecting imported water supplies or along the conveyance facilities; an earthquake in Southern California affecting the City service area, facilities, and local supplies; flooding; and other disasters.

The City can deal with both planned and unplanned power outages. In the event of an unplanned power outage within the service area, water supply can be maintained by gravity from the treated water reservoirs located throughout the distribution system. Public outreach to reduce demands would occur immediately. Mobile generators that the City owns or can obtain quickly from neighboring agencies would be transported to key locations to allow for transfers to upper zones. In the event of a regional power outage affecting the imported water supply, the distribution system would be relied on until supply deliveries return to normal. A more aggressive level of public outreach and water use restrictions would occur with a regional outage, as described under Severe Shortage response.

8.10 Minimum Supply Next Three Years

Table 8-4 presents the City's minimum supply availability for the next three years under the multiple dry year scenario. The imported supply is considered to be 100 percent reliable per MWD, the City groundwater supplies are 100 percent reliable based on past experience; recycled water is 100 percent reliable; and the local surface supplies are severely limited. Water supplies from Table 7-4 for the 2020 multiple dry year scenario were utilized here.

Table 8-4 Retail: Minimum Supply Next Three Years

	2016	2017	2018
Available Water Supply	24,911	24,940	26,281
NOTES:			

Chapter 9 - Demand Management Measures

9.1 Background

California faces unique water supply and demand challenges that are expected to continue indefinitely. The State has responded to those issues in a variety of ways including mandated legislation to assist water suppliers in their efforts to manage supply and demand. Over the last ten years in particular, the State of California reached a critical point in water supply reliability with the convergence of several key factors that included significant population increases, unseasonably low rainfall, critically dry conditions, and legally mandated environmental restrictions.

The City has been proactive in developing water-use efficiency programs that conserve existing water resources to ensure adequate water supplies will be available for sustainable future growth. Upland recognizes water use efficiency as an integral component of current and future water strategy that will benefit residents and as such strives to offer numerous incentives and educational opportunities for its citizens.

In 1991, the City became one of the first water agencies to sign CUWCC's *Memorandum of Understanding (MOU) Regarding Urban Water Conservation*, accepting its obligation to implement a prescribed set of urban water conservation best management practices (BMPs). The BMPs, which have been deemed equivalent to the demand management measures set forth in the UWMP Act, form the cornerstone of the City's conservation programs and a key element in the overall regional water resource management strategy. The City has maintained its compliance with the BMPs, as demonstrated in its coverage reports. Appendix G contains the 2014-15 Annual Water Use Efficiency Programs Report, which presents a record of implementation activities from FY2010/11 through FY2014/15. As many of the City's conservation activities are implemented on a regional basis through IEUA's Regional Conservation Workgroup, the City also actively participates in the regional alliance to comply with SB X7-7.

9.2 Demand Management Measures

Urban water conservation practices are intended to reduce long term urban demands from what they would have been without implementation of these practices. These are in addition to programs that may be instituted during occasional water supply shortages. The Act allows the City, as a BMP MOU signatory in full compliance, to submit the 2013-14 BMP annual report in lieu of describing the DMMs in this UWMP. Activities are described here and quantified in Appendix G tables.

9.2.1 Water Waste Prevention Ordinances

The water waste prevention ordinance (Ordinance 1786) is provided in Appendix F and discussed in Chapter 8.

9.2.2 Metering

The City requires meters for all customers. The City will continue to require metering of all connections.

9.2.3 Conservation Pricing

The City's water rates meet the CUWCC definition of "conservation pricing" that includes "rates designed to recover the cost of providing service." The City bills bi-monthly based on a fixed service charge based on meter size, plus a commodity charge.

9.2.4 Public Education and Outreach

Public education and outreach addresses public information programs to promote water use efficiency and educate customers about water use. School programs included National Theater for Children and Garden in Every School programs.

9.2.5 Programs to Assess and Manage Distribution System Real Loss

The City maintains an emergency response program that aggressively repairs main breaks, hydrant leaks or breaks, and meter leaks. A team is available to permanently repair breaks and promptly restore water service. All meter leaks are investigated and repaired the same day unless unable to do so; then next day service is performed.

9.2.6 Water Conservation Program Coordination and Staffing Support

The City has two part-time staff member who handles a variety of tasks related to water use efficiency and community information. City staff work closely with IEUA's water use efficiency staff to develop and implement City and regional programs.

9.2.7 Other Demand Management Measures

The City offers numerous residential, commercial, industrial, and institutional (CII) rebate programs and provides supplemental funding to offset the cost to our customers. As a member agency of IEUA, the City also takes advantage of regional programs offered through the wholesaler. Rebate activities are quantified in Section 9.3.

9.3 Implementation over the Past Five Years

The DMMs implemented by the City are quantified for the previous years of FY2010/11 through 2014/15. The nature and extent of the DMM rebate programs (e.g., toilet replacement rebates provided, etc.) are provided in Table 9-1. In addition to the rebates and devices provided, the City conducted 11 landscape evaluation audits in FY2014/15.

Table 9-1: Rebates and Devices Implemented

	Devices/Rebates				
	2010/11	2011/12	2012/13	2013/14	2014/15
City Residential Rebates					
High Efficiency Toilets	13			52	78
High Efficiency Clothes Washers	229	130	109	125	120
Rotating Nozzles for Pop-up Spray Heads	247	31	1	2	344
Weather Based Irrigation Controllers	5	11	5	12	10
Turf Removal/Synthetic Turf	1				9
FreeSprinklerNozzels.com Program	430	10,624			
Landscape Retrofit Program	17	5			
Rain Barrels				27	16
IEUA Locally Implemented Residential					
FreeSprinklerNozzels.com Program			2,525	2,538	860
Res Landscape Retrofit Program			23	24	
Landscape Transformation Program			3	9	19
Single Family Direct Install Program		794	633		
Multi-family Direct Install Program	117	36	256		
City Commercial Rebates					
High Efficiency Toilets	30			2	25
Waterless Urinals	5				
pH Conductivity Controller	1				
Weather Based Irrigation Controllers	1	1	27	51	4
Laminar Flow Restrictor			200	315	
FreeSprinklerNozzels.com Program		2,000			
Turf Removal					12
IEUA Locally Implemented Commercial					
FreeSprinklerNozzels.com Program			5,300	3,917	400
NOTES:					

The City started a Water Waste Hotline in response to the water shortage mandatory restrictions, discussed in Chapter 8. Data available indicate that the City received 176 complaints/requests from the public on its Hotline for a 1.5 month period of July 1, 2015 through August 18, 2015. City staff responded to each of the calls.

The City also conducted water education and community outreach at schools over the previous 14 years. The number of schools, students, and teachers reached during the previous five years as a part of the theater and garden outreach programs is presented in Table 9-2 below.

Table 9-2: Water Education/Community Outreach

Fiscal Year	2010/11	2011/12	2012/13	2013/14	2014/15
Schools	1	2	2	6	4
Students	770	65	835	1,315	1,852
Teachers	38	3	35	58	72
NOTES:					

9.4 Planned Implementation to Achieve Water Use Targets

Because the City's conservation efforts have been so successful, resulting in a reduction in demands approximately nine percent lower than its 2015 SB X7-7 target, it will continue to implement its current successful programs. The IEUA Regional Alliance also achieved its target for 2015. For the City to meet its 2020 target of 220 gpcd and IEUA to meet its regional 2020 target of 201 gpcd, the following passive and active water efficiency activities will be undertaken.

- Demand management measures the City and IEUA will continue to implement
- Other influences such as planned expansion of the recycled water program, higher number of people per household expected to accommodate projected population, and code-based remodeling savings
- Water conservation permanent restrictions

9.5 California Urban Water Conservation Council

CUWCC is a voluntary statewide organization of water agencies, public interest organizations, and private entities tasked with overseeing the BMP reporting process, implementing and revising the *Memorandum of Understanding Regarding Urban Water Conservation*, and generally promoting urban water use efficiency in California. Membership in CUWCC consists of three groups.

- Group 1: Urban Water Suppliers
- Group 2: Public Advocacy Organizations
- Group 3: Other Interested Parties

Only Groups 1 and 2 have voting rights to alter MOU provisions, and both groups must agree to any alterations. The MOU was last amended in January 2016. Upland became a Group 1 member of CUWCC in 1991, when it was one of nearly 100 water agencies and environmental groups to become charter signatories to the MOU. There are currently 389 CUWCC members.

As an MOU signatory, the City is obligated to make "good faith efforts" to meet coverage requirements for the BMPs for efficient urban water usage as set forth in the MOU. Every two years, water agencies that are signatories to the MOU are required to fill out and submit online BMP reports on conservation program activities as they relate to individual BMPs.

A BMP is defined by the MOU as a policy, program, practice, rule, regulation or ordinance or use of devices, equipment or facilities which meets either of the following criteria:

- An established and generally accepted practice among water suppliers that results in more efficient use or conservation of water; or,

- A practice for which sufficient data are available from existing water conservation projects to indicate that significant conservation or conservation-related benefits can be achieved; that the practice is technically and economically reasonable and not environmentally or socially unacceptable; and that the practice is not otherwise unreasonable for most water suppliers to carry out.

The City has not maintained its compliance with the MOU due to conservation staff allocating their time to implementation activities. Therefore, the CUWCC BMP annual report for FY2013/14 was not submitted. Appendix G contains the recent City of Upland Annual Water Use Efficiency Programs Report, prepared by IEUA, which presents a record of implementation activities since FY2002/03.

Chapter 10 – Plan Adoption, Submittal, and Implementation

This chapter discusses the UWMP adoption, submittal, and implementation process. It is organized to reflect the 2015 UWMP Guidebook sections and requirements to aid DWR in its review.

10.1 Inclusion of all 2015 Data

Data provided in this UWMP reflects fiscal years beginning July 1. Data utilized is current through the end of the last full fiscal year – June 30, 2015.

As required by *California Water Code* Section 10631(k), IEUA provided its member agencies information that quantified water availability of relevant supplies to meet their projected demands, in five-year increments. Based on the projections of retail demands developed by IEUA with its Demand Model, IEUA also provided demand projections specific to each member agency to be used by that agency to update its own UWMP. These data were used for consistency between documents.

10.2 Notice of Public Hearing

To provide public opportunities to participate in the UWMP process, the City provided notification of the preparation of the updated document and public noticing of the public hearing. These steps were consistent with all California Water Code requirements for notification of availability of this document in its draft and final forms. In addition to the city and county who were required to be notified, the City also notified wholesale suppliers of projected water use.

10.2.1 Notice to City and County and Other Entities

The City notified several agencies of the preparation of this UWMP. As presented in Table 10-1, the City of Upland and County of San Bernardino were notified at least 60 days prior to the public hearing date of June 27, 2016, of the fact that the UWMP was under preparation, of the hearing time and place, and of the availability of the UWMP to review prior to the hearing. A copy of the 60 day notification is provided in Appendix H.

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
City of Upland	X	X
County Name	60 Day Notice	Notice of Public Hearing
San Bernardino County	X	X

In addition to the required city and county notifications, the entities listed in Table 10-2 also received the 60 day notification of the preparation of the City of Upland 2015 UWMP. Upon preparation of the document, a draft UWMP was emailed to the agencies and companies listed in Table 10-1 and Table 10-2 along with a notification of the public hearing date, time, and location.

Table 10-2: Coordination with Water Agencies		
	60-day Notification	Hearing Notification
Chino Basin Watermaster	X	X
City of Chino	X	X
City of Chino Hills	X	X
City of Claremont	X	X
City of Fontana	X	X
City of La Verne	X	X
City of Montclair	X	X
City of Ontario	X	X
City of Pomona	X	X
City of Upland	X	X
County of San Bernardino	X	X
Cucamonga Valley Water District	X	X
Fontana Water Company	X	X
Golden State Water Company	X	X
Inland Empire Utilities Agency	X	X
Monte Vista Water District	X	X
San Antonio Water Company	X	X
Three Valley Municipal Water District	X	X
Water Facilities Authority	X	X
NOTES:		

10.2.2 Notice to the Public

The City encouraged public participation in the UWMP development process through noticing of the public hearing and by encouraging review of the draft document. A legal notice of the public hearing and of the availability of the draft UWMP was first provided approximately 30 days prior the June 27, 2016 public hearing. The public notice, provided in Appendix H, provided the date, time, and location of the hearing as well as the location where the UWMP was available for public review during normal business hours. This notice was published in the Inland Valley Daily Bulletin (Bulletin) once a week for two consecutive weeks with at least five days between each notice, prior to the original public hearing on June 27, 2016.

For the amended UWMP, in which Chapter 8 was revised in 2018, another hearing notice was published in the Bulletin on June 11, 2018 and June 18, 2018 prior to the hearing to be held on June 25, 2018 to adopt the amended UWMP.

A copy of the Draft UWMP was made available for public review at the Public Works Department counter during normal business hours prior to the notification appearing in the newspaper. Noticing for the hearing was provided in compliance of Act requirements.

10.3 Public Hearing and Adoption

The public hearing was held at a regularly scheduled City Council meeting on June 27, 2016 at 6:00 p.m. at the Upland City Hall. The adoption of the plan occurred at the same meeting. During the public hearing, information was provided on City baseline values, water use targets, and implementation plan. Documentation of the notifications and the public notice of the hearing encouraging the involvement of various community groups, and the adoption resolution are included in Appendix H.

10.4 Plan Submittal and Public Availability

The draft UWMP was made available for public review before the public hearing; the adopted plan was made available for public review during normal business hours at the Public Works Department counter for at least 30 days following submittal to DWR. The adoption resolution is provided in Appendix H.

The original 2015 UWMP was provided electronically to DWR, the California State Library, IEUA, SAWCo, WFA, City of Upland, County of San Bernardino, and to anyone else who requested it, within 30 days after adoption by July 1, 2016. DWR received the adopted UWMP text and the data tables electronically through the WUEdata online submittal tool that DWR developed. The

City submitted a CD of the adopted 2015 UWMP to the California State Library within 30 days of adoption, while the city, county, and other entities in Table 10-1 and Table 10-2 received an electronic copy. The amended UWMP, after adoption, will be submitted to the above mentioned agencies likewise.