



# City of Upland 2020 Urban Water Management Plan and Water Shortage Contingency Plan

June 2021

Karen E. Johnson, Water Resources Planning



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# **2020 Urban Water Management Plan and Water Shortage Contingency Plan**

DRAFT June 2021

**Prepared by**  
Karen E. Johnson, Water Resources Planning



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Date of Public Hearing:	TBD
Plan Adoption Date:	TBD
Resolution Number:	TBD
Plan Submitted to Department of Water Resources:	by July 1, 2021
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

### ***2020 Urban Water Management Plan & Water Shortage Contingency Plan***

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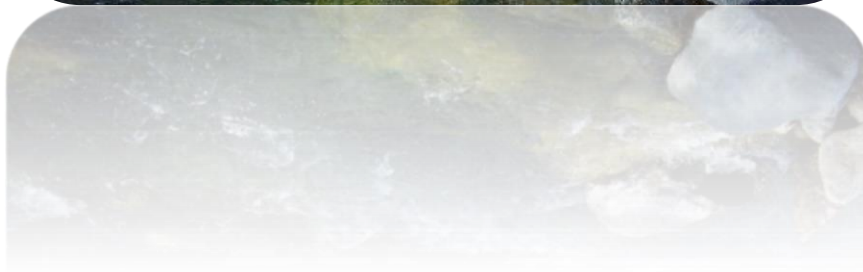
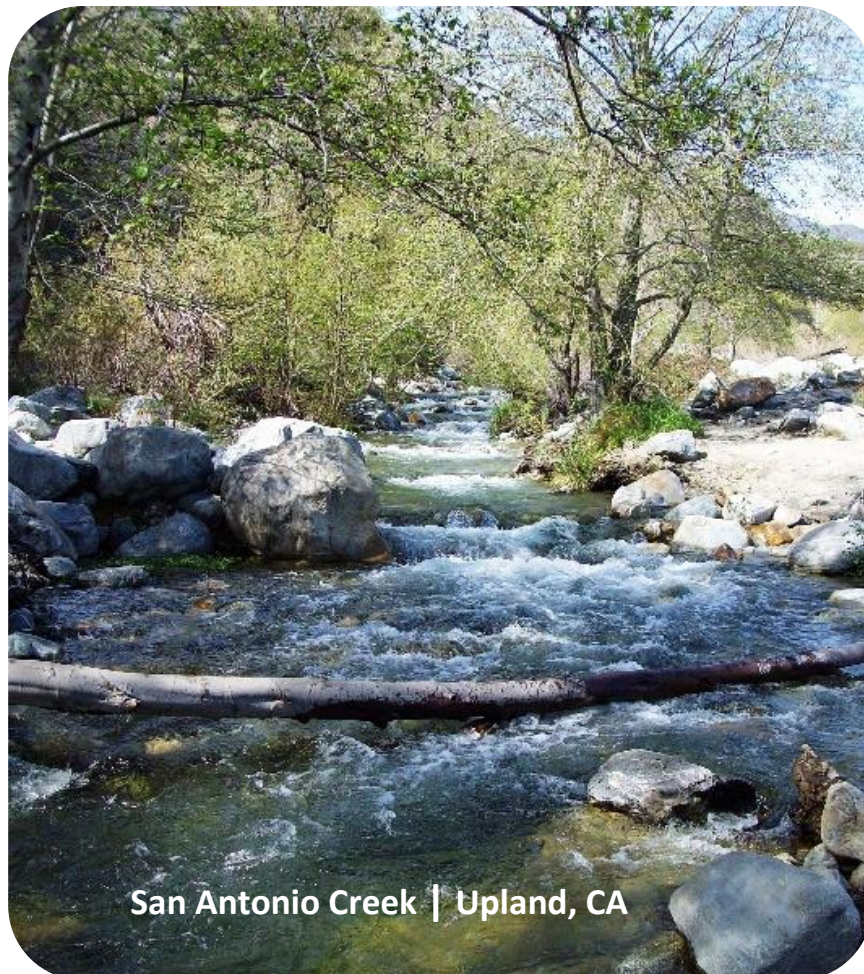
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## Acronyms and Abbreviations

Act	Urban Water Management Planning Act
AF	acre-feet
afy	acre-feet per year
Bay-Delta	San Francisco Bay – Sacramento River-San Joaquin River Delta
BMP	Best Management Practices
CalWEP	California Water Efficiency Partnership
CII	commercial/industrial/institutional
CVP	Federal Central Valley Project
CVWD	Cucamonga Valley Water District
DDW	SWRCP Division of Drinking Water
Delta	Sacramento River-San Joaquin River Delta
DMM	Demand Management Measures
DRA	Drought Risk Assessment
DWR	California Department of Water Resources
ESA	Endangered Species Act
gpcd	gallons per capita per day
IEUA	Inland Empire Utilities Agency
IRP	Integrated Resources Plan or Program
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
PFAS	per- and polyfluoroalkyl substances
PVPA	Pomona Valley Protective Association
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
WSCP	Water Shortage Contingency Plan
WECWC	West End Consolidated Water Company
WFA	Water Facilities Authority
WSAP	MWD’s Water Supply Allocation Plan
WSDM	MWD’s Water Surplus and Drought Management Plan
WTP	water treatment plant
WUE	water use efficiency

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# CITY OF UPLAND

## URBAN WATER MANAGEMENT PLAN

and

## WATER SHORTAGE CONTINGENCY PLAN

### Executive Summary

#### Background and Purpose

The Urban Water Management Planning Act (UWMP Act) requires water suppliers that provide over 3,000 acre-feet per year or have over 3,000 connections to prepare and submit to the State Department of Water Resources (DWR) an Urban Water Management Plan (UWMP) every five years. The City of Upland's (City or Upland) UWMP has been prepared in accordance with the UWMP Act, as defined by the California Water Code Sections 10610 through 10656, and the Water Conservation Act of 2009. There are very specific requirements for the UWMP and Water Shortage Contingency Plan (WSCP) provided in DWR's *Urban Water Management Plan Guidebook 2020* (Guidebook); this report has been structured for compliance with the UWMP Act and Guidebook.

Significant legislative changes to the Act since the 2015 UWMP include the addition of or modification to the following requirements.

- Five consecutive dry year water reliability assessment instead of three years
- Drought risk assessment for years 2021 through 2025
- Seismic risk to water system facilities and mitigation plan
- Readily obtainable information on energy use for the water system
- Five years of water loss audit reports
- Water Shortage Contingency Plan (WSCP) with greatly expanded requirements including a new Annual Assessment and the City's ability to respond to six supply shortage levels
- Consistency between the UWMP and the Sustainable Groundwater Management Act
- Provision of a lay description of the UWMP and WSCP which this Executive Summary provides

In addition to compliance with the State mandate, this document can serve as a foundational document and primary source for integrating water and land use planning at the city. This is

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accomplished in developing Water Supply Assessments and a Written Verification of Water Supply for new development in compliance with SB 610 and SB 221. Upland can use the UWMP as they update its general plan just as the city incorporates the general plan in the development of its water demand forecast.

This 2020 UWMP presents a description of historical and projected water use, conservation targets and water use efficiency activities to maintain and further reduce water use, water supply sources, a comparison of water supplies and water demands during normal, single dry, and multiple dry years, contingency planning for water shortages, and UWMP coordination and adoption details.

The WSCP, which is a document that can stand alone, is located here as Chapter 8. It provides for an Annual Assessment of supply availability and identifies shortage response actions the City would take in response to six standard water shortage levels.

## Service Area Description

The City of Upland is located in San Bernardino County directly south of the San Gabriel mountain range. The City's water service area shown in Figure ES-1 coincides generally with the City limits. The City serves potable water to a population of 78,383 people through 19,487 connections. The population is projected to be 92,862 by 2045. The service area has primarily single family homes, followed by multi-family homes, commercial uses, and limited industrial uses. The City is currently at approximately 95 percent buildout, and it is anticipated that most of the development in the future will be the full utilization of these vacant lands and reuse and redevelopment of older, lower density, underutilized lands.

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. Upland receives an average annual rainfall of 16.07 inches. During the last ten years, annual rainfall ranged from 7.22 inches in 2013 to 43.85 inches in 2019. Rainfall in the service area impacts water demands but it does not influence the imported water supplies which originates in northern California. Climate change is anticipated to result in higher temperatures overall in the service area with greater and more extreme weather fluctuations and events such as droughts and heat waves.



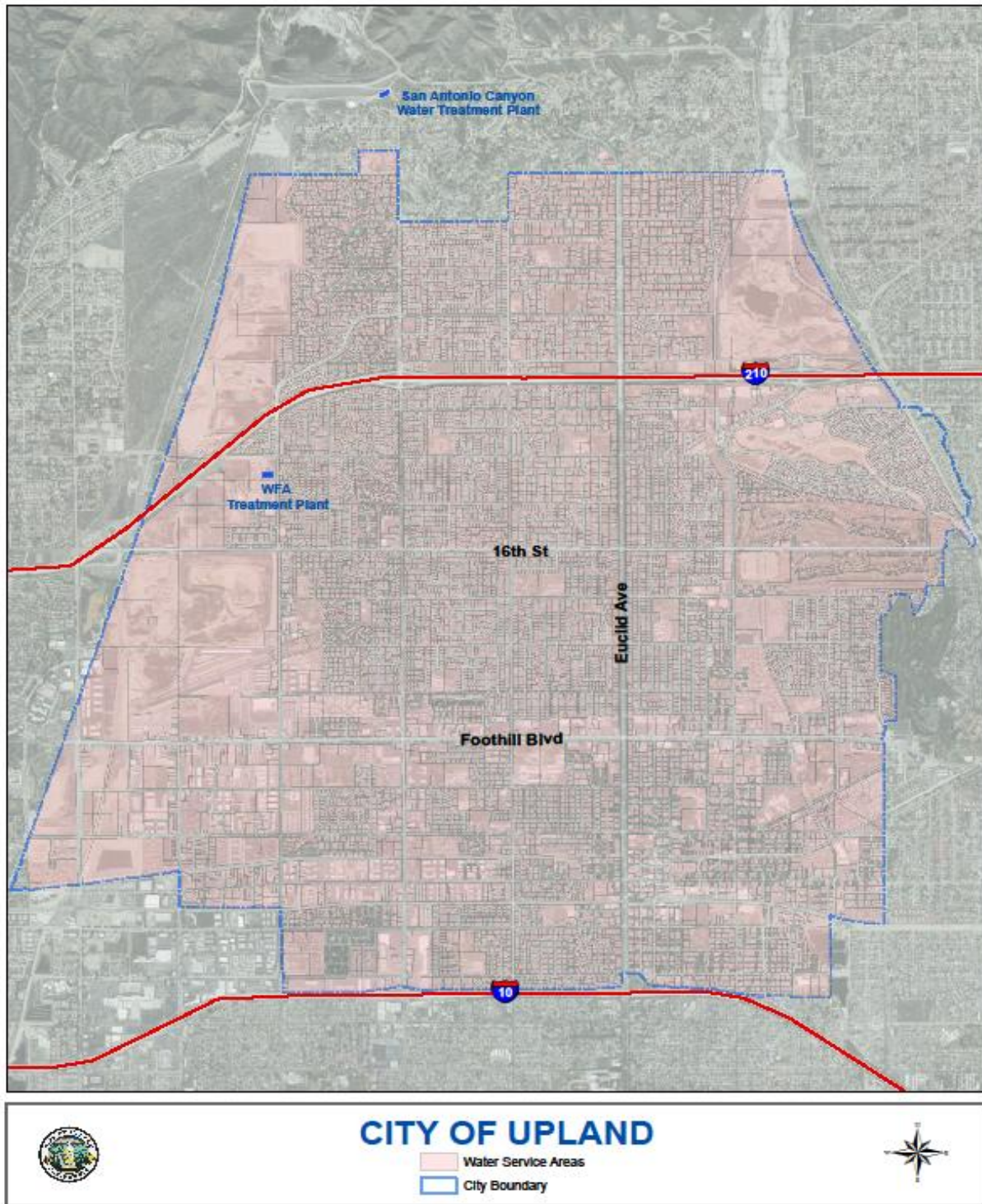


Figure ES-1: Upland Water Service Area

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## Water Demand

Table ES-1 presents actual and projected water demands in acre-feet. Projections were developed by Inland Empire Utilities Agency (IEUA) for its member agencies through the development of a Land Use Based Demand Model. This GIS-based Demand Model contains an inventory of future land use acreages planned for development within the Upland service area that reflect growth planned for in the updated General Plan. The demands reflect the City's consumption patterns and were adjusted over time for future conditions such as climate change and passive conservation. The unit demands were then applied to the acreage inventory. This land use based method takes into account demand for water for new development relying on developable vacant lands and an intensification of water use per acre for underutilized lands (e.g., redevelopment, repurposing, increased densities), all in accordance with the City's current General Plan.

Table ES-1: Water Demand, Actual and Projected (AF)						
	2020	2025	2030	2035	2040	2045
Potable	18,431	21,665	22,438	23,441	23,925	24,300
Non-potable	703	703	703	703	703	703
TOTAL	19,134	22,368	23,141	24,144	24,628	25,003
NOTE: Data from UWMP Tables 4-1 and 4-2						

## Conservation Targets

In 2009, the Water Conservation Act (SB X7-7) set a statewide goal of a 20 percent reduction in per capita water use by 2020. To help the State achieve the 20 percent reduction in water use, each urban water retailer adopted an interim per capita water use target for its service area for 2015 and a final target for 2020. The City customers responded positively to the call for conservation, achieving its 2015 and 2020 targets. The baseline per capita and the 2015 and 2020 gallons per capita per day (gpcd) water use targets are as follows.

- ◆ 10-year baseline daily per capita water use was 275 gpcd
- ◆ 2015 target was 247 gpcd and actual water use was 214 gpcd
- ◆ 2020 target was 220 gpcd and actual water use was 210 gpcd

Variable weather, drought conditions, increased cost of imported water, and economic conditions play a role in the year-to-year demand fluctuations, however, the overall decline in water use can largely be attributed to active demand management, water efficiency programs, and customer response to drought. The 2020 water use was significantly less than that required to meet the target. The City remains committed to its conservation program to maintain and further reduce water use.

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## Water Supplies

The City provided 18,431 acre-feet of water in its service area in 2020. The City's current water needs are met by a water supply portfolio consisting of several sources.

- ◆ Imported water from MWD purchased through IEUA
- ◆ Groundwater pumped from City owned wells and WECWC (City is shareholder)
- ◆ Groundwater purchased from SAWCo (City is shareholder)
- ◆ Surface water purchased from SAWCo (City is shareholder) and treated by City
- ◆ Recycled water purchased from IEUA

Imported water is provided by Metropolitan Water District of Southern California (MWD) through IEUA. MWD's water supply originates from two principal sources - the Colorado River via the Colorado River Aqueduct and the Feather River watershed/Lake Oroville in Northern California through the State Water Project (SWP) which travels through the Sacramento River–San Joaquin River Delta (Delta). Imported water purchased by IEUA is treated at the Water Facilities Authority/Joint Powers Authority Agua de Lejos Water Treatment Plant (WFA). The City is a member agency of WFA.

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. The City purchases groundwater from these two basins as well as from Cucamonga Basin from the San Antonio Water Company (SAWCo) and West End Consolidated Water Company (WECWC). Because the City is the primary shareholder in WECWC, its supplies are listed here as City supplies, not purchased imported supplies. Because SAWCo prepares its own UWMP, SAWCo data are addressed as a purchased groundwater supply. However, because of the interrelatedness of the three systems, the groundwater supplies are discussed together.

The local surface water supply is from SAWCo's pre-1914 surface water rights to San Antonio Creek. The City does not have surface water rights to this supply but obtains raw water from SAWCo for treatment at its San Antonio Canyon WTP. The City's entitlement to this water is 4,250 acre-feet per year (afy), however, the yields average significantly lower quantities. The greatest quantity available to the City during the last ten years was 4,175 acre-feet in 2011 while the low of 33 acre-feet was available in 2013. The ten year average from 2010 to 2020 was 1,679 afy which was used here for projected average supplies.

Recycled water provides a reliable and drought proof water source and has greatly reduced the region's reliance on imported supplies. The City provides direct delivery of recycled water from IEUA to City customers with 703 acre-feet sold in 2020. Recycled water provided to Upland is produced by IEUA at its RP-4 located in the City of Rancho Cucamonga and RP-5 located in the

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City of Chino. IEUA also recharges recycled water into the Chino Basin, which is allocated to its contracting agencies for their use. Table ES-2 presents the reasonably available water supplies for the City.

Table ES-2: Water Supply Availability (AFY)	
Supply	Reasonably Available Volume
Groundwater	10,548
Local Surface Water	1,679
Purchased Surface Water from WFA	5,541
Purchased Groundwater from SAWCo	6,857
Recycled Water purchased from IEUA	703
<b>Total</b>	<b>25,328</b>
NOTES: These volumes are based on City entitlements and current recycled water sales. See 2020 UWMP Chapter 6 for a description of each supply.	

## Water Supply Reliability and Drought Risk Assessment

Constraints on water sources and expected water service reliability for a normal year, single dry year, and five consecutive dry years projected for 2025 through 2045, were analyzed to determine the reliability of the City's water supplies. The newly required Drought Risk Assessment (DRA) offers an opportunity to test the City's near term supply reliability by assuming the next five consecutive years are dry.

### Supply Reliability

Although the City's supplies are very reliable, various factors have the potential to affect the availability and reliability of the imported supplies such as Delta challenges and hydrological water supply conditions. About 30 percent of Southern California's water supply moves from Northern California through the Delta to pumps in the south Delta. Endangered species protection and conveyance needs in the Delta have resulted in operational constraints to pumping. The Delta's declining ecosystem and the difficulties operating the SWP system has led to factors that can result in export reductions from the Delta, releases of additional water from storage, other operational changes associated with endangered species, or water quality requirements. In addition, new litigation, listings of additional species under the Endangered Species Act, or new regulatory requirements imposed by the State Water Resources Control Board could adversely affect SWP operations in the future by requiring additional export



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reductions, releases of additional water from storage, or other operational changes impacting water supply operations.

Dramatic swings in annual hydrologic conditions have been evident recently with its impacts being felt most severely on the SWP supply. The Colorado River swings in variability are buffered by its extensive storage capabilities, however the river basin appears to be experiencing declining amounts of precipitation in its watershed over the last 21 years (MWD, 2021). Climate change is expected to shift precipitation patterns and affect reliability of water supplies, which will make water supply planning even more challenging. The general trend with climate change is of less water-storing snowpack and greater precipitation in the Sierras, more precipitation earlier in the year when it cannot be readily utilized, and more extreme and more frequent drought and flooding events. Rising sea levels resulting in impacts to coastal groundwater basins and levee failure in the Delta due to seawater intrusion, and increased risk of damage from storms, high-tide events, and the erosion of levees; and potential pumping cutbacks on the SWP due to salinity levels at the pumps.

To analyze the reliability of the different sources of supply due to climate, hydrologic conditions for imported and local supplies were identified that define three year types: average, single dry year, and multiple dry years. MWD has determined and stated in its 2020 UWMP that it is able to meet the current and projected full service demands of its member agencies under all three hydrologic conditions through 2045 by developing and implementing water resources programs and activities through its preferred resource mix. As presented in Table ES-3, water supplies will be available to meet City demands during a normal water year.

Table ES-3: Normal Year Supply and Demand Comparison (AF)					
	2025	2030	2035	2040	2045 (Opt)
Supply totals	25,328	25,328	25,328	25,328	25,328
Demand totals	22,368	23,141	24,144	24,628	25,003
Difference	2,960	2,187	1,184	700	325
NOTES:					

For reliability planning, an increase in Upland demands associated with a single dry year was calculated which also reflects impacts on demands from climate change. Water demands typically increase during the first dry year before it is apparent that it will be a dry year and before demand management outreach is implemented. Although additional supplies are available, supplies in Table ES-4 were matched to demands. The City can provide reliable water

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supplies under the single driest year hydrology with reduced supplies to meet dry year demands.

Table ES-4: Projected Single Dry Year Supply and Demand (AF)					
	2025	2030	2035	2040	2045
Supply totals	23,800	24,622	25,689	26,204	26,603
Demand totals	23,800	24,622	25,689	26,204	26,603
Difference	0	0	0	0	0
NOTE: Single dry year includes 6.4% increase in demands. Supplies reflect availability to meet demands.					

Water demands were also analyzed for the multiple dry year scenario. Projected water demands were increased during the first year to reflect a dry year before conservation outreach is expanded. Table ES-5 presents projected multiple dry year water supply availability over the next 25 years compared to increased water demands. Based on the reliability of MWD supply, City groundwater supplies, groundwater purchases from SAWCo, recycled water supply, and limited local surface supply, the region can provide reliable water supplies under all years of the multiple dry year hydrology. This was evident during the recent drought of 2012 through 2016 with year 2013 being one of the driest years on record; the City was able to meet its water demands with an adequate supply. MWD has documented that deliveries within its service area are projected to be 100 percent reliable in multiple dry years.

### Drought Risk Assessment

A Drought Risk Assessment was performed based on the assumption that the five driest consecutive years on record for the water supplier will occur over the next five years. This hydrologic sequence reflects the availability of MWD supplies during the 1988 to 1992 drought. Table ES-6 demonstrates supply reliability during a hypothetical five year drought beginning in 2021. The imported supply was 100 percent reliable during the previous two multiple year droughts. MWD has stated that its supplies will be fully reliable during the next multiple year drought under most if not all conditions. This includes MWD's emergency supplies that have been accessed in the past and are a part of the supply portfolio.

**Table ES-5: Multiple Dry Years Supply and Demand Comparison (AF)**

		2025	2030	2035	2040	2045 (Opt)
First year	Supply totals	23,800	24,622	25,689	26,204	26,603
	Demand totals	23,800	24,622	25,689	26,204	26,603
	Difference	0	0	0	0	0
Second year	Supply totals	22,523	23,342	24,241	24,703	25,003
	Demand totals	22,523	23,342	24,241	24,703	25,003
	Difference	0	0	0	0	0
Third year	Supply totals	22,677	23,542	24,338	24,778	25,003
	Demand totals	22,677	23,542	24,338	24,778	25,003
	Difference	0	0	0	0	0
Fourth year	Supply totals	22,832	23,743	24,434	24,853	25,003
	Demand totals	22,832	23,743	24,434	24,853	25,003
	Difference	0	0	0	0	0
Fifth year	Supply totals	22,986	23,943	24,531	24,928	25,003
	Demand totals	22,986	23,943	24,531	24,928	25,003
	Difference	0	0	0	0	0

NOTES: Demand during first dry year was increased 6.4%; followed by average yr demand. Demand evenly distributed between 5 year increments. No change in demand after 2045. Recycled water demands met with 100% recycled water availability.

Table ES-6: Five-Year Drought Risk Assessment Tables (AF)	
2021	Total
Gross Water Use	20,448
Total Supplies	20,448
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0
2022	Total
Gross Water Use [Use Worksheet]	20,006
Total Supplies [Supply Worksheet]	20,006
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0
2023	Total
Gross Water Use [Use Worksheet]	20,793
Total Supplies [Supply Worksheet]	20,793
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%
2024	Total
Gross Water Use [Use Worksheet]	21,581
Total Supplies [Supply Worksheet]	21,581
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%
2025	Total
Gross Water Use [Use Worksheet]	22,368
Total Supplies [Supply Worksheet]	22,368
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%
Note: Change in demand between 2020 and 2025 evenly distributed, then first dry year increased 6.4%.	

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## Water Shortage Contingency Planning

The City has adopted a Water Shortage Contingency Plan which is a separate document presented here as Chapter 8. It addresses a newly required Annual Assessment, six mandatory shortage levels with response actions for each level, as well as many other shortage considerations such as communications, compliance, enforcement, legal authorities, financial consequences, monitoring and reporting, and refinement procedures.

### Annual Assessment

Urban water suppliers are required to submit an annual water supply and demand assessment report (called Annual Assessment) to DWR, in compliance with Water Code Section 10632(a). The City's Annual Assessment is a written decision-making process used to determine an anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions in the current calendar years of 2021 and 2022, while assuming 2022 will be a dry year.

In the Annual Assessment model presented in Table ES-7, average service area unconstrained demands (before demand reduction activities) are assumed for 2021 while increased dry year unconstrained demands are assumed for 2022. For 2022, the dry year assessment scenario evaluation criteria (see second page of Table ES-7) are reviewed to determine if a supply shortage is projected to result. The operations plan identifies the prioritization of supply, if needed, and the quantities likely to be available by applying the evaluation criteria. It is anticipated that there will not be a supply gap for 2021 and 2022. However, in the future, if demands exceed available supplies, the amount of the gap will determine which WSCP supply shortage level is triggered. If a supply gap is anticipated, the water shortage stage would be based on the assessment scenarios presented in the WSCP which will determine the appropriate shortage response level and response actions for the City.

The Annual Assessment will be submitted to DWR by July 1 of each year. The Annual Assessment will document any anticipated shortage, any triggered shortage response actions, associated compliance and enforcement actions, and communication actions.

<b>TABLE ES-7: City of Upland Annual Assessment</b>		
<b>ANNUAL ASSESSMENT REPORT SUBMITTED TO DWR:</b>		7/1/2021
<b>CURRENT YEAR</b>		
<b>Current year unconstrained demand (AF)</b>	2021	19,218
Infrastructure constraints		3 wells out due to regulatory water quality concern
<b>Current year total available potable supply (AF)</b>		
Groundwater (City, WECWC, SAWCo total entitlement)		17,405
Local surface water (average availability of 1,679 AF)		1,679
Purchased imported water (average use)		5,541
Supply Availability		24,625
Supply shortage or surplus		5,407
Supply Shortage Level expected this year		None
<b>NEXT YEAR - Assumed Single Dry Year</b>		
<b>Second year unconstrained demands, assuming dry year</b>	2022	21,286
2nd year infrastructure constraints		3 wells out
Groundwater (City, WECWC, SAWCo entitlement 17,405)		17,405
Local surface water (33AF in single dry year)		33
Purchased imported water (available to meet demand)		3,848
Supply Availability		21,286
Shortage or surplus supply availability		-
Supply Shortage Level expected next year		None
<b>Anticipated Assessment Scenario</b>		#2: Dry Water Year
Explanation of information provided above: Demand in 2021, and 2022 as the 1st dry year, is from 2020 UWMP Table 7-5. See Assessment Scenario #2, Dry Water Year, for evaluation criteria to determine if a shortage in supplies will result and what to monitor until it ends.		

Table ES-7, continued

Assessment Scenario #2: Dry Water Year or Outage Impacting Local Surface Supply			
<b>Hydrologic and Regulatory Conditions</b> -Customer demands increase -Groundwater levels measured -SWP supply conditions measured in 8-river index -San Antonio Creek flows -Seismic, power outage, or other event resulting in short term system outage to local supply, conveyance, and/or treatment facilities -Water quality of local surface supply -Regulatory conditions			
<b>Evaluation Criteria</b> -Monthly production data indicates above monthly average increases for December through March -City allocation of SAWCo surface water supply 25% to 50% of average by April 1 -San Antonio Creek flow below average November through April -Local surface supply facilities - treatment, storage and conveyance - unavailable for up to 6 months -Planned outage of facilities or supply monitored until restored -San Antonio Creek/WTP influent water quality monitoring detect contaminants -IEUA monthly Water Supply Condition update report, date? -MWD institutes Water Supply Allocation Plan (WSAP) -Regulatory changes result in interruption to local surface supply			
Unconstrained Demands: 2022			
Single Dry Year, Increased Demand		21,286	
Scenario #2 Prioritization of Supplies	Supply Sources	Available Quantity (AF)	Operations Plan
	Local Surface Water	0	Assumed no supply available
1	Groundwater	17,405	Maximize use of groundwater
2	Imported	3,881	Augment with imported water as needed
Total Availability		21,286	
Note: Local surface water 0% availability used here.			
<b>Shortage Response Actions Triggered</b> Demand Reduction Activities: See actions associated with Shortage Levels 2 through 6 Supply Augmentation Activities: See Operations Plan			

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## Water Shortage Levels and Response Actions

Six mandatory water shortage levels correspond to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than a 50 percent shortage from the normal levels of supply availability. Each of the shortage levels represent an ever-increasing gap between normally available supplies and normally expected customer water use. The City will implement the appropriate stage based on annually assessed water supply and demand conditions. Each stage consists of specific demand reduction actions including prohibitions, penalties, and/or rate structure modifications to be used as needed to encourage a reduction particularly in outdoor water demands. These response actions include public education campaigns, expanded outreach for water efficiency programs, and conservation penalties.

Supply augmentation responses have been integrated into the City's supply planning management for shortage conditions. The City, WECWC, and purchased SAWCo groundwater supplies provide potable supplies throughout the City and can be reduced or increased as needed. The imported surface water from WRA is a valuable supply, particularly during times of shortage of the local surface supply. When one or more of these supplies is limited, as is the case in 2021 with three wells shut down due to a regulatory water quality constraint, additional water is obtained from the San Antonio Creek supply, pumping from other wells, or increased purchase of imported water. This is not necessarily triggered by a response to a shortage level but rather as an ongoing operational plan to manage the robust supplies most efficiently and cost effectively.

## Demand Management

Water conservation is not often thought of as a water supply but reducing one's water use by installing more efficient fixtures, for example, directly offsets the need for the City to purchase expensive imported water. On July 11, 2005, the City Council approved the City's Water Shortage Contingency Ordinance (Section 13.16 of the Upland Municipal Code), establishing permanent conservation measures and a water shortage contingency plan. The purpose of this ordinance was to provide for increasingly stages of water shortages and to define voluntary and mandatory water conservation measures to be implemented during these stages. Upland relies on its ordinance for everyday management as well as during droughts to manage demands and prevent excessive water use. The WSCP can be enacted in times of drought and water shortage emergencies.

The City is committed to water use efficiency (WUE) as a means to maintain its reliable supply sources for its service area. The City's DMM activities, as well as programs administered by IEUA to assist in promoting regional water use efficiency, include the following activities.



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

WUE has become a major part of the City's current and future programs to reduce demand and increase water supply reliability. Because of the effectiveness of the programs, the City was able to exceed its 2020 water use target of 220 gpcd with average water use of 210 gpcd. Water conservation and demand management are an integral part of the City's water management strategy, integrating numerous and effective activities into long range planning for its supply needs.

## Plan Coordination

The UWMP Act requires the coordination of the preparation of this UWMP and WSCP with other appropriate agencies and the public. A public notification was sent out to numerous public agencies at least 60 days prior to the public hearing to inform them of the preparation of the plan and the UWMP update process and schedule, and to solicit input for the plan update. A hearing notice was published twice in local public newspapers prior to the public hearing in conformance with the Water Code. A copy of the UWMP and WSCP were available for review from the City website: [www.upland.ca.gov](http://www.upland.ca.gov) and at City Hall. The hearing was held to discuss the draft UWMP, WSCP, and addendum to 2015 UWMP on June 14, 2021. Public hearings provide an opportunity for all City customers to become familiar with the plan and ask questions about the City's water planning efforts.

The City Council adopted this 2020 UWMP and the WSCP on June 14, 2021. Within 30 days following plan adoption, the UWMP and WSCP were submitted to DWR, the California State Library, the County of Orange, and local wholesale and retail water providers. Within 30 days of submitting the UWMP to DWR, a copy was made available from the City website: [www.upland.ca.gov](http://www.upland.ca.gov).



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## 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 78,000 with the projected population anticipated to reach over 90,200 by 2045. The City is approximately 95 percent built out. Water demands are currently approximately 18,400 acre-feet per year (afy) with a projected demand of 23,900 acre-feet by 2040.

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.

This Urban Water Management Plan (UWMP) 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 and submit the plan to the State Department of Water Resources (DWR) every five years demonstrating water supply reliability in normal, single dry, and multiple dry years. The UWMP describes and evaluates sources of supply, reasonable and practical efficient water uses, and demand management activities.

Amendments have been added to the Act since its inception. In 2010, a change to the Act included the Water Conservation Act of 2009, also known as SB X7-7. This act required urban suppliers to establish water use targets for 2015 and 2020 for a reduction in 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. The City met and exceeded both the 2015 and 2020 targets.

The Act was significantly expanded since 2015. The major new requirements, as described in the DWR draft UWMP Guidebook 2020, include the following.

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**Five Consecutive Dry-Year Water Reliability Assessment.** The Legislature modified the dry year water reliability planning from a “multi-year” time period to a “drought lasting five consecutive water years” designation. This statutory change requires a supplier to analyze the reliability of its water supplies to meet its water use over an extended drought period.

**Drought Risk Assessment.** The California Legislature created a new UWMP requirement for drought planning in part because of the significant duration of recent California droughts and the predictions about hydrological variability attributable to climate change. The Drought Risk Assessment (DRA) requires a supplier to assess water supply reliability over a five-year period from 2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability under a reasonable prediction for five consecutive dry years.

**Seismic Risk.** The Water Code now requires suppliers to specifically address seismic risk to various water system facilities and to have a mitigation plan. An important aspect of this provision is the intersection of water supply infrastructure planning with a county or regional hazard mitigation plan.

**Water Shortage Contingency Plan.** In 2018, the Legislature modified the UWMP laws to require a Water Shortage Contingency Plan (WSCP) with specific elements. The WSCP is a document that provides an action plan for a drought or catastrophic water supply shortage. The new requirements are more prescriptive than previous versions. Many of these actions were implemented during the last drought, to successfully meet changing local water supply challenges. This is the most significant addition to the UWMP requirements. The WSCP, although presented here as Chapter 8, must be separately adopted by the City Council and maintained in practice as a separate document which can be modified or updated at any time. Within it, the City’s water shortage levels are now required to correspond to six standard water shortage levels in ten percent increments up to 50 percent water shortage, plus a shortage level over 50 percent shortage. Also now required in the WSCP is a water supply and demand assessment (Annual Assessment) with prescribed elements to be submitted annually to DWR starting with this WSCP.

**Groundwater Supplies Coordination.** In 2014, the Legislature enacted the Sustainable Groundwater Management Act to address groundwater conditions throughout California. Water Code now requires suppliers’ 2020 UWMPs to be consistent with Groundwater Sustainability Plans, in areas where those plans have been completed by Groundwater Sustainability Agencies.

**Lay Description.** The Legislature included a new statutory requirement for suppliers to include a lay description of the fundamental determinations of the UWMP, especially regarding water service reliability, challenges ahead, and strategies for managing reliability risks. This section of

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the UWMP, provided here as an Executive Summary, could be viewed as a go-to synopsis for new staff, new governing members, customers, and the media, and it can ensure a consistent representation of the supplier’s detailed analysis.

Sections of this UWMP that correspond to the Act are summarized in a Department of Water Resources (DWR) checklist located in Appendix A.

## 1.2 Utilization of Other Planning Documents

This 2020 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. City staff, with the assistance of a consultant – Karen E. Johnson, Water Resources Planning – prepared the 2020 UWMP. In preparing the UWMP, DWR’s 2020 *Guidebook for Urban Water Suppliers*, released in March 2021, and related required tables, were utilized along with other references listed in Appendix B.



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## 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. Table 2-1 presents the system identification, number of connections, and amount of water supplied in 2020 in acre-feet.

Submittal Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 (AF)
3610050	City of Upland	19,497	18,431
<b>TOTAL</b>		19,497	18,431
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 document 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.

Submittal Table 2-2: Plan Identification		
Select Only One	Type of Plan	Name of RUWMP or Regional Alliance <i>if applicable</i> <i>drop down list</i>
<input checked="" type="checkbox"/>	<b>Individual UWMP</b>	
	<input type="checkbox"/> Water Supplier is also a member of a RUWMP	
	<input type="checkbox"/> Water Supplier is also a member of a Regional Alliance	
<input checked="" type="checkbox"/>	<b>Regional Urban Water Management Plan (RUWMP)</b>	Inland Empire Utilities Agency Alliance
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 FY20. The quantities presented in this document are consistently presented in acre-feet (AF).

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
<input type="checkbox"/>	Supplier is a wholesaler
<input checked="" type="checkbox"/>	Supplier is a retailer
Fiscal or Calendar Year (select one)	
<input type="checkbox"/>	UWMP Tables are in calendar years
<input checked="" type="checkbox"/>	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:	



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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.

Submittal 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 Water Code Section 10631.
Wholesale Water Supplier Name <i>(Add additional rows as needed)</i>
Inland Empire Utilities Agency (IEUA)
San Antonio Water Company (SAWCo)
Water Facilities Authority (WFA)
West End Consolidated Water Company (WECWCo)
NOTES:



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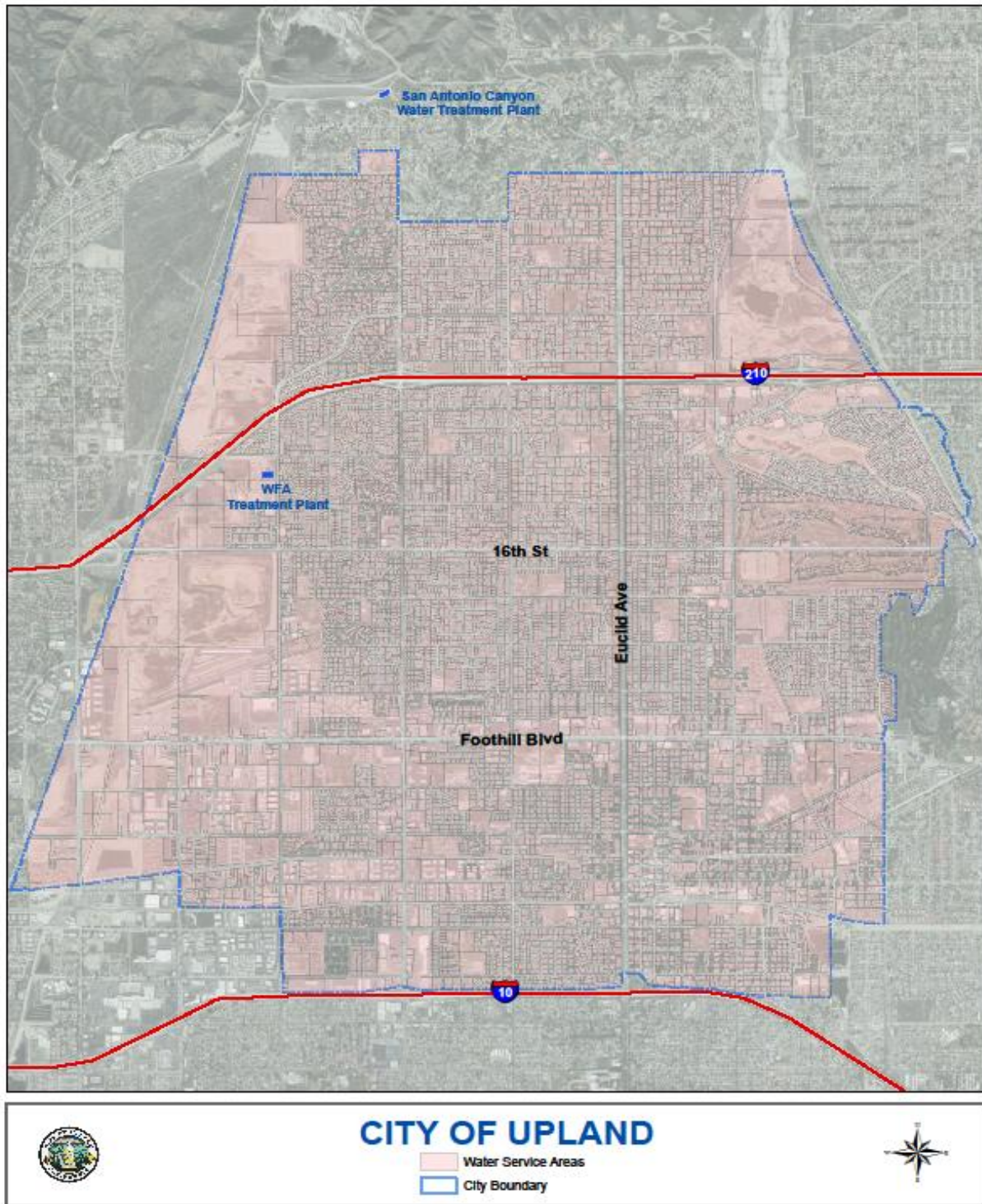
## Chapter 3 – System Description

### 3.1 Service Area Physical Description

The City of Upland 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 with the same as 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. The City's water demands were projected using IEUA's demand model for the region. As a part of the model development, the boundaries for each of its member agencies were based on LAFCO designated spheres of influence to not only avoid any potential for overlapping jurisdictions but also because the spheres of influence were vetted in a public process and underwent CEQA review.

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 (WECWC) wells. WECWC 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) or SACWTP. Imported surface supplies are purchased from MWD through IEUA and treated by WFA at Aqua de Lejos WTP. 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 is provided by IEUA. Recycled water is either directly provided to customers or is used as a supplemental source to recharge the groundwater aquifer for future production. Supplies used for direct use are accounted for in this UWMP. 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 Water Service Area**

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## 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 an average annual rainfall of 16.07 inches. During the last ten years, annual rainfall ranged from 7.22 inches in 2013 to 43.85 inches in 2019 (SAWCo website, 2021). Average temperatures range from 52° Fahrenheit in the winter months to 79° Fahrenheit in the summer months.

Average evapotranspiration rates (ET<sub>o</sub>) have averaged about 47.5 inches. ET<sub>o</sub> 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 suppression 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, IEUA increasing groundwater recharge, and the City relying on the heavily managed groundwater basins to meet its water demands, Upland 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, more intense storm events and the changing frequency and duration of drought years are becoming evident

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throughout the state. Therefore, MWD is increasing its water supply options to compensate for State Water Project (SWP) and Colorado River reductions due to climate change. 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 both water demands and greenhouse gas emissions. Portions of this discussion of climate change impacts to the City's water supplies and demands are repeated in chapters 4, 6, and 7 of this UWMP.

### 3.3.1 Impacts to Imported Supply and Local Surface Water

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)

At the present time, statewide infrastructure to capture precipitation is limited because infrastructure in California was designed to capture slow melting snowpack not rapid stormwater runoff. The following impacts to the City's imported supply are anticipated. 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.



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- 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 supply will likely result in lower and greater fluctuations in availability.

### 3.3.2 Impacts to Groundwater Supply

Although climate changes does impact the natural recharge of groundwater basins, the likelihood of it affecting groundwater resiliency, augmented replenishment, and quality is low. 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 Impacts to 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. For the City's water demand forecast, demands for land uses where the predominant use is

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outdoor landscaping (e.g., most residential categories and parks/schools/irrigation), demands were increased three percent gradually over time to 2040. It is not known yet if changes in precipitation patterns will have any effect on these increases.

### 3.4 Other Social, Economic, and Demographic Factors

The City's water service area shown in Figure 3-1 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 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 IEUA as developed by Southern California Association of Governments (SCAG). The City is currently at approximately 95 percent buildout of vacant lands, and it is anticipated that most of the development in the future will be the full utilization of these vacant lands and reuse and redevelopment of older, lower density, underutilized lands.

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045(opt)
	78,383	81,177	84,071	87,036	89,902	92,862
NOTES: Population projections provided by IEUA from SCAG data.						

### 3.5 Land Uses within the Service Area

Demand projections are discussed in Chapter 4 and are based on the development of a land use based forecasting model by IEUA for its member agencies. As a part of the model development, existing and future land uses in the City were mapped and designated for a specific land use. The projections reflect the development of vacant parcels and an intensification of existing uses on underutilized parcels, all in accordance with the adopted General Plan. The City of Upland 2015 General Plan guides development of lands within the water service area. Table 3-2 provides a summary of the existing land uses in the service area along with projected land uses. Land uses consist of predominantly residential neighborhoods with smaller portions of commercial and industrial developments. Any increase anticipated in a particular land use shown in Table 3-2 reflects the general plan designated land use as adapted to the demand model land use categories. This land use inventory formed the basis of the development of



water demand projections. As discussed in Chapter 4, land use unit demands were developed specific to Upland and applied to the acreage inventory.

**Table 3-2: Acreage Inventory of Existing and Planned Land Uses (acres)**

LAND USE	2015	2020	2025	2030	2035	2040
Residential Very Low (<1 - 2)	786	786	786	786	786	786
Residential Low (3 - 7)	2,811	2,813	2,813	2,817	2,846	2,846
Residential Medium (8 - 14)	306	384	410	414	414	418
Residential High (15 - 24)	319	351	354	413	413	413
Residential Very High (25+)	26	32	32	39	39	46
Commercial	685	693	706	706	755	755
Industrial	327	337	337	353	353	353
Public/Institutional	124	119	119	119	124	124
Parks, Schools, Irrigation	401	401	457	457	457	457
Agriculture	55	55	55	55	55	55
Unique Water Users	259	259	248	248	248	248
NOTES: Source: <i>Land Use Based Demand Model Development</i> , IEUA 2016.						



## Chapter 4 – System Water Use

Current water demand is discussed in this chapter along with a description of the demand forecast methodology and results for future water demands on the Upland system. The methodology relies on the local land use authority's land use information for use in projecting demands. Distribution system losses are quantified here. In addition, a discussion of projected water demands for planned low-income households and climate change considerations is provided.

### 4.1 Water Demand

The City has several billing classifications: single family residential, multi-family residential, commercial (which includes industrial), government, and landscaping. As required by the Act, Table 4-1 presents 2020 deliveries by water use sector in AF. Table 4-1 also includes losses. Losses, or unbilled water, are described in Section 4.3 and are based on the most current water audit located in Appendix C. Water use since the 2015 UWMP has been reported to the State by the City annually.

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable Water - Actual			
Use Type <i>(Add additional rows as needed)</i>	2020 Actual		
<b>Drop down list</b> <i>May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered <i>Drop down list</i>	Volume (AF)
Single Family		Drinking Water	9,151
Multi-Family		Drinking Water	2,943
Other Potable	Commercial and industrial	Drinking Water	1,818
Institutional/Governmental		Drinking Water	515
Landscape		Drinking Water	2,497
Losses		Drinking Water	1,267
Sales/Transfers/Exchanges to other Suppliers		Drinking Water	240
TOTAL			18,431
NOTES: Losses reflect the difference between production and consumption in 2020 of 6.9 percent.			

## 4.2 Demand Projections

Table 4-2 presents future water demands in AF. Water demand projections were developed by IEUA for its member agencies through the development of a Land Use Based Demand Model (called Demand Model, IEUA, 2016). This GIS-based Demand Model contains an inventory of future land use acreages planned for development within the Upland service area in five-year increments (see Table 3-2). These land uses 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.

Land use based unit demands were developed that reflect the City's consumption patterns and were adjusted over time for future conditions such as climate change and passive conservation. The unit demands were then applied to the acreage inventory. This land use based method takes into account demand for water for new development relying on developable vacant lands and an intensification of water use per acre for underutilized lands (e.g., redevelopment, repurposing, increased densities), all in accordance with the City's current General Plan. The City planning managers reviewed and confirmed the future land use data and provided rough estimates of when each of the lands may be developed over time. Sales to Other Agencies in Table 4-2 reflect the amount sold in the past for an industrial operator increasing slightly over time.

Submittal Table 4-2 Retail: Use for Potable and Non-Potable Water - Projected						
Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use (AF) <i>Report To the Extent that Records are Available</i>				
<u>Drop down list</u> <i>May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>		2025	2030	2035	2040	2045 (opt)
Single Family		11,629	11,902	12,078	12,309	12,475
Multi-Family		3,628	3,692	4,399	4,448	4,586
Commercial		1,846	1,887	1,916	2,035	2,047
Institutional/Governmental		537	541	544	567	570
Landscape		2,652	3,000	3,035	3,070	3,105
Sales/Transfers/Exchanges to other Suppliers		244	246	247	249	250
Losses		1,129	1,170	1,222	1,247	1,267
Other Potable						
<b>TOTAL</b>		21,665	22,438	23,441	23,925	24,300
NOTES: Demand forecast based on the City of Upland general plan land use element. Only passive water savings such as plumbing code changes are incorporated. Unbilled water of 5.5% provided separately as water losses. Climate change impacts increased demands by 3% by 2040						

Water losses for the City assumed 5.5 percent in the future, as described in Section 4.3. Total water use for the City is comprised of water deliveries, sales, and losses. Table 4-3 presents a summary of 2020 demands from Table 4-1 and the projected water demands from Table 4-2. Table 4-3 also includes current and projected recycled water demands discussed in Chapter 6. All DWR submittal tables are in AF unless otherwise noted.

<b>Submittal Table 4-3 Retail: Total Gross Water Use (Potable and Non-Potable)</b>						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable <i>From Tables 4-1R and 4-2 R</i>	18,431	21,665	22,438	23,441	23,925	24,300
Recycled Water Demand* <i>From Table 6-4</i>	703	703	703	703	703	703
Optional Deduction of Recycled Water Put Into Long Term Storage	0	0	0	0	0	0
<b>TOTAL WATER USE</b>	19,134	22,368	23,141	24,144	24,628	25,003
<i>*Recycled water demand fields will be blank until Table 6-4 is complete.</i>						
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 in 2020. 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.

DWR requires that the audit be conducted annually. The FY20 worksheet, along with the audit worksheets submitted since 2015, are provided in Appendix C and summarized in Table 4-4. The audits for FY19 and FY20 are underway. As a placeholder, the difference between total system production and total consumption was estimated as the water losses for the not yet audited years. These losses for FY19 and FY20 are estimated to be approximately 4.0 percent and 4.4 percent respectively. System losses included with projected demands in Table 4-2 were 5.5 percent.

Pursuant to Section 10608.34 of the Water Code, suppliers must show here whether it met the distribution loss standards enacted by the SWRCB. However, the distribution loss standards have not been adopted by the SWRCB. The standards may go into effect after the 2020 UWMPs have been adopted. The audit reports are provided here and all programs initiated by the City to reduce losses are described in Chapter 9. The Guidebook recommends that trending also be included here, but without a long period of audit records, the typically wide fluctuations in annual losses do not show a discernable pattern yet.

Submittal Table 4-4 Retail: 12 Month Water Loss Audit Reporting (AF)	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
07/2015	880
07/2016	1,110
07/2017	767
07/2018	774
07/2019	1,272
* Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.	
NOTES: Audits for FY18, FY19, and FY20 are underway. Losses provided here reflect gross production minus billings and will be updated upon completion of audits.	

## 4.4 Inclusion of Future Water Savings

Only passive conservation savings (e.g., plumbing code changes) were estimated and included in the water demand projections, as stated in Table 4-5. These passive conservation savings were developed by IEUA in its Integrated Resources Plan (IRP) in 2015 and applied to each member agencies' unit demands in the IEUA Demand Model. A 2.3 percent savings through 2040 was applied in the demand forecast presented in Table 4-2.

Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i>	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.	Section 4.2 text
Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i>	Yes
NOTES: Demand projections include up to 2.3% passive conservation savings only by 2040. 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 most current Housing Element of the General Plan indicates the need for 1,589 units within the City by 2021. According to the 2014 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.

Water demands for planned low income housing 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.

## 4.6 Climate Change Considerations

The IEUA Demand Model took climate change impacts to water demand into consideration. The estimated increase in demand of three percent by 2040 applied in the Demand Model was based on IEUA's IRP analysis of climate change impacts. Table 4-2 reflects this potential

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increase. In addition, the drought risk assessment in Chapter 7 also includes a dry year increase for the City of 6.4 percent.



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## Chapter 5 – Baseline, Target, and Compliance

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

### 5.1 Establishing Baseline

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.

Submittal Table 5-1 Baselines and Targets Summary from SB X7-7 Verification Form				
Retail Supplier or Regional Alliance Only				
Baseline Period	Start Year	End Year	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	1996	2005	275	220
5 Year	2005	2009	272	
*All values are in Gallons per Capita per Day (GPCD)				
NOTES:				

The SB X7-7 compliance 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.

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

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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 Target

DWR provided four different methods to establish water conservation targets. Method 1, Baseline Reduction Method was employed. 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.

### 5.2.1 Individual City SB X7-7 Target

Individual agency targets are needed to meet the goal of a 20 percent reduction in per capita use by 2020 as set forth in the Water Conservation Act of 2009 (SB X7-7). Methodology 1 required 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.

Based on the City's FY15 water demands, per capita consumption was 214 and the City met its 2015 target. The 2020 demands of 210 gpcd are below the 2020 target of 220 gpcd, thus the City also met its 2020 target individually, as presented in Table 5-2. The City has worked hard since the last UWMP in targeting conservation efforts to meet its 2020 per capita target.

### 5.2.2 Regional Alliance

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 target for 2020 was 193 gpcd while actual 2020 water use was 168 gpcd, indicating that the region met the 2020 target. This estimate was provided in draft form and will be updated as IEUA finalizes its 2020 UWMP.

**Submittal Table 5-2: 2020 Compliance From SB X7-7 Compliance Form**  
*Retail Supplier or Regional Alliance Only*

2020 GPCD			2020 Confirmed Target GPCD	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD	2020 TOTAL Adjustments	Adjusted 2020 GPCD		
210	0	0	220	Yes
<i>*All values are in Gallons per Capita per Day (GPCD)</i>				
NOTES: Data reflects the City of Upland target. The IEUA Regional target was also met for 2020.				



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## 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 (City is a member agency)
- ◆ Groundwater pumped from City owned wells and WECWC (City is shareholder)
- ◆ Groundwater purchased from SAWCo (City is shareholder)
- ◆ Surface water purchased from SAWCo (City is shareholder) and treated by City
- ◆ Recycled water purchased from IEUA

The City has rights to 70.6 percent of the stock in SAWCo (currently 4,515 shares) and 91 percent of WECWC 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 WECWC, respectively. SAWCo produces surface water which the City treats at its San Antonio Canyon WTP. Both SAWCo and WECWC 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 WECWC, SAWCo and City systems are interconnected, and the City operates the supply system in a manner such that the City can pump SAWCo and WECWC supplies from both City wells and company wells.

### 6.1 Purchased 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 19 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

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through the Delta during dry years and during times of Delta regulatory restrictions. The MWD 2020 UWMP provides detailed documentation of current and projected MWD supplies and deliveries to ensure supply reliability under climate change and other vulnerable conditions (MWD, 2021).

As a MWD member agency, IEUA currently has a Tier 1 allocation 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 directly to the City distribution system.

As long as the Tier I 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 I allocation for WFA supply based on a ten year rolling average of its previously purchased supplies. Through 2020, this average was 5,541 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. The City purchases groundwater from these two basins as well as from Cucamonga Basin from SAWCo and WECWC. Because the City is the primary shareholder in WECWC, its supplies are listed here as City supplies, not purchased imported supplies. Because SAWCo prepares its own UWMP, SAWCo data are addressed as a purchased groundwater supply. However, because of the interrelatedness of the three systems, the groundwater supplies are discussed together.

Links to the judgments for Chino Basin and Six Basins and a copy of the Cucamonga decree are provided in Appendix E along with links to current groundwater management plans. 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. The City complies with all Sustainable Groundwater Management Act requirements to maintain sustainable groundwater

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conditions in accordance with the judgments and decree and groundwater management planning for these three basins.

### 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 Chino Basin and SAWCo has two wells. WECWC does not have wells in Chino Basin; the City can pump WECWC'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 WECWC 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 (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.

In 1998, Watermaster developed an integrated set of water management goals and actions for the basin. As mentioned in Chapter 3, this is known as the Optimum Basin Management Plan or 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. The 2020 OBMP Update includes a refined storage management plan to effectively utilize storage in the basin up to one million acre-feet. See Appendix E for a link to more information on the 2020 OBMP Update.

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

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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 (e.g., 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. The City recently took one well out of service in the Chino Basin due to water quality concerns.

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 WECWC, SAWCo, and CVWD. The Cucamonga Basin decree stipulates SAWCo's base water production as 4,500 afy. WECWC has a right to pump 750 afy from Cucamonga Basin. Both SAWCo and WECWC 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 WECWC. 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. WECWC does not have any wells in this basin; the City pumps WECWC'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



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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 stipulated Judgment with a set initial OSY for Four Basins at 19,300 afy. According to the Watermaster, this Judgment is the current groundwater management plan for Six Basins.

Under the Judgment, provided in Appendix E, the City is entitled to 9.544 percent of the OSY while SAWCo and WECWC 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

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Heights Basin. WECWC has five wells in Upper Claremont Heights Basin while SAWCo has three. Two of the City's wells in Six Basins are out of service due to water quality concerns.

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.

Pomona Valley Protective Association (PVPA) is the owner of the San Antonio spreading grounds and facilities. The spreading grounds are currently operated by WECWC 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, SACWTP 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.

In 2012, the Watermaster parties collectively agreed to enhance the management of the Six Basins beyond the execution of the Judgment and began development of strategic plan. The objective of the strategic plan is to develop a water resources management program that sustains and enhances the water supplies available to the Six Basins in a cost-effective manner and in accordance with the Judgment. Environmental compliance for the strategic plan is in development (Six Basins Watermaster, 2021).

**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 and WECWC have pumped groundwater quantities over the last five years ranging from a low of 4,174 acre-feet in 2018 to 6,125 acre-feet in 2020. SAWCo pumpage is not included in Table 6-1 because it is a purchased supply that is addressed in the SAWCo UWMP.

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
<input type="checkbox"/>	Supplier does not pump groundwater. The supplier will not complete the table below.					
<input type="checkbox"/>	All or part of the groundwater described below is desalinated.					
Groundwater Type <i>Drop Down List</i>	Location or Basin Name	2016	2017	2018	2019	2020
<i>Add additional rows as needed</i>						
Alluvial Basin	Chino Basin	2,601	1,260	1,764	2,381	2,449
Alluvial Basin	Six Basins	2,194	2,092	2,118	1,820	2,962
Alluvial Basin	Cucamonga Basin	106	1,419	293	538	714
<b>TOTAL</b>		4,901	4,771	4,174	4,738	6,125
NOTES: Groundwater pumped by SAWCo is not included here. It is presented in the SAWCo 2020 UWMP.						

#### 6.2.5 Groundwater Projected to be Pumped

The amount of groundwater supplies available to the City is based on total entitlement of 10,548 afy for the three basins. The entitlement to purchased SAWCo groundwater supply is 6,857 afy. The actual volume pumped is determined by demand and availability of local surface water as the San Antonio Creek surface supply is preferred first. The wells have a greater production capacity than what is needed under average water year conditions to ensure

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reliability of the system and to meet demands when the availability of the local surface supply is reduced due to hydrologic 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 SACWTP. 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 (Mt. Baldy). The 2015 UWMP for SAWCo states that it anticipates its projected entitlement to be reduced by 15 percent due to more frequent drought conditions.

### 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 SACWTP, 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 was provided on average between 2011 and 2015; and 1,790 afy was provided on average between 2016 and 2020. The ten year average from 2010 to 2020 was 1,679 afy. The greatest quantity available to the City during the last ten years was 4,175 acre-feet in 2011 while the low of 33 acre-feet was available in 2013. The ten year average was used here for projected normal supplies.

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## 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

Recycled water provides a reliable and drought proof water source and has greatly reduced the region's reliance on imported supplies. The City provides direct delivery of recycled water from IEUA to City customers with 703 acre-feet sold in 2020. IEUA also 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 would like to maximize utilization of recycled water, with a goal of 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.

### 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 a per capita rate applied to the current population.

As presented in Table 6-3, there is no wastewater treated or discharged 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 is 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. RP-1 serves portions of the cities of Upland, Ontario, Rancho Cucamonga, Montclair, Fontana, and unincorporated areas of San Bernardino County with a current average day flow of approximately 24 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 8 mgd, down from 9 mgd in 2010. CCWRF serves the cities of Upland, Chino, Chino Hills, and Montclair.

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
<input type="checkbox"/> There is no wastewater collection system. The supplier will not complete the table below.						
Percentage of 2020 service area covered by wastewater collection system <i>(optional)</i>						
Percentage of 2020 service area population covered by wastewater collection system <i>(optional)</i>						
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected from UWMP Service Area 2020 (AF)	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i> <i>Drop Down List</i>
<i>Add additional rows as needed</i>						
City of Upland	Metered	4,390	Inland Empire Utilities Agency	RP-1 and CCWRF	No	No
<b>Total Wastewater Collected from Service Area in 2020:</b>		4,390				
NOTES: Wastewater in AF collected based on population of 78,383 and unit flow coefficient of 50 gpcd						

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 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 RP-5 located in the City of Chino. The City currently provides 703 afy for landscape irrigation, as presented in Table 6-4. Recycled water utilized for direct irrigation delivery started in 2012 with service to Upland Hills Country Club.

### Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020

<input checked="" type="checkbox"/> No wastewater is treated or disposed of within the UWMP service area. The Supplier will not complete the table below.											
WWTP Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level <i>Drop down list</i>	2020 volumes				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
Add additional rows as needed											
<b>Total</b>							0	0	0	0	0

NOTES: City of Upland's wastewater flows to IEUA facilities for treatment and disposal.

### Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area

<input type="checkbox"/> 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 Supplier Producing (Treating) the Recycled Water:			IEUA								
Name of Supplier Operating the Recycled Water Distribution			IEUA								
Supplemental Water Added in 2020 (volume) <i>Include units</i>			NA								
Source of 2020 Supplemental Water			NA								
Beneficial Use Type	Potential Beneficial Uses of Recycled Water (Describe)	Amount of Potential Uses of Recycled Water (Quantity) <i>Include volume units</i>	General Description of 2020 Uses	Level of Treatment <i>Drop down list</i>	2020	2025	2030	2035	2040	2045 (opt)	
Landscape irrigation (excludes golf courses)				Tertiary	703	703	703	703	703	703	
<b>Total:</b>					703	703	703	703	703	703	
2020 Internal Reuse											

*\*IPR - Indirect Potable Reuse*

NOTES: Preliminary numbers from IEUA Draft Recycled Water Forecast identify the following potential for direct demands: 940AF in 2025, 1,023 AF in 2030, 1,062 AF in 2035, and 1,158 AF in 2040.

IEUA recently conducted a forecast of total potential recycled water demand for each of its Contracting Agencies. Potential demands within the City could be as high as 1,158 acre-feet by 2040. However, cost effectiveness of extending service to the future growth areas needs further study for implementation. Table 6-4 and the supply reliability analyses in chapters 7 and 8 assume the current use of 703 afy is maintained.

Figure 6-1 presents the current recycled water system. The City has retrofitting landscapes of identified recycled water users, at no charge to the customer, in conformance with the short term phase of the Upland Recycled Water Master Plan.

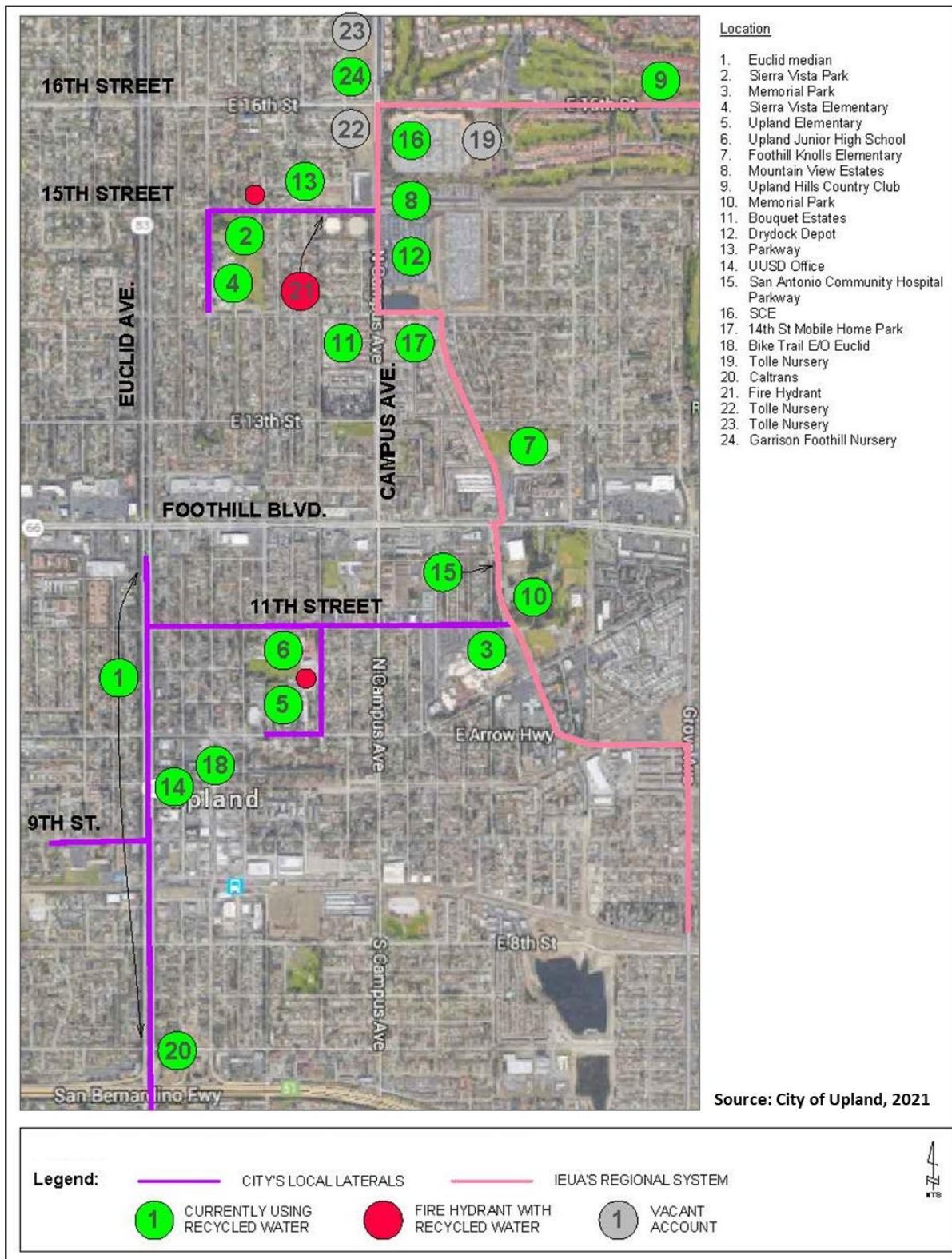
Since the City pumps groundwater from Chino Basin which is replenished partially with recycled water, and the City service area contributes to these recycled water supplies, the amount of recycled water for indirect potable reuse associated with City pumping was identified by IEUA. Of the annual recycled 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 13,381 afy of recycled water. The City's allocation of recycled water pumped by the City was 1,243 acre-feet in FY20. This is in addition to the 703 afy purchased from IEUA for direct recycled water use. Although the indirect potable reuse quantities could contribute to the City achieving its 2020 per capita target of 220 gpcd as the total 2020 recycled water utilization offsets potable demands, the City achieved a per capita rate of 210 without the indirect potable reuse quantities.

As presented in Table 6-5, the 2015 UWMP anticipated that 660 afy of recycled water would be utilized by 2020. Actual use in 2020 was greater, at 703 afy.

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
<input type="checkbox"/>	Recycled water was not used in 2015 nor projected for use in 2020. The Supplier will not complete the table below.	
Use Type	2015 Projection for 2020	2020 Actual Use
Landscape irrigation (excludes golf courses)	660	703
<b>Total</b>	660	703
NOTES:		





**Figure 6-1 Local Recycled Water Laterals and Regional System**

If found to be cost-effective, the City can optimize additional direct use of recycled water through specific methods to encourage recycled water use. 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. As shown in Table 6-6, the City does not currently plan to expand the recycled water direct use program at this time.

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
<input checked="" type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
<i>Add additional rows as needed</i>			
<b>Total</b>			0
NOTES:			

## 6.6 Desalinated Water

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 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 Water Exchanges or Transfers

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.

## 6.8 Future Water Projects

The City does not currently have any projects or programs to enhance water supplies, as noted in Table 6-7.

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
<input checked="" type="checkbox"/>	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.					
<input type="checkbox"/>	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 suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type <i>Drop Down List</i>	Expected Increase in Water Supply to Supplier <i>This may be a range</i>
	<i>Drop Down List (y/n)</i>	<i>If Yes, Agency Name</i>				
<i>Add additional rows as needed</i>						
NOTES:						

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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 2020 UWMP discusses opportunities to enhance and maintain local supplies in conjunction with its 2015 Integrated Resources Plan and its updated Business Plan.

According to MWD's 2020 UWMP, 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 solutions for conveying water through the Delta
- Developing storage programs related to the SWP and Colorado River supplies
- 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 2020 UWMP, along with supply quantities anticipated under normal and dry year conditions (MWD, 2021).

## 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 2020 in AF. As discussed throughout this chapter and summarized next, the City had access to greater quantities than that needed in 2020.

Table 6-9 presents a summary of the supplies available to the City in the future. Groundwater quantities are based on City and WECWC entitlements to the three basins. The local surface entitlement is 4,250 afy but the amount displayed in Table 6-9 is based on a lower ten year average use of 1,679 afy. Purchased imported water quantities represent the entitlement to WFA supplies based on a rolling ten year average amount of water purchased by the City, currently averaging 5,541 afy. Purchased groundwater from SAWCo entitlement is based on shares held by the City, currently at 4,515 shares. Recycled water is provided by IEUA through a nonpotable distribution system; quantities reflect potential demands for direct use. The City utilizes the local surface water first followed by groundwater. It meets its remaining needs with the purchased imported water, but since it is an important supply to maintain, it is not operated as just a backup supply but an integral source for the City.

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
<b>Drop down list</b> <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		Actual Volume (AF)	Water Quality <i>Drop Down List</i>	Total Right or Safe Yield <i>(optional)</i>
Add additional rows as needed				
Purchased or Imported Water	Water Facility Authority	3,395	Drinking Water	
Surface water (not desalinated)	San Antonio Creek	3,365	Drinking Water	
Groundwater (not desalinated)	Chino, Six, and Cucamonga Basins	6,120	Drinking Water	
Purchased or Imported Water	SAWCo	5,551	Drinking Water	
Recycled Water	IEUA	703	Recycled Water	
Total		19,134		
NOTES: The SAWCo purchase is for groundwater supply.				

## 6.10 Special Conditions

Special conditions such as climate change and regulatory factors may affect the City's water supplies. As discussed, hydrologic conditions greatly affect surface water supplies. Regulatory conditions related to water quality can also affect the availability of supplies, currently affecting the groundwater supplies. Potential impacts to water supplies from climate change were discussed in Section 3.3 Climate Change. Although climate change certainly impacts the replenishment of groundwater supplies, it has a greater effect on surface water supplies which are directly impacted by seasonal hydrologic conditions.

MWD has conducted extensive analyses on impacts from climate change on its water supplies. The potential impacts and risks associated with climate change and other major uncertainties and vulnerabilities have been incorporated into its current IRP process and the reliability determination of 100 percent availability during dry years. This includes potential climate change impacts to DWR's SWP supplies and MWD's Colorado River supplies.

Regulatory conditions impacting the imported supply were assessed by MWD in its 2020 UWMP. Availability of SWP and Colorado River supplies incorporated restrictions on the SWP



Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply (AF) Report To the Extent Practicable									
<b>Drop down list</b> <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		2025		2030		2035		2040		2045 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Groundwater (not desalinated)	Chino Basin	5,743		5,743		5,743		5,743		5,743	
Groundwater (not desalinated)	Six Basins	4,122		4,122		4,122		4,122		4,122	
Groundwater (not desalinated)	Cucamonga Basin	683		683		683		683		683	
Surface water (not desalinated)	SAWCo	1,679		1,679		1,679		1,679		1,679	
Purchased or Imported Water	Water Facility Authority	5,541		5,541		5,541		5,541		5,541	
Purchased or Imported Water	SAWCo groundwater	6,857		6,857		6,857		6,857		6,857	
Recycled Water	Landscape irrigation	703		703		703		703		703	
Total		25,328	0	25,328	0	25,328	0	25,328	0	25,328	0
NOTES: Groundwater based on City entitlements and purchase entitlements as a shareholder of SAWCo. Local surface water entitlement is 4,250; 10 year average is 1,679. Purchased imported water entitlement via WFA based on 10-year rolling average. Recycled water assumed similar to 2020 use.											

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and CVP operations in accordance with water quality objectives established by the SWRCB, biological opinions of the U.S. Fish and Wildlife Service and National Marine Fisheries Service issued on October 21, 2019, and the Incidental Take Permit issued by the California Department of Fish and Wildlife on March 31, 2020. In addition, amendments to the Coordinated Operations Agreement between the CVP and SWP made in 2018 were taken into consideration. In dry or below normal water year conditions, MWD increases supplies received from the California Aqueduct by developing flexible Central Valley/SWP storage and transfer programs, as well as other storage and transfer programs. The goal being to develop additional dry year supplies that can be conveyed through the California Aqueduct during dry conditions and Delta regulatory restrictions.

## 6.11 Energy Reporting

A new requirement of Water Code 10631.2(a) is the need to provide an estimate of the amount of energy used to produce and convey water supplies. Energy use for production and conveyance includes extracting or diverting supplies, conveying, treating, and storing and distributing water through the distribution system. Water supply energy intensity was calculated for the 2020 calendar year (January 1 thru December 31). This is a standard for energy and greenhouse gas reporting to the Climate Registry, California Air Resources Board, and the United States Environmental Protection Agency. Calendar year reporting provides consistency when assessing direct and indirect energy consumption within a larger geographical context, as fiscal year starting dates can vary between utilities and organizations.

The City obtained energy consumption data from Southern California Edison, the electricity supplier. As presented in Table 6-10, the total volume of water entering the process in 2020 was 18,930 acre-feet and energy consumed was 12,717,578 kWh. The energy intensity was 672 kWh per acre-foot and 219 kWh per million gallons. Energy required to pump or treat water is not always proportional to water delivered.

**Table 6-10: Energy Reporting (DWR Table O-1b)**

**Urban Water Supplier:**

*City of Upland*

**Water Delivery Product** (If delivering more than one type of product use Table O-1C)

*Retail Potable Deliveries*

**Table O-1B: Recommended Energy Reporting - Total Utility Approach**

Enter Start Date for Reporting Period	1/1/2020	Urban Water Supplier Operational Control		
End Date	12/31/2020			
<input type="checkbox"/> Is upstream embedded in the values reported?		Sum of All Water Management Processes	Non-Consequential Hydropower	
<i>Water Volume Units Used</i>	AF	Total Utility	Hydropower	Net Utility
<i>Volume of Water Entering Process (volume unit)</i>		18,930	0	18,930
<i>Energy Consumed (kWh)</i>		12,717,578	0	12,717,578
<i>Energy Intensity (kWh/vol. converted to MG)</i>		219	0.0	219
<b>Quantity of Self-Generated Renewable Energy</b>				
None		kWh		
<b>Data Quality</b> ( <i>Estimate, Metered Data, Combination of Estimates and Metered Data</i> )				
<i>Metered Data</i>				
<b>Data Quality Narrative:</b>				
Energy data provided by SCE, February 2021				
<b>Narrative:</b>				
Energy consumed is for the conveyance, storage, distribution, and treatment of local surface and groundwater, and storage and distribution of imported water.				



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## Chapter 7 - Water Supply Reliability and Drought Risk Assessment

### 7.1 Introduction

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 purchased imported and local surface water supplies are vulnerable to seasonal or climatic shortages and imported supplies are particularly vulnerable to catastrophic events because of the extent of 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.

### 7.2 Water Service Reliability Assessment

During the 20th century, California experienced three significant historical statewide droughts: the six-year event of 1929 to 1934, the two-year event of 1976 to 1977, and the six-year event of 1987 to 1992. In the decade prior to an unusually wet water year 2017, all but two years were drought years; the statewide drought of water years 2007 to 2009 was soon followed by the statewide drought of 2012 to 2016. The 2007 to 2009 drought marked the first time that a statewide proclamation of emergency was issued because of drought impacts. A statewide proclamation was repeated with the 2012 to 2016 drought (DWR 2020).

Because this UWMP reliability assessment is based on the availability of potable and non-potable water supplies, not a constraint of increased costs to produce the supply, it is assumed that the City will increase its purchases of WFA supplies as necessary during dry years when other supplies are limited. For this reliability analysis, purchases were assumed to not exceed historical purchases. Constraints on water sources and expected water service reliability for a normal year, single dry year, and five consecutive dry years projections for 2025 through 2045, are discussed here.

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### 7.2.1 Constraints on Water Sources

The City's imported water supply is conveyed through the SWP which travels through the Delta. In its draft 2020 UWMP, MWD identified risks and uncertainties that could potentially influence the reliability of its supplies associated with the following key factors.

- San Francisco Bay - Sacramento River/San Joaquin River Delta (Bay-Delta) challenges
- Water supply conditions

In addition, water quality challenges such as algae toxins, per- and polyfluoroalkyl substances (PFAS), and the identification of constituents of emerging concern, have a significant impact on the region's water supply conditions. The following discussion of key challenges is excerpted from the MWD 2020 UWMP for the purpose of providing context on the City's imported supply. (MWD, 2020 UWMP)

**Bay-Delta Issues.** About 30 percent of Southern California's water supply moves from Northern California through the Delta, a critical link, to pumps in the south Delta. Endangered species protection and conveyance needs in the Delta have resulted in operational constraints to pumping. The Delta's declining ecosystem and the difficulties operating the SWP system has led to factors that can result in export reductions from the Delta, releases of additional water from storage, other operational changes associated with endangered species, or water quality requirements.

The City, through its contract with IEUA/WFA to purchase water from MWD, is linked to all activities that impact supplies conveyed through the Delta. Not only do Delta restrictions impact SWP supplies, but also voluntary transfers, Central Valley storage and transfers, in-region groundwater storage, and in-region surface water storage. This section summarizes the following specific Delta challenges.

Previous efforts to develop the California WaterFix project (to improve operational reliability through the Delta) have been reconfigured for a single tunnel and is now called Delta Conveyance Project. This proposed project involves construction and operation of new Delta conveyance facilities augmenting existing SWP facilities. New intake facilities as points of diversion would be located in the north Delta along the Sacramento River between Freeport and the confluence with Sutter Slough. A single main tunnel would convey water from the new intakes to the existing Banks Pumping Plant and potentially the federal Jones Pumping Plant in the south Delta. These new facilities would provide an alternate diversion location from the Delta and would be operated in coordination with the existing south Delta pumping facilities.

Due to new information and science on declining listed fish species populations, the USBR released the 2019 Biological Opinion, and signed a Record of Decision completing its

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environmental review and adopting the 2019 Long-Term Operations Plan. The 2019 Long-Term Operations Plan and 2019 Biological Opinions are expected to increase SWP deliveries by an annual average of 200,000 acre-feet compared with previous Biological Opinions. On March 31, 2020, California Department of Fish and Wildlife issued a California Endangered Species Act (ESA) incidental take permit for the SWP that included further operational restrictions on outflow. The final approved project and incidental take permit reduce long-term average SWP deliveries by more than 200,000 which would erase any potential improvement in SWP water supply reliability anticipated to result from the 2019 Biological Opinions. According to the MWD 2020 UWMP, the continued decline of some fish populations and certain operational actions in the Bay-Delta may significantly reduce MWD's water supply availability. Future new or revised Biological Opinions or incidental take authorizations under the Federal ESA and California ESA might further adversely affect SWP and CVP operations.

In December 2018, the SWRCB adopted the Phase 1 Bay-Delta Water Quality Control Plan (Bay-Delta Plan) amendments and Final Substitute Environmental Document. The Phase 1 updates established new Lower San Joaquin River flow objectives and revised southern Delta salinity objectives. In July of 2018, the SWRCB released a framework that describes the draft proposal for Phase 2, which will update the flow requirements for the Delta and its contributing watersheds, including the Sacramento River and its tributaries. The framework provides additional details about the flow requirements staff is likely to propose, how these new requirements could be implemented, and preliminary information on their potential environmental benefits and water supply effects.

In addition to these key Bay-Delta challenges, new litigation, listings of additional species under the ESAs, or new regulatory requirements imposed by the SWRCB could adversely affect SWP operations in the future by requiring additional export reductions, releases of additional water from storage, or other operational changes impacting water supply operations. (MWD, 2020 UWMP)

**Water Supply Conditions.** As discussed in Section 6.1, dramatic swings in annual hydrologic conditions are evident with its impacts being felt most severely on the local San Antonio Creek surface supply and MWD's SWP supply. Within the last decade, the SWP has experienced the lowest ever allocation of contract supplies, the lowest ever northern Sierra snowpack (affecting SWP's Feather River/ Lake Oroville supply), highest ever Sacramento River runoff, and the highest SWP allocation since 2006.

MWD's other significant supply source, the Colorado River basin, has also experienced large swings in annual hydrologic conditions, but these variations are buffered through a large volume of storage. However, analysis of historical records suggest a potential change in the

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relationship between precipitation and runoff in the Colorado River basin which has contributed to a drying trend over the last 21 years. With Lake Mead and Lake Powell at less than 50 percent capacity there is practically no buffer to avoid a shortage from any future period of reduced precipitation and runoff.

Groundwater basins and local reservoirs dropped to very low operating levels following the most recent drought. Due to wetter hydrology in 2017 and 2019, the groundwater basins have started to recover. However, levels in groundwater basins throughout Southern California currently remain below healthy storage levels.

Climate change is expected to shift precipitation patterns and affect reliability of water supplies, which 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's supplies include the reduction in snowpack, increased intensity and frequency of events, and rising sea levels. The general trend is of less water-storing snowpack and greater precipitation in the Sierras, more precipitation earlier in the year when it cannot be readily utilized, and more extreme and more frequent drought and flooding events. While uncertainties remain regarding the exact timing, magnitude, and regional impacts of climate change-related temperature and precipitation changes, researchers have identified the following specific areas of concern.

- Reduction in Sierra Nevada snowpack
- Reduction in Colorado River Basin snowpack
- Increased intensity and frequency of extreme weather events
- Rising sea levels resulting in impacts to coastal groundwater basins and levee failure in the Delta due to seawater intrusion, and increased risk of damage from storms, high-tide events, and the erosion of levees; and potential pumping cutbacks on the SWP and CVP due to salinity levels at the pumps

**Surface Water Supplies.** The San Antonio Creek water supply treated at the City's San Antonio Canyon WTP is a high quality water supply for the City but is subject to hydrological fluctuations. During the most recent multi year drought, its availability dropped to 33 acre-feet in FY13, the driest year of the drought. Two years prior in FY11, 4,175 acre-feet was available to and treated by the City. Its 10 year average availability is 1,679 acre-feet.

The primary constraint to the City on the availability of imported surface supplies during times of shortages is the cost, particularly when MWD's Water Supply Allocation Plan (WSAP) is in effect. In terms of quantity and reliability, MWD has an extensive supply augmentation

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program to assure its member agencies that their current and projected demands for imported supplies can be reliably met through 2045 during average/normal, single dry, and multiple-dry year conditions.

MWD's ability to ensure water supply availability and reliability to its member agencies is based in part on its Water Surplus and Drought Management Plan (WSDM). MWD developed and adopted the WSDM Plan to provide policy guidance and manage regional water supply actions under both surplus and drought conditions to achieve the overall goal of ensuring water supply reliability to its member agencies as set forth in MWD's UWMP and IRP. The WSDM Plan outlines various water supply conditions and corresponding actions MWD may undertake in response to moderate, serious, and extreme water shortages. Under Condition 1, MWD issues a Water Supply Watch and encourages local agencies to implement voluntary dry year conservation measures and utilize regional storage reserves. Under Condition 2, MWD issues a Water Supply Alert and calls for cities, counties, its member agencies and all other retail water providers to implement extraordinary conservation through drought ordinances and other measures to minimize the use of storage reserves.

Under Condition 3, MWD may implement its WSAP, which allocates available water supplies among its member agencies based on factors such as impacts to retail customers, population and projected growth of particular member agencies, availability of recycled water and other local supplies, conservation efforts, and other factors. At times when the WSAP is implemented, MWD member agencies do not lose their ability to receive any particular amount of imported water supplies, but instead MWD places limits on the amount of water its member agencies can purchase without facing a surcharge. In turn, IEUA also developed a WSAP to allocate imported supplies at the retail level in its service area. Under these WSAPs, the availability of imported water supplies is based primarily on the need for imported supplies relative to the total need for those supplies within the MWD and IEUA service areas.

In response to prolonged drought conditions, in April 2015 MWD declared a Condition 3 shortage and decided to implement its WSAP with the goal of achieving a 15 percent reduction in regional deliveries to its member agencies starting on July 1, 2015. Importantly, MWD has confirmed that implementation of its WSAP merely involves the potential application of a surcharge to those member agencies whose deliveries of water from MWD exceed their allocations, but it does not otherwise prohibit or restrict such deliveries.

To improve long term supply availability and reliability for the region, MWD has developed an adaptive management strategy as a part of its IRP process. Reliability targets were established for imported and local water supplies and water conservation to, if successful, provide a future without water shortages and mandatory restrictions under planned conditions. For imported

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supplies, MWD looks to make investments in additional partnerships and initiatives to maximize Colorado River Aqueduct deliveries in dry years. For the SWP, MWD is looking to make ecologically-sound infrastructure investments so that the water system can capture sufficient supplies to help meet average year demands and to refill MWD's storage network in above average and wet years. Lowering regional residential demand by 20 percent by the year 2020, reducing water use from outdoor landscaping, and advancing additional local supplies are among the actions MWD undertook to keep supplies and demands in balance.

It is important to note that MWD through IEUA and WFA has always been able to provide the supply needed by the City. Based on the MWD 2020 UWMP conclusions, it is expected that this imported supply would continue to provide a reliable source of water to the City. As such, any supply gaps identified in the reliability analysis do not necessarily represent lack of supply but rather the amount of supply that would be more costly to purchase consistent with MWD's WSAP penalty fees. And given the drought conditions experienced recently that are anticipated to occur more frequently in the future due to climate change, any potential supply gaps represent a risk to the City's future water supply costs that may be better balanced with more cost-effective local supplies that would also increase water reliability.

**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 total dissolved solids (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 was used for a short time and is now 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 has exceeded the MCL for tetrachloroethylene (PCE) and nitrate in the past. This well is downstream from the Sanitary Landfill, which operated from 1950 to 1979 as an unlined municipal solid waste disposal site. Currently Well 21A in Chino Basin is out of service due to 1,2,3-TCP and two wells out of service for 1,2,3-TCP in Six Basins. Water quality conditions described here have not limited the availability of supplies.

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### 7.2.2 Year Type Characterization

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 the driest year of record in the Four Rivers Basin determined 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 2012 to 2016 droughts had a greater impact on Southern California. Therefore, different base years were used here for the purchased imported water.

To analyze the variability of reliability due to climate, hydrologic conditions that define year types were determined. The years identified in Table 7-1a through Table 7-1c reflect these year types: average, single dry year, and multiple dry years for all water sources. Because MWD uses different base years for its reliability analysis, it is presented separately 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. Groundwater base years reflect local surface supply base years as presented in Table 7-1c. Recycled water is assumed to be 100 percent reliable.

**Average/Normal Water Year.** The normal year most closely represents median runoff levels and patterns. The supply quantities for this condition are derived from historical average yields. MWD considers 1922 through 2017 to represent the water supply conditions it considers available during a normal water year. IEUA considers 2010 to represent a normal year. Upland is using MWD years for normal water year and years 2011 through 2020 for local sources because they reflect current availability.

**Single Dry Water Year.** This is defined as the year with the minimum useable supply. The supply quantities for this condition are derived from the minimum historical annual yield. MWD identified 1977 conditions to represent the lowest water supply available. IEUA considers 2013 to represent the single dry year. Upland is also using MWD's 1977 dry year for its imported supply and IEUA's year 2013 for local supplies. 2013 was one of the driest years on record for Southern California with just over seven inches of precipitation.

**Multiple Dry Water Years.** This is defined as five consecutive years with the lowest average water supply availability for consecutive multiple years. 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. MWD identified 1988 through 1992 as the driest five consecutive year historical sequence for its water supply which Upland will use for its

purchased imported supply. IEUA considers years 2013, 2014, 2015, and 2015 used again for two subsequent years to represent the five year drought period. The multiple dry water years of 2012 through 2016 were used by Upland for local supplies.

Submittal Table 7-1a Retail: Basis of Water Year Data for <b>Purchased Imported Water</b>			
Year Type	Base Year <i>If not using a calendar year, type in the last year of the year</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year	Average of 1922 to 2017		100%
Single-Dry Year	1977		100%
Consecutive Dry Years 1st Year	1988		100%
Consecutive Dry Years 2nd Year	1989		100%
Consecutive Dry Years 3rd Year	1990		100%
Consecutive Dry Years 4th Year	1991		100%
Consecutive Dry Years 5th Year	1992		100%
Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
NOTES: Based on MWD reliability analysis since imported surface water is supplied by MWD. Current 10 year average is 5,541 AF with a maximum use of 7,273 AF in FY14 during the recent drought. Recycled water is assumed to be 100 percent reliable in all year types. Local surface water and groundwater addressed in Tables 7-1b and 7-1c, respectively.			



Submittal Table 7-1b Retail: Basis of Water Year Data for <b>Local Surface Water</b>			
Year Type	Base Year <i>If not using a calendar year, type in the last year of the year</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available (AF)	% of Average Supply
Average Year	2011 to 2020	1,679	100%
Single-Dry Year	2013	33	
Consecutive Dry Years 1st Year	2012	2,164	
Consecutive Dry Years 2nd Year	2013	33	
Consecutive Dry Years 3rd Year	2014	62	
Consecutive Dry Years 4th Year	2015	1,403	
Consecutive Dry Years 5th Year	2016	1,131	
Supplier may use multiple versions of Table 7-1 if different water sources have different base years			
NOTES: Single dry year based on lowest quantity of local surface water used in recent multiple year drought. Purchased and groundwater addressed in Tables 7-1a and 7-1c, respectively.			

Submittal Table 7-1c Retail: Basis of Water Year Data for <b>Groundwater</b>			
Year Type	Base Year <i>If not using a calendar year, type in the last year of the year</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available (AF)	% of Average Supply
Average Year	2011 to 2020	13,094	100%
Single-Dry Year	2013	19,152	
Consecutive Dry Years 1st Year	2012	15,351	
Consecutive Dry Years 2nd Year	2013	19,152	
Consecutive Dry Years 3rd Year	2014	16,068	
Consecutive Dry Years 4th Year	2015	11,541	
Consecutive Dry Years 5th Year	2016	10,068	
Supplier may use multiple versions of Table 7-1 if different water sources have different base years			
NOTES: Groundwater supplies from City and WECWC, and purchases of SAWCo groundwater here. Purchased and local surface water addressed in Tables 7-1a and b, respectively.			

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### 7.2.3 Water Service Reliability

An assessment of City supply reliability under normal, single dry, and multiple dry years is presented here. Responses to an actual significant drought will follow the water use efficiency mandates of MWD's Water Surplus and Drought Management Plan, along with implementation of the appropriate stage of the City's water shortage ordinance and Water Shortage Contingency Plan presented in Chapter 8. The City water supplies are capable of meeting its demands in all hydrologic year types through 20405, even with an increase in dry year demand.

**Water Service Reliability - Normal 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, its groundwater purchases from SAWCo, and its entitlement to local surface water were used as average year supplies. Imported water treated at WFA was derived from the most recent entitlement of 5,541 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.

Average water year availability described in Chapter 6 (see Table 6-9) was compared to projected average year water demands (see Table 4-3) through 2040 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.

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison (AF)					
	2025	2030	2035	2040	2045 (Opt)
Supply totals (autofill from Table 6-9)	25,328	25,328	25,328	25,328	25,328
Demand totals (autofill from Table 4-3)	22,368	23,141	24,144	24,628	25,003
Difference	2,960	2,187	1,184	700	325
NOTES:					

**Water Service Reliability - Single Dry Year.** City supplies and demands were analyzed to determine impacts associated with a single dry year. For reliability planning, it was assumed that demands increase during a single dry year. Demand between FY2012 and FY2013 was analyzed and determined that there was an increase in demands of 6.4 percent. The 6.4 percent increase was added to the average demand presented in Table 7-3 to reflect an increase in demand associated with a future single dry year, before additional conservation

outreach is implemented. FY2012 to FY2013 were selected because it was the first year of a recent multi-year drought thus reflecting current outdoor water demands on the system. The percent increase in demand reflecting a single dry year may decrease in the future due to permanent changes in outdoor landscaping.

The supply quantities for this condition were derived from the minimum historical annual yield reflected in the year 1977 for purchased imported water and 2013 for all other supplies. Under this scenario, the local surface supply decreased to 33 acre-feet. Groundwater availability increased from a 10-year average of 13,094 to 19,152 afy to reflect the ability to increase pumping from the three basins (including purchases of groundwater from SAWCo) when the local surface water supply is limited. MWD has documented that its service area is projected to be 100 percent reliable in single dry years, therefore the WFA entitlement is increased during a single dry year to augment the groundwater supplies. Recycled water is 100 percent reliable but cannot be increased to replace potable supplies during a dry year because of the reliance on a separate distribution system.

The total supply associated with the single dry year matches the demand. This is based on historical deliveries of purchased water and increased pumping of groundwater that reflects the City's ability to augment its average use of supplies with increased use of these sources during the single driest year hydrology to meet 100 percent of demands. This table indicates that the region can provide reliable water supplies under the single driest year hydrology to meet the single dry year demand.

<b>Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison (AF)</b>					
	2025	2030	2035	2040	2045 (Opt)
Supply totals	23,800	24,622	25,689	26,204	26,603
Demand totals	23,800	24,622	25,689	26,204	26,603
Difference	0	0	0	0	0
NOTES: Single dry year includes 6.4% increase in demands. Recycled water demands and supplies not included					

**Water Service Reliability - Five Consecutive Dry Years.** The multiple year drought analysis is defined as five consecutive dry years. The projected average water demand from Table 7-2 was modified to reflect increased demands of 6.4 percent the first year of a hypothetical five-year drought and are presented in Table 7-4. Due to the City and IEUA's water use efficiency

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outreach, water demands typically decrease over time as outreach efforts take effect. After the first two years, the recent multi-year drought resulted in demand decreases of 6.2 percent, 14.2 percent, and 20.4 percent for the following three years. These decreases reflect the City's programs discussed in chapters 8 and 9. However, to be conservatively high, average demands were assumed for this analysis for the remaining four dry years and does not reflect a reduction in demand due to actions taken by the City in accordance with the WSCP. The average projected demands from Table 7-2 were spread evenly between each 5-year increment to arrive at an annual change in demand over time.

Water systems are more vulnerable to droughts of long duration because they deplete water storage reserves in local and state reservoirs and groundwater basins. The five dry year assumptions for supply availability remain the same as described under single dry year conditions: 33 acre-feet available for the local surface water, the ability to increase groundwater pumping and purchased imported supplies to meet 100 percent demand, and 100 percent recycled water availability. Notably, the MWD 2020 UWMP determined that MWD is able to meet the current and projected full service demands of its member agencies under all three hydrologic conditions through 2045 by developing and implementing water resources programs and activities through its IRP preferred resource mix. This mix includes conservation; local resources such as recycled water and groundwater recovery; Colorado River supplies and transfers; SWP supplies and transfers; in-region surface reservoir storage; in-region groundwater storage; and out-of-region banking, treatment, conveyance, and infrastructure improvements.

Table 7-4 presents a comparison of projected multiple dry year water supply availability to the multiple dry year water demand. Based on the reliability of MWD supply, City groundwater supplies, and groundwater purchases from SAWCo, the region can provide reliable water supplies under all years of the multiple dry year hydrology. MWD has documented that deliveries within its service area are projected to be 100 percent reliable in multiple dry years. The recycled water supply is also 100 percent reliable to meet the non-potable demand.

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison (AF)						
		2025	2030	2035	2040	2045 (Opt)
First year	Supply totals	23,800	24,622	25,689	26,204	26,603
	Demand totals	23,800	24,622	25,689	26,204	26,603
	Difference	0	0	0	0	0
Second year	Supply totals	22,523	23,342	24,241	24,703	25,003
	Demand totals	22,523	23,342	24,241	24,703	25,003
	Difference	0	0	0	0	0
Third year	Supply totals	22,677	23,542	24,338	24,778	25,003
	Demand totals	22,677	23,542	24,338	24,778	25,003
	Difference	0	0	0	0	0
Fourth year	Supply totals	22,832	23,743	24,434	24,853	25,003
	Demand totals	22,832	23,743	24,434	24,853	25,003
	Difference	0	0	0	0	0
Fifth year	Supply totals	22,986	23,943	24,531	24,928	25,003
	Demand totals	22,986	23,943	24,531	24,928	25,003
	Difference	0	0	0	0	0
NOTES: Demand during first dry year was increased 6.4%; followed by average yr demand. Demand evenly distributed between 5 year increments. No change in demand after 2045. Recycled water demands met with 100% recycled water availability.						

## 7.2.4 Management Tools and Options

The City can meet its customers' demands in all hydrologic year types through 2045. Water management tools and options to maximize local resources and minimize the need to import water from the Colorado River and Delta 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. Actions include participating in IEUA's recycled water program,

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managing its supply sources to ensure all sources are maintained and made available for the future at needed quantities, optimizing its conjunctive use operations, and demand management activities.

As a member of IEUA and recipient of MWD supplies, the District is indirectly receiving water under a “covered action” by MWD’s participation in the Delta Conveyance Project. Reducing reliance on imported supplies is a key component of the success for any supply planning involving the Delta. An urban water supplier that anticipates participating in or receiving water from a proposed project (covered action) such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta, should provide information in their 2015 and 2020 UWMP that can be used in the certification of consistency process to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (DWR, 2021). Although not required for this UWMP, an addendum to the City’s 2015 UWMP consisting of the 2020 UWMP Appendix F content was approved by the City Council June 14, 2021.

The Bay-Delta Plan is a comprehensive, long-term resource management plan for Delta that was developed as part of the Delta Reform Act of 2009 (Water Code Section 85000 et seq) and includes both regulatory policies and recommendations, aimed at promoting a healthy Delta ecosystem. Delta Plan Policy WR P1 (California Code of Regulations (CCR), Title 23, § 5003) is one of fourteen regulatory policies in the Delta Plan. WR P1 identifies UWMPs as the tool to demonstrate consistency with state policy to reduce reliance on the Delta for any supplier that is participating in or carrying out a proposed covered action or receiving Delta water from a proposed covered action. Within the supplier’s UWMP, information should be provided that can be used to demonstrate consistency with this policy. Section (c)(1) of WR P1 states that suppliers that have (a) completed an urban water management plan, (b) implemented the efficiency measures in that plan, and (c) shown a measurable reduction in Delta reliance and improvement in regional self-reliance in the plan, are contributing to reduced reliance on the Delta and are therefore consistent with WR P1 (CCR, Title 23, § 5003(c)(1)).

MWD continues to develop its supply portfolios to reduce dependence on Delta supplies, particularly during dry and multiple dry years. MWD projects include multi-year water transfers and new diversion and conveyance facilities exporting water from the Delta. MWD’s reliance on supplies from the Delta watershed are expected to decrease by 314,000 acre-feet over the 2010 baseline, a decrease of about five percent of 2045 demands. Increased regional self-reliance primarily comes from water use efficiency, conjunctive use projects, water recycled, and local/regional water supply and storage projects.

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MWD has prepared a detailed analysis that demonstrates consistency with the Delta Plan policy WR P1 (MWD 2020 UWMP, Appendix 11). Although the City and IEUA have no control over the sources of water MWD provides, consistency with the Delta Plan Policy WR P1 documented in MWD's UWMP is incorporated here by reference.

On a regional level, IEUA and its member agencies also meet the three criteria of Section (c)(1) of WR P1. IEUA and its member agencies completed an UWMP in 2015 and will be submitting their UWMPs for 2020. These UWMPs identify future local supply opportunities and water use efficiency measures that will increase regional self-reliance and reduce reliance on Delta supplies. IEUA is continuing to look into local, cost-effective, and technically feasible water supply sources, as described in their 2020 UWMP and its Water Use Efficiency (WUE) Business Plan. A measurable reduction in Delta reliance and improvement in regional self-reliance can be seen from the achievements of the past five years of water use efficiency and the projections for recycled water use. IEUA's San Seivaine Basin Improvements Project is an example of this effort. The project is a partnership between IEUA and Chino Basin Watermaster with the goal of increasing local groundwater supply in the Chino Basin area in order to reduce the region's dependency on imported water and increase local resiliency to drought. Over the past five years, IEUA's water use efficiency program has saved approximately 30,974 acre-feet of water over the lifetime of the measure. Over the next five years, the WUE program expects to save an additional 9,008 acre-feet of water.

By 2045, the IEUA region expects 10 percent of its supply to come from recycled water. Non-potable reuse is expected to increase and groundwater recharge is expected to remain fairly constant through 2030 and increase again in 2045. IEUA and its retail agencies remain committed to enhancing local supply and implementing water use efficiency measures to reduce their demand on imported water, thereby reducing reliance on the Delta.

On a local level, the City also meets the three criteria of Section (c)(1) of WR P1 - Reduce Reliance on the Delta Through Improved Regional Water Self Reliance (California Code of Regulations, Title 23, Section 5003). It prepared an UWMP in 2015 and will be submitting this 2020 UWMP. It has implemented effective efficiency measures over the years as reflected in its ability to meet the SB X7-7 targets for 2015 and 2020. The City's use of local surface water to the maximum available, followed by local groundwater supplies; and participation in the expansion of the recycled water and indirect potable reuse programs; all demonstrate consistency with the Delta Plan policy WR P1 by diversifying supplies. Diversifying supplies improves water supply reliability and it reduces dependence on supplies from the Delta watershed. For example, as IEUA expands its groundwater recharge program, the City can increase its groundwater use and reduce purchases.

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## 7.3 Drought Risk Assessment

The newly required Drought Risk Assessment (DRA) offers an opportunity to test the City's near term supply reliability by assuming the next five consecutive years are dry. The analysis of a five-year drought beginning in 2021 reflects the water service reliability assessment required under Water Code Section 10635(b).

### 7.3.1 Data, Methods, and Basis for Shortage Condition

Data, methods, and the basis for water shortage conditions are described here. The City has a diverse portfolio of local and imported supplies and locally developed recycled water. The assessment of imported water supplies took into consideration historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other applicable criteria utilized in assessing each of its supplies.

The DRA was based on the assumption that the five driest consecutive years on record for the water supplier will occur over the next five years. This hydrologic sequence was discussed in Section 7.2.3.3 above and reflects the availability of imported supplies during the 1988 to 1992 drought and the other supplies available during the most recent drought of 2012 through 2016. Changes that may influence the DRA include wetter or drier monthly and annual hydrology due to normal and climate change-induced conditions, an increase in the availability of imported supplies due to MWD enhancing its supply portfolio, and the recently increased offset of potable supplies with recycled water to meet non-potable water demands.

Normal unconstrained projected water use (demands) identified in Chapter 4 was used here as the base demands to compare against supply availability, and prior to determining if implementation of any shortage actions is needed to reduce these demands. The 2020 water demands were increased annually over five years to match 2025 projected demand.

Accounting for changes in demands due to dry year conditions, as noted in Table 7.4, because demands increased 4.6 percent during the first year of the recent five year drought, it was conservatively assumed demand would increase again in the first year of a new drought. Aggressive conservation outreach resulted in an actual reduction in demands of up to 20.4 percent by FY16. However, to be conservatively high, the first year of an increase and average demands (instead of lowered demand) for the following four years were utilized in the DRA assumptions of demand response during a drought.



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### 7.3.2 Assessment Water Source Reliability

It is likely that the next five year drought will not replicate the historical drought hydrology exactly due to variability in climatic conditions. However, not knowing what the exact variability will be, the basis for the DRA is based on actual conditions that occurred; therefore, data from the historical multiple year drought were utilized for supplies and the more recent response to a multiple year drought used for demands.

The City relies heavily on the utilization of groundwater and imported water to meet demands within its service area. In determining the reliability of each water source, the MWD 2020 UWMP was reviewed for the assessment of reliability of water supplies. It is documented that the imported supply was 100 percent reliable during the previous two multiple year droughts. MWD has stated that its supplies will be fully reliable during the next multiple year drought under most if not all conditions. This includes MWD's emergency supplies that have been accessed in the past and are a part of the supply portfolio. The local surface water availability has been discussed previously in this chapter and is assumed here to not be available above 33 afy (reflecting FY13). This reflects a single dry year assumed for the five year period which does not reflect historical availability over time. The supply was available at 2,164 acre-feet in the first year of the recent drought in FY12, and 62 acre-feet in FY2014, 1,403 in FY2015, and 1,131 in FY16. Groundwater is available throughout the City and pumping can be increased to meet demands during a multiple dry year period.

IEUA's nonpotable recycled water supply is a highly reliable supply to continue meeting landscaping water demands within the City service area in the future. The total supply can be impacted by drought conditions due to a reduction in indoor water usage during long term droughts, thus reducing wastewater production. However, recent reductions during multiple year droughts were not significant enough to result in any limitations on the availability of the non-potable supply since there is more supply available from IEUA than current demand.

### 7.3.3 Total Water Supply and Use Comparison

Table 7-5 demonstrates supply reliability during a hypothetical five year drought starting in 2021. Because of the highly reliable water supplies, even without local surface water, the gross water use can be met with current supplies. Supplies do not need to be augmented over this five year period to meet the demands (including the increased first year) and demand reductions are not required to be implemented to meet available supply. The City has a very effective water use management program under dry year or emergency conditions that is employed as needed and has historically resulted in a significant reduction in water demand by the third year. Again, the Drought Risk Assessment was conservative in not reflecting the

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reduction in water use by the third year yet there is no shortfall due to the ability to increase pumping and purchase additional supplies.

In accordance with the compiled information and analyses provided herein, and as documented in the 2020 UWMPs prepared by MWD and IEUA, the City is capable of meeting its customers' water demand in all hydrologic year types through 2045, even with a potential increase in dry year demands. Therefore the City's supply portfolio is reliable under all conditions conceivable. The reliable supplies reflect not only regional projects and comprehensive water supply planning by MWD and IEUA, but also the forward thinking planning and efforts the City has undertaken to develop its recycled water supplies and conservation programs, thus greatly reducing reliance on imported supplies. It should be noted that MWD's Drought Risk Assessment shows a surplus of supplies available to its member agencies, including IEUA.

**Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b) (AF)**

<b>2021</b>	<b>Total</b>
Gross Water Use	20,448
Total Supplies	20,448
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0
<b>2022</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	20,006
Total Supplies [Supply Worksheet]	20,006
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0
<b>2023</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	20,793
Total Supplies [Supply Worksheet]	20,793
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%
<b>2024</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	21,581
Total Supplies [Supply Worksheet]	21,581
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%
<b>2025</b>	<b>Total</b>
Gross Water Use [Use Worksheet]	22,368
Total Supplies [Supply Worksheet]	22,368
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%
Note: Change in demand between 2020 and 2025 evenly distributed, then first dry year increased 6.4%.	



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## Chapter 8 – Water Shortage Contingency Planning

Due to more frequent water shortage conditions, water shortage contingency planning is taking on greater importance in California. Actions are presented here that will be taken by the City of Upland (City) within its retail service area in the event of a reduction in water supplies. This Water Shortage Contingency Plan (WSCP) has been developed in accordance with California Water Code Section 10632(a). Although the City has a robust portfolio of water supplies that are highly reliable, the purpose of this WSCP is to demonstrate in structured steps how the City intends to anticipate and act in the case of an actual water shortage condition.

### 8.1 Water Supply Reliability Analysis

The City's primary water supplies are groundwater, local surface water, purchased imported surface water, and purchased local groundwater. The primary supply is groundwater from the Chino, Six, and Cucamonga basins, followed by groundwater purchased from San Antonio Water Company (SAWCo). The groundwater supplies are closely monitored and managed with pumping limitations. Surface water from San Antonio Creek is treated at the City's surface water treatment plant and is used as much as is available.

These local supplies are augmented by purchases of water imported from the SWP by Inland Empire Utilities Agency (IEUA) which is a member agency of MWD. The imported supply is conveyed to the Water Facilities Authority (WFA)/Joint Powers Authority Agua de Lejos Water Treatment Plant (WTP). The City has a Tier I allocation based on a ten year rolling average of purchased supply. Purchases above the allocation are available but are assessed at Tier II rates.

All of the water supply allocations and entitlements are discussed in detail in Chapter 6 of the City of Upland 2020 Urban Water Management Plan (UWMP). These supplies are listed in Table 8-1 with the total approximate entitlements indicated in afy. However, these supplies can be obtained at greater quantities, as needed.

<b>Table 8-1: Water Supply Availability (AF)</b>	
<b>Supply</b>	<b>Reasonably Available Volume</b>
Groundwater	10,548
Local Surface Water	1,679
Purchased Surface Water from WFA	5,541
Purchased Groundwater from SAWCo	6,857
Recycled Water purchased from IEUA	703
<b>Total</b>	<b>25,328</b>
NOTES: These volumes are based on City entitlements and current recycled water sales. See 2020 UWMP Chapter 6 for a description of each supply.	

Chapter 7 of the City's 2020 UWMP describes the reliability of the City's water supplies and customer demand over time and under dry year conditions. The groundwater supplies are highly reliable and pumping limitations can be exceeded temporarily if necessary. Three wells out of a total of 15 were shut down in 2020 due to water quality concerns. There has been no supply shortage due to these out of service wells. Local surface water availability is highly dependent on local precipitation and snow pack in the San Antonio Creek watershed. It is substantially less available in dry years but has surplus flows in above average years. The City does not have surface water rights to this supply but purchases raw water from SAWCo (of which it is a primary shareholder) for treatment at the City's San Antonio Canyon WTP.

The purchased imported surface water is a MWD Tier 1 allocation for IEUA. If the allocation is not exceeded in total by its member agencies, the City can purchase as much water as is available. The flexibility of the City's supplies has been tested in recent droughts. For example, during the recent multiple year drought of 2012 through 2016, 19,152 acre-feet from all groundwater sources was produced in FY2013; 2,164 acre-feet of local surface water was produced in FY2012; and 7,273 acre-feet was purchased from WFA in FY2014.

Demand for City water in 2020 and projected for 2025 through 2040 is summarized in Table 8-2 in AF. These demands are for normal water year conditions.

**Table 8-2: Water Demand, Actual and Projected (AF)**

Water Demand	2020	2025	2030	2035	2040	2045
Potable	18,431	21,665	22,438	23,441	23,925	24,300
Non-potable	703	703	703	703	703	703
<b>TOTAL</b>	19,134	22,368	23,141	24,144	24,628	25,003
NOTE: Demand includes unbilled water. Recycled water demands assumed to remain at 2020 levels until expansion becomes cost effective						

City customer water demands typically increase during the first two years of a drought, followed by a decrease below average in subsequent years until hydrologic conditions change and outreach efforts subside. An increase of 6.4 percent realized in the most recent drought and anticipated in the future during the first dry year is reflected in the dry year demands presented in Table 8-3.

**Table 8-3: Projected Single Dry Year Supply and Demand (From UWMP Table 7-3) (AF)**

	2025	2030	2035	2040	2045
Supply totals	23,800	24,622	25,689	26,204	26,603
Demand totals	23,800	24,622	25,689	26,204	26,603
Difference	0	0	0	0	0
NOTE: Single dry year includes 6.4% increase in demands. Supplies reflect availability to meet demands.					

Threats to the City's supplies, except drought, have a low probability but if the threat affects more than one supply source, it could have a high impact. The issues that can lead to a shortage in one or more of the City's supplies include the following.

- Drought and extreme droughts due to climate variability
- Power outage
- Catastrophic event in the Delta such as an earthquake, dam failure, or levee failure
- Natural disaster such as a local, regional, or statewide earthquake
- Outage of key conveyance facilities such as the SWP's California Aqueduct, MWD's Colorado River Aqueduct, or MWD's Southern California conveyance facilities
- Regulatory restrictions such as water quality standards for emerging contaminants or environmental restrictions on Delta pumping

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- Water quality contamination of local or regional supplies inadvertently or as intentional acts of sabotage

For many agencies, these supply disruptions can result in significant shortages to the availability of supplies. For Upland, outages can result in changes to City operations such as reprioritizing to increase available water supplies to meet system demand and increased outreach efforts to reduce customer demand for water.

In accordance with the City's Drought Risk Assessment, and as documented in the 2020 UWMPs prepared by MWD and IEUA, the City is capable of meeting its customers' water demand in all hydrologic year types through 2045, even with a potential increase in dry year demands. Therefore the City's supply portfolio is reliable under all conditions conceivable. The reliable supplies reflect not only regional projects and comprehensive water supply planning by MWD and IEUA, but also the forward thinking planning and efforts the City has undertaken to develop its recycled water system and conservation programs, thus greatly reducing reliance on imported supplies. It should be noted that MWD's Drought Risk Assessment shows a surplus of supplies available to its member agencies, including IEUA.

## 8.2 Annual Water Supply and Demand Assessment Procedures

### 8.2.1 Annual Assessment

Urban water suppliers are required to submit an annual water supply and demand assessment report (called annual assessment) to DWR, in compliance with Water Code Section 10632(a). This new report, pursuant to California Water Code Section 10632(a)(2) is due starting in 2022. Because the City receives water from the State Water Project, the annual assessment must be submitted with 14 days of receiving its final allocations or by July 1 or each year, whichever is later. DWR will develop a guidance document to recommend procedures and analytical methods to be used at the City's discretion to effectively and efficiently comply with the Annual Assessment requirement. Appendix P of the UWMP Guidebook will provide guidance. As of this date, UWMP Appendix P has not been released by DWR.

The City's Annual Assessment is a written decision-making process used to determine an anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions, as described here in this WSCP. The City may reevaluate the functionality of its WSCP process at any time between its submittals to DWR every five years and make appropriate adjustments if warranted.

**Assessment Step 1:** Table 8-4 provides a reporting tool for the annual assessment. It begins with a determination of the following factors. Year 2021 is used in Table 8-4.



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- Current year unconstrained water demand
  - Infrastructure constraints, if any
  - Current year total available supplies anticipated
  - Resulting anticipated shortages or surplus

Because the Annual Assessment must assume that the following year will be a dry year, the following factors are also anticipated. Year 2022 is used in Table 8-4.

- Next year unconstrained water demand
- Infrastructure constraints, if any
- Next year total available supplies anticipated
- Resulting anticipated shortages, if any

**Assessment Step 2:** Taking these factors into consideration, the next step is to decide on the applicability of one or more of the assessment scenarios that follow in the table. The assessment scenarios begin with “normal” conditions not meriting any shortage response actions followed by dry year scenario and multiple supply outage scenarios.

- ❖ Assessment Scenario #1: Normal Year
- ❖ Assessment Scenario #2: Dry Water Year or Outage Impacting Local Surface Supply
- ❖ Assessment Scenario #3: Catastrophic Interruption or Other Short Term Impact (<6 mo) to Imported Supply
- ❖ Assessment Scenario #4: Catastrophic Interruption or Other Short Term Impact (<6 mo) to Groundwater Supply
- ❖ Assessment Scenario #5: Catastrophic Interruption or Other Long Term Impact (>6 mo) to any supply

For each of these assessment scenarios, hydrologic and regulatory conditions to monitor are provided. In an assessment scenario has been identified evaluation criteria are provided to determine the potential extent of the supply shortage. When conditions no longer meet the evaluation criteria, the scenario may no longer be applicable. There may be other conditions to monitor and evaluation criteria to consider in addition to those listed in Table 8-4.

For each assessment scenario, service area water demands (before demand reduction activities, called unconstrained demands) are provided. The Operations Plan identifies the prioritization of supply, if needed, and the quantities likely to be available by applying the evaluation criteria. The supplies minus demand will determine if a WSCP supply shortage level is triggered.

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Shortage response actions can then be identified based on demand reduction activities. Demand reduction activities refer to the WSCP actions based on the six levels of supply shortage (discussed next in this chapter) and detailed procedures. Supply augmentation activities refer to the Operations Plan listed in each table.

This approach to the annual assessment allows the District to identify hydrologic and regulatory conditions and evaluation criteria, along with the anticipated unconstrained demand and potentially available supplies, to be assessed under various dry year or outage scenarios. The anticipated shortage is identified which triggers the shortage response actions, compliance and enforcement actions, and communication actions associated with one of the six DWR shortage levels discussed in the next section.

<b>TABLE 8-4: Upland Annual Water Supply &amp; Demand Assessment (Annual Assessment)</b>		
<b>ANNUAL ASSESSMENT REPORT SUBMITTED TO DWR:</b>		7/1/2021
<b>CURRENT YEAR</b>		
<b>Current year unconstrained demand (AF)</b>	2021	19,218
Infrastructure constraints		3 wells out due to regulatory water quality concern
<b>Current year total available potable supply (AF)</b>		
Groundwater (City, WECWC, SAWCo total entitlement)		17,405
Local surface water (average availability of 1,679 AF)		1,679
Purchased imported water (average use)		5,541
Supply Availability		24,625
Supply shortage or surplus		5,407
Supply Shortage Level expected this year		None
<b>NEXT YEAR - Assumed Single Dry Year</b>		
<b>Second year unconstrained demands, assuming dry year</b>	2022	21,286
2nd year infrastructure constraints		3 wells out
Groundwater (City, WECWC, SAWCo entitlement 17,405)		17,405
Local surface water (33AF in single dry year)		33
Purchased imported water (available to meet demand)		3,848
Supply Availability		21,286
Shortage or surplus supply availability		-
<b>Supply Shortage Level expected next year</b>		None
<b>Anticipated Assessment Scenario</b>		#2: Dry Water Year
NOTE: Demand in 2021 is from UWMP Table 7-5 minus recycled water and before increase for dry year. Demand in 2022 from 7-5 minus recycled water and increased as the 1st dry year.		

Table 8-4, continued

DATE: 7/1/2021

Assessment Scenario #1: Normal Year			
<b>Hydrologic and Regulatory Conditions</b> -Customer unconstrained demands -Groundwater levels -San Antonio Creek watershed supply conditions -SWP supply conditions -Regulatory conditions			
<b>Evaluation Criteria</b> -Monthly production data indicates no significant deviation from monthly average -Determination of groundwater levels reflecting average conditions -San Antonio Creek inflow reflects average conditions -DWR supply reports indicate average SWP availability			
Unconstrained Demand: 2021			
Average Year Demand		19,218	
Scenario #1 Prioritization of Supplies	Supply Sources	Available Quantity (AF)	Operations Plan
1	Local Surface Water	1,679	Maximize use of local surface supply
2	Groundwater	17,405	Use groundwater supply to augment surface
3	Imported	5,541	Use imported water last
Total Entitlement		24,625	
Note: Demands and Operations Plan do not include recycled water. Supplies from UWMP Table 6-9.			
<b>Shortage Response Actions Triggered</b> Demand Reduction Activities: None Supply Augmentation Activities: None			

Table 8-4, continued

Assessment Scenario #2: Dry Water Year or Outage Impacting Local Surface Supply			
<b>Hydrologic and Regulatory Conditions</b> -Customer demands increase -Groundwater levels measured -SWP supply conditions measured in 8-river index -San Antonio Creek flows -Seismic, power outage, or other event resulting in short term system outage to local supply, conveyance, and/or treatment facilities -Water quality of local surface supply -Regulatory conditions			
<b>Evaluation Criteria</b> -Monthly production data indicates above monthly average increases for December through March -City allocation of SAWCo surface water supply 25% to 50% of average by April 1 -San Antonio Creek flow below average November through April -Local surface supply facilities - treatment, storage and conveyance - unavailable for up to 6 months -Planned outage of facilities or supply monitored until restored -San Antonio Creek/WTP influent water quality monitoring detect contaminants -IEUA monthly Water Supply Condition update report, date? -MWD institutes Water Supply Allocation Plan (WSAP) -Regulatory changes result in interruption to local surface supply			
Unconstrained Demands: 2021 First Dry Year, Increased Demand		20,448	
Scenario #2 Prioritization of Supplies	Supply Sources	Available Quantity (AF)	Operations Plan
	Local Surface Water	0	Assumed no supply available
1	Groundwater	17,405	Maximize use of groundwater
2	Imported	3,043	Augment with imported water as needed
Total Availability		20,448	
Note: Local surface water 0% availability used here.			
<b>Shortage Response Actions Triggered</b> Demand Reduction Activities: See actions associated with Shortage Levels 2 through 6 Supply Augmentation Activities: See Operations Plan			

Table 8-4, continued

### Assessment Scenario #3: Catastrophic Interruption or Other Short Term Impact (<6 mo) to Imported Supply

#### Hydrologic and Regulatory Conditions

- Seismic, power, or other event resulting in short term system outage to imported supply
- Facilities or supply outage due to scheduled repairs or upgrades
- Regulatory conditions

#### Evaluation Criteria

- WFA WTP and/or purchased supply shortage anticipated for up to 6 months
- Planned outage of facilities or supply monitored until restored
- Regulatory changes result in interruption to imported supply or SA WTP
- MWD or IEUA institutes WSAP if an extreme shortage of imported supply is declared
- Statewide determination of a drought or other shortage emergency
- IEUA's monthly Water Supply Condition update report June 1

<b>Unconstrained Demands: 2021</b>			
<b>Average Year Demand</b>		<b>19,218</b>	
<b>Scenario #3 Prioritization of Supplies</b>	<b>Supply Sources</b>	<b>Available Quantity (AF)</b>	<b>Operations Plan</b>
1	Local Surface Water	1,679	
2	Groundwater	17,405	
	Imported	0	No supply available
Total Availability		19,084	May need to pump more than entitlement

Note: MWD shortage stage 5 triggers WSAP.

#### Shortage Response Actions Triggered

Demand Reduction Activities: See actions associated with Shortage Levels 2 to 6

Supply Augmentation Activities: See Operations Plan above. Activate regional emergency response coordination with other IEUA agencies

Table 8-4, continued

Assessment Scenario #4: Catastrophic Interruption or Other Short Term Impact (<6 mo) to Groundwater Supply			
<b>Hydrologic and Regulatory Conditions</b> -Seismic, power, or other event resulting in short term groundwater facilities outage -Facilities or supply outage due to scheduled repairs or upgrades -Groundwater supply water quality contamination -Regulatory conditions such as PFASs resulting in reduction in groundwater supply  <b>Evaluation Criteria</b> -City groundwater supply production, storage, and conveyance facilities greatly reduced after outage for up to 6 months -Planned outage of facilities or supply monitored during outage -Identify known regulatory changes resulting in interruption to treatment facilities -OCWD annual determination of BPP			
Unconstrained Demands: 2021 Average Year Demand		19,218	
Scenario #4 Prioritization of Supplies	Supply Sources	Available Quantity (AF)	Operations Plan
1	Local Surface Water	1,679	Maximize use of local surface water
2	Groundwater	8,703	50% supply availability assumed
3	Imported	8,837	Purchase additional imported water as needed
Total Availability		19,218	
Note:			
<b>Shortage Response Actions Triggered</b> Demand Reduction Activities: See actions associated with Shortage Levels 2 to 6 Supply Augmentation Activities: See Operations Plan above			

Table 8-4, continued

**Assessment Scenario #5: Catastrophic Interruption or Other Long Term Impact (>6 mo) to any supply****Hydrologic and Regulatory Conditions**

- Local or imported surface water supply water quality contamination
- Scheduling of infrastructure improvements
- Statewide determination of a drought or other shortage emergency
- Seismic or other event resulting in long term local or regional system supply outage
- Wildland fire in San Antonio Creek watershed
- Supply interruption in Delta or Colorado River due to natural or human induced event
- Simultaneous impact to more than 1 supply

**Evaluation Criteria**

- Restoration of supplies
- Contaminant detected in ongoing water quality monitoring at San Antonio Creek or WTP inflow
- MWD detection of contaminant or spill in its ongoing monitoring
- Statewide restriction on the use of or delivery of imported water
- Planned outage of facilities or supply are monitored during outage
- MWD institutes WSAP if an extreme imported supply shortage is declared

Unconstrained Demands: 2021 Average Year Demand			19,218
Scenario #5 Prioritization of Supplies Used	Supply Sources	Available Quantity (AF)	Operations Plan
1	Local Surface Water	1,679	Depending on which supply is impacted, the other supplies should be utilized in prioritized order
2	Groundwater	17,405	
3	Imported	5,541	
Total Availability		TBD	

Note:

**Shortage Response Actions Triggered**

Demand Reduction Activities: See actions associated with Shortage Levels 2 to 6

Supply Augmentation Activities: See Operations Plan above. Activate regional emergency response coordination with IEUA member agencies and other agencies

### 8.2.2 Declaration of Shortages

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.



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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 stage that may be implemented. The Utilities Director (or their equivalent) will formally approve the Annual Assessment each year. If a water supply shortage is indicated in the Annual Assessment, the Public Works Director, or their representative, will make a formal presentation at a City Council meeting alerting the Council to the situation and declaring a water shortage. At that time, the Public Works Director, or their representative, will request implementation of specific shortage response actions that are appropriate for the situation. Coordination with the City of Upland, and the County of San Bernardino will occur if a proclamation of an emergency is necessary.

Regarding the imported water supply, as stages of water shortage are declared by MWD, the City will follow implementation of MWD stages and continue to monitor water use. 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.

### 8.3 Water Shortage Levels

On July 11, 2005, the City Council approved the City's Water Shortage Contingency Ordinance (Section 13.16 of the Upland Municipal Code), establishing permanent conservation measures and a water shortage contingency plan. The purpose of this ordinance was to provide for increasingly 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 ordinance can be found in Appendix G. The City's staged rationing plan is invoked during declared water shortages. Different specific restrictions are triggered at each stage.

To provide a consistent regional and statewide approach to conveying the relative severity of water supply shortage conditions, California Water Code Section 10632(a)(3) requires six water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, 50, percent

shortages and greater than 50 percent supply shortage. Table 8-5 presents the mandatory water shortage levels.

<b>Submittal Table 8-5: Water Shortage Contingency Plan Levels (DWR Table 8-1)</b>		
<b>Shortage Level</b>	<b>Percent Shortage Range</b>	<b>Shortage Response Actions (Narrative description)</b>
1	Up to 10%	Normal water supply conditions. Conservation encouraged year-round.
2	Up to 20%	Operational changes to increase production of other supplies and invoke demand reduction actions
3	Up to 30%	Operational changes to increase production of other supplies and invoke demand reduction actions
4	Up to 40%	Operational changes to increase production of other supplies and increase demand reduction actions
5	Up to 50%	Operational changes to increase production of other supplies and increase demand reduction actions
6	>50%	Operational changes to increase production of other supplies. Shortage at this level is most likely to occur following a catastrophic event; greater demand reduction measures will be increased
NOTES: Numerical triggers of supply shortages are estimated triggers. The City has varied and multiple sources of water supply. Because of this, the shortages in the ordinance are not based on a percentage of supply shortage but rather the desired demand reduction. See crosswalk for correlation between this table and City's shortage levels.		

Because the City's four shortage levels do not correspond directly to these six State mandated levels, the Water Code authorizes suppliers to continue using its own shortage levels. To present the relationship of Uplands four shortage levels to the six standard shortage levels, a crosswalk is provided in Figure 8-1. Water shortage response actions corresponding to the six shortage levels are described in the following sections.

Figure 8-1: City of Upland Crosswalk Comparison of Stages				
Ordinance Shortage Levels	Shortage Conditions		2020 WSCP Level	2020 Shortage Range
Stage 1: Year-round	Up to 10%		1	Up to 10%
Stage 2: Moderate	15-30%	 	2	Up to 20%
			3	Up to 30%
Stage 3: High	35-50%	 	4	Up to 40%
			5	Up to 50%
Stage 4: Severe	>50%		6	>50%

Depending upon the degree of water supply shortage, the City would enact any of the supply shortage levels summarized in Table 8-5. This would trigger additional water use efficiency measures for City customers, over and above the permanent measures. These levels are summarized below.

- ◆ Level 1, up to a 10 percent shortage, has permanent mandatory restrictions in effect at all times and if not adhered to, represent waste and unreasonable use of water. These measures are designed to optimize water use efficiency even before a water supply shortage may be realized and to alter behavior under normal seasonal and annual fluctuations as well as when there is a shortage of up to 10 percent. All customers are required to adhere to these restrictions throughout the year.
- ◆ Level 2, a minor water supply shortage, has mandatory restrictions enacted in times of a 10 to 20 percent supply shortage. This level is within the ordinance Level 1 with its 15 to 30 percent supply shortage.
- ◆ Level 3, a moderate water supply shortage, has mandatory restrictions enacted in times of a 20 to 30 percent supply shortage. This level is within the ordinance Level 1 with its 15 to 30 percent supply shortage.
- ◆ Level 4, an alert water supply shortage, has mandatory restrictions enacted in times of a 35 to 40 percent supply shortage. This level is within the ordinance Level 2 with its 30 to 50 percent supply shortage.
- ◆ Level 5, a critical water supply shortage, has mandatory restrictions enacted in times of a 40 to 50 percent supply shortage. This level is within the ordinance Level 2 with its 35 to 50 percent supply shortage.
- ◆ Level 6, a severe water supply shortage under emergency conditions, has mandatory restrictions enacted in times of a greater than 50 percent supply shortage. This level is

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within the ordinance Level 3 with its equal to or greater than 50 percent supply shortage.

## 8.4 Shortage Response Actions

The purpose of the mandatory Annual Assessment (Water Code Section 10632.1) is to evaluate conditions affecting supply availability and determine, if a shortage is apparent, what steps to take. Procedures for declaring a water shortage and the demand management measures required are discussed in Section 8.5, Communication Protocols. Specific actions to take to reduce demands or augment supplies is discussed here. Circumstances vary with each shortage and the decisions regarding the most appropriate actions to take would be made by the City Council. Actions described in this section are comprehensive and would be adapted to one of the six shortage levels to respond to the needs.

### 8.4.1 Demand Reduction

**Shortage Level 1 – Permanent Mandatory Restrictions.** Implementing the City’s permanent restrictions has been highly effective in reducing average annual water demand over time as evidenced in the City’s ability to meet the targets from SB X7-7 (see Chapter 5 of the 2020 UWMP) as well as reduce excessive use of water during all types of water years.

- ◆ **Hosing or Washing Down Hard or Paved Surfaces.** The washing of sidewalks, walkways, driveways, public and private parking areas and all other impervious hard surfaced areas by direct hosing when runoff water directly flows to a gutter or storm drain, except as may be necessary to properly dispose of flammable or other dangerous liquids or substances, wash away spills that present a trip and fall hazard, or to prevent or eliminate materials dangerous to the public health and safety.
- ◆ **Water Flow or Runoff.** Excessive or unreasonable runoff of water or unreasonable spray of the areas being watered. Every customer is deemed to have his or her water system under control at all times, to know the manner and extent of this water use and any runoff, and to employ available alternatives to apply irrigation water in a reasonably efficient manner.
- ◆ **Obligation to Fix Leaks, Breaks, or Malfunctions.** Allowing, permitting or causing the escape of water through breaks or leaks within the customer’s plumbing or private water distribution system for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of 72 hours after the customer discovers such a break or leak or receives notice

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from the city of a break or leak, is a reasonable time within which to correct such break or leak, or, at a minimum, to stop the flow of water from such break or leak.

- ◆ **Limits on Watering Hours and Duration.** Outdoor irrigation of landscape by sprinklers during the hours of 10:00 a.m. to 6:00 p.m. Citizens are encouraged to avoid the use of sprinklers on windy days. Irrigation by handheld hose, drip irrigation, hand-held bucket, or similar container or by use of a cleaning machine equipped to recycle any water used are permitted anytime. In no event shall any water so used be permitted to run off into adjacent property, streets, alleys or storm drains.
- ◆ **Limits on Washing Vehicles.** Washing of automobiles, trucks, trailers, boats, airplanes, and other types of equipment (mobile or otherwise) unless done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses. The nozzle shall be removed when the hose is not in use to ensure the water supply is shutoff. However, this section does not apply to the washing of the above-listed vehicles or mobile equipment when conducted on the immediate premises of a commercial carwash.
- ◆ **Water Served Only Upon Request.** All eating and drinking establishments of any kind including, but not limited to, any restaurant, hotel, café, cafeteria, bar or club, whether public or private, shall not provide drinking water to any person unless it is expressly requested.

**Shortage Levels 2 through 6 – Potential Shortage Response Actions.** Table 8-6 lists the DWR categories of shortage response actions aligned to respond to specific defined shortage Levels 1 through 6. Levels 2 through 6 watering limitations increase as each shortage level increases. Unless a regional disaster, Level 6 may require extensive public outreach to ensure that water use is curtailed during the duration of the outage.

Submittal Table 8-6: Demand Reduction Actions (DWR Table 8-2)				
Shortage Level	Demand Reduction Actions <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply to you.</i>	How much is this going to reduce the shortage	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
Level 1	Permanent measures			Yes
Level 2	Same as Level 1 plus further outreach/restrictions to achieve 20% savings			
Level 2	Landscape - Limit landscape irrigation to specific days	up to 20%	Even or odd days depending on address	Yes
Level 2	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	up to 2%	Only on designated outdoor water use days and between sundown and noon, with hand held hose w shutoff nozzle only	Yes
Level 2	Other water feature or swimming pool restriction	up to 5%	Pool filling only on designated outdoor water use days	Yes
Level 2	Water Features - Restrict water use for decorative water features, such as fountains	up to 5%		Yes
Level 2	Landscape - Prohibit certain types of landscape irrigation	up to 5%	Irrigation of golf course fairways prohibited unless using recycled water	Yes
Level 2	Other	up to 1%	Restrict use of fire hydrants only for emergency and health and safety activities and use for land development	Yes
Level 3	Same as Level 2 plus further outreach/restrictions to achieve 30% savings			
Level 4	Same as Level 3 plus further outreach/restrictions to achieve 40% savings			
Level 4	Landscape - Limit landscape irrigation to specific days	up to 25%	Limited to Tuesday and Saturday or Wednesday and Sunday depending on address	Yes
Level 4	Landscape - Limit landscape irrigation to specific times	up to 25%	No irrigation between 6am and 1 hour before sundown	Yes
Level 5	Same as Level 4 plus further outreach/restrictions to achieve 50% savings			
Level 6	Same as Level 5 plus further outreach/restrictions to achieve more than 50% savings			
Level 6	Landscape - Limit landscape irrigation to specific days	50% or greater	Limited to 1 day only on Saturday or Sunday depending on address	Yes
Level 6	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	up to 5%	Washing vehicles and equipment is prohibited	Yes
NOTES: Each level includes restrictions from the tool box drawer of the previous level.				

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 Level 6 shortage watering restrictions alone, to meet potential supply reductions of greater than 50 percent.

#### 8.4.2 Supply Augmentation

The City has several water supplies: local surface water, City and purchased groundwater, purchased imported water, and recycled water. As presented in Table 8-4 under the Operations

Plan for each Annual Assessment scenario, these supplies are managed uniquely in response to the conditions underlying the cause of the shortage. The supply augmentation responses as the Operations Plan identified in Table 8-4, have been integrated into the City's supply management planning for shortage conditions. The local surface water supply is utilized as much as possible when it is available. The City, WECWC, and purchased SAWCo groundwater supplies provide potable supplies throughout the City and can be reduced or increased as needed. The imported surface water from WRA is a valuable supply, particularly during times of shortage of the local surface supply. When one or more of these supplies is limited, as is the case in 2021 with three wells shut down due to a regulatory water quality constraint, additional water is obtained from the San Antonio Creek supply, pumping from other wells, or purchase of imported water. This is not necessarily triggered by a response to a shortage level but rather as an ongoing operational plan to manage the robust supplies most efficiently and cost effectively. This is reflected in Table 8-7.

Table 8-7: Supply Augmentation and Other Actions (DWR Table 8-3)			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online</i>	How much is this going to reduce the shortage gap? <i>Include volume or percentage used.</i>	Additional Explanation or Reference <i>(optional)</i>
<i>Add additional rows as needed</i>			
Level 1	Other actions (describe)	up to 10%	Operational plan: change in allocation of existing supplies
Level 2	Other actions (describe)	up to 20%	Operational plan: change in allocation of existing supplies
Level 3	Other actions (describe)	up to 30%	Operational plan: change in allocation of existing supplies
Level 4	Other actions (describe)	up to 40%	Operational plan: change in allocation of existing supplies
Level 5	Other actions (describe)	up to 50%	Operational plan: change in allocation of existing supplies
Level 6	Other actions (describe)	up to 4,582 AF	Additional purchases will reduce shortage gap
NOTES: Due to the varied portfolio of supplies available under different operating conditions, the District does not anticipate a shortage of supply until level 6			

Although the increased use of an existing supply may be considered a redundant supply according to the guidebook because it is incorporated into the operational plan of the system, it is the logical action to address any shortage gaps that occur during dry conditions or outages. There is no need to pursue acquiring emergency dry year supplies when the reliability of the current supplies have been proven through the years to be adequate to respond to a supply shortage, along with demand management actions. The District will respond to the water

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shortages defined in the Annual Assessment (presented in Table 8-4), which may result in the need for demand reduction activities or a change in the Operations Plan to optimize supplies.

### 8.4.3 Operational Changes

Operational changes that can be implemented to address water shortage levels are identified in Table 8-4 for each of the Assessment Scenarios. These operational changes reflect a change in water supplies and volume needed to respond to the specific dry year or outage condition.

### 8.4.4 Additional Mandatory Restrictions

There are no additional mandatory restrictions as options to respond to water shortage levels besides those identified in Table 8-6 and elsewhere in this WSCP.

### 8.4.5 Emergency Response Plan

America's Water Infrastructure Act of 2018 Section 2013(b) requires community water systems serving populations greater than 3,300 to develop or update an Emergency Response Plan (ERP). The City is susceptible to potential situations that could result in catastrophic interruption of water supplies and services such as disasters, emergencies, crimes, and terrorist events. The City contracted with San Bernardino County Fire Office of Emergency Services to prepare an Emergency Operations Plan for the City in 2019.

Because of the City's reliance on groundwater, the most likely event triggering a catastrophic supply interruption is a regional power outage. Other catastrophic events include an earthquake in Southern California affecting the conveyance and treatment of supplies to WFA or the City's San Antonio Canyon WTP and an earthquake in the Delta affecting imported water supplies. Upland may be vulnerable in parts of the City to flooding associated with the failure of San Antonio Dam. Human-made threats include contamination to the water system, structural damage from an explosive device, employee assaulted with a weapon, Supervisory Control and Data Acquisition System (SCADA) or IT system intrusion, water supply interruption, or a bomb threat. A catastrophic supply interruption that affects more than one of the City's water supplies can reduce water available for fire suppression and customer consumption.

The City's Emergency Operations Plan (EOP) provides a standardized response and recovery protocol to prevent, minimize, and mitigate injury and damage resulting from emergencies or disasters of human-made or natural origins. Operational concepts focus on potential large scale disasters that can generate unique situations. It is consistent with the requirements of the California Standardized Emergency Management System as defined in Government Code Section 8607 (a) and the National Incident Management System as defined by Presidential Executive Orders for managing response to multi-agency and multi-jurisdictional emergencies.



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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. Mobile generators the City owns or can obtain quickly from neighboring agencies would be transported to key locations, such as wells to allow a supply to be maintained in the distribution system. Public outreach to reduce demands would occur immediately. A high level of public outreach and water use restrictions would occur with a regional outage, particularly one invoking a Level 6 supply shortage.

The EOP describes how Upland will respond to potential threats identified in the vulnerability assessment as well as additional emergency response situations. During an outage, various actions will need to be taken to continue water service, especially for key functions such as fire suppression. Various parts of the City's staged response plan - reflecting the six levels of shortages - can be invoked, as needed, during declared water shortages. The EOP identifies the City Manager as the Director of Emergency Services, defines the responsibilities of each department, identifies emergency management partners, the incident command system for command and logistics, alerting and notification procedures, and systems for providing public information. The City anticipates the completion of its ERP in 2021.

The Upland water system has interconnections with adjacent agencies that can be utilized if either entity is experiencing a severe shortage. Turnout valve connections are in place with SAWCo, Cucamonga Valley Water District, Monte Vista Water District, City of Ontario and Golden State Water Company. These valves also allow the City to serve water as an alternative emergency supply to other suppliers in time of need.

#### 8.4.6 Seismic Risk Assessment and Mitigation Plan

The Water Code Section 10632.5 requires suppliers to assess seismic risk to water supplies as a part of their WSCP including a risk meditation plan. As discussed in Section 8.4.5, the City is expected to be able to respond to an unplanned power outage including one associated with a seismic event. The City sits on alluvial soils which can make facilities particularly vulnerable to ground shaking during a seismic event. Groundwater wells can be susceptible to earthquake related power outage as covered in Section 8.4.6; and also damage to the pumping facilities. Wells are often repaired more easily and quickly compared with water treatment facilities and the network of large diameter pipelines.

Earthquakes that occur outside of San Bernardino County could have a significant impact on the City's imported water supply. Both the Colorado River Aqueduct and the State Water Project conveyance facilities could be disrupted. In particular, a seismic event near the Sacramento

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River-San Joaquin River Delta, could cause failure of levees and flooding of islands with salt water from San Francisco Bay which could disrupt water supplies for years. A high level of public outreach and water use restrictions would occur with a regional outage associated with a seismic event, particularly one invoking a Level 6 supply shortage. The City's Risk and Resilience Assessment is anticipated to be completed in 2021. The City is working with U.S. EPA on a schedule for completion.

#### 8.4.7 Shortage Response Action Effectiveness

The locally appropriate shortage response actions for demand management were quantified for effectiveness in Table 8-6, reflecting the shortage level required. This given suite of response actions can be expected to deliver the expected outcomes necessary to meet the requirements of a given shortage level. For example, for a supply shortage of 20 percent, public information outreach to encourage conservation would reflect the effort required to achieve the 20 percent reduction. A greater level of outreach would achieve a greater level of savings, although with diminishing results without financial impacts. For example, allocations were initiated by MWD/IEUA in FY2015, the 3<sup>rd</sup> year of the most recent drought and the City and IEUA initiated additional conservation outreach. As a result, water use was reduced 14 percent in FY15 and 20 percent in FY16.

### 8.5 Communication Protocols

Communication protocols can differ between a supply shortage resulting from hydrological conditions and an emergency short term or long term outage. Table 8-8 summarizes the communication protocols associated with each of the six water shortage levels. The water shortage contingency ordinance (Ordinance 1786) is provided in Appendix G.

**Shortage.** A water supply shortage or threat of shortage exists when the City determines, in its sole discretion that it exists, due to drought, catastrophe, or other water supply condition. The City Council may declare a specific level of water supply shortage condition at a regular or special public meeting in accordance with State law.

**Emergency.** During an emergency, communications during the response will proceed along the chain of command identified in the City's ERP. The number of people notified will increase as the incident expands and decrease as the incident contracts toward its conclusion. The type and extent of the disaster will dictate the normal and/or alternative methods of communication

**Table 8-8: Communication Protocols**

Shortage Level	Communication Protocols and Procedures
1	<ul style="list-style-type: none"><li>• Ongoing outreach efforts to promote ongoing efficiency programs</li></ul>
2	<ul style="list-style-type: none"><li>• Initiate public information campaign to announce water supply conditions and needed actions from the public</li><li>• Announce water supply shortage status to key stakeholders</li><li>• Increase conservation messages on City website and in standard outreach efforts</li></ul>
3	<ul style="list-style-type: none"><li>• Supplement Level 2 activities with additional tactics, as needed</li><li>• Provide regular condition updates to stakeholders</li><li>• Continue promotion of ongoing water efficiency programs programs/tools</li><li>• Enhance promotion of ongoing water efficiency programs targeted advertising</li></ul>
4	<ul style="list-style-type: none"><li>• Update campaign and messages to raise awareness for more severe water saving actions and behaviors by the public</li><li>• Announce water supply shortage status to key stakeholders</li><li>• Supplement Level 3 outreach with additional tactics, as needed</li><li>• Conduct specialized outreach to reduce discretionary outdoor use while minimizing landscape damage</li></ul>
5	<ul style="list-style-type: none"><li>• Update campaign and messages to reflect extreme or emergency condition and likely need to focus water use on health/safety needs</li><li>• Announce water supply shortage status to key stakeholders</li><li>• Supplement Level 4 outreach with additional tactics, as needed</li><li>• Suspend promotion of long-term water efficiency programs to focus on imminent needs</li></ul>
6	<ul style="list-style-type: none"><li>• Formal and detailed communication protocols in the City's ERP are activated. This level requires a formal protocol with regional agencies to address the catastrophe or extreme supply shortage</li><li>• Update campaign and messages to reflect extreme or emergency condition and likely need to focus water use on health/safety needs</li><li>• Announce water supply shortage status to key stakeholders</li><li>• Supplement Level 5 outreach with additional tactics, as needed</li><li>• Suspend promotion of long-term water efficiency programs to focus on emergency needs</li></ul>
NOTE: Response actions for each stage are provided in Table 8-6.	

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that will be used. The possibility of a coordinated attack that targets multiple systems has been considered and it would be reasonable to assume that some methods of communication will either be unavailable or limited to certain areas. Communications with the public may include boil water orders, unsafe water alerts, or do not drink notices that would be coordinated with the San Bernardino County Health Department and the State Division of Drinking Water.

## 8.6 Compliance and Enforcement

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 fines, the violator may be ordered to reimburse the City for all necessary costs incurred by the City pertaining to the violation.

The Water Utility Director, or equivalent position, is empowered to enact other penalties and restrictive measures including remedies that the City may have for enforcement such as discontinuing service of water or appropriately limiting service to any customer who willfully uses water in violation of any provision of the plan. A flow restricting device may be placed upon the water service, lock off a water meter, remove a water meter, and shut off the service line valve.

## 8.7 Legal Authorities

The City Council approved the Water Shortage Contingency Ordinance on July 11, 2005. It established permanent conservation measures and a water shortage contingency plan. The authority to implement this ordinance is granted of the City Council, City Manager, Water Utility Director or equivalent position, and others as codified in Upland Municipal Code Section 13.16. The City Manager shall request the City Council to declare that demand for water is anticipated to be in excess of supply, immediately after it appears that such a situation exists or is threatened, if the City Council is in session. If the council is not in session, the City Manager shall immediately cause a request for a special meeting of the City Council to be delivered to each council person who can be located.

The City Council has the power to declare a water shortage emergency in accordance with Water Code Chapter 3 (commencing with Section 350) of Division 1 regarding water shortage emergencies. It also has the power to implement the applicable provisions of the City's shortage ordinance when in its opinion the demand for water consumption exceeds the City's available supply (allowing for a safe reserve), or threatens to do so, provided there are no immediate resources available to remedy the situation. Such declaration shall be made by

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public announcement and shall be published in a newspaper of general circulation and shall become effective immediately upon such publication.

The City shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency under California Government Code, California Emergency Services Act (Article 2, Section 8558). The relevant agencies (i.e., City of Upland, County of San Bernardino) are provided in Table 10-1 of the 2020 UWMP.

## 8.8 Financial Consequences

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. The total cost of purchasing MWD water from WFA would decrease if the availability of that source of supply were curtailed. Expenditures may also go down as less water is pumped through the system so power costs are lower. The amount of the decrease in revenues would be indirectly related to the demand reduction actions required under each of the six shortage levels.

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. There are significant fixed costs associated with maintaining a minimal level of service.

The costs of discouraging excessive water use during a drought emergency would be shared with IEUA as the regional water use efficiency outreach provider and the City as the enforcer. Those costs associated with excessive use during an emergency are not anticipated to be significantly greater than messaging provided during a drought/emergency for overall demand management actions nor would it require additional City staff to enforce as existing personnel can be utilized.

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. Mitigation actions needed to address potential revenue losses and/or expenditure impacts include the ability to lease available water supplies to local water agencies. It may also utilize financial reserves. If necessary, the City will reduce expenditures by delaying implementation of its Capital Improvement Program and equipment purchases, implement a drought surcharge,

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and/or reexamine its water rate structure, actions which would depend on the severity of the shortage.

## 8.9 Monitoring and Reporting

Water use must be monitored frequently during emergency water shortages to enable the City to effectively manage the balance between supply and demand. All individual accounts in the City are metered, and overall water production and the status of the City's supply is continuously monitored through City facilities and its SCADA system. Water production figures are recorded daily; weekly and monthly reports are prepared and monitored. These data are available to identify an increase in production that may reflect a dry year and measure annual water savings resulting from the effectiveness of any water shortage contingency level that may be implemented.

As done in the past, the City follows MWD's WSAP guidelines once an extreme shortage is declared. This allocation plan is enforced by MWD using rate surcharges. IEUA/WFA 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.

As stages of water shortage are declared by IEUA or MWD, the City follows implementation of those stages and continues 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. The City will participate in member agency meetings with IEUA to monitor and discuss water allocations. This will enable the City to be aware of imported water use on a timely basis as a result of specific actions taken in response to MWD's WSCP.

As done in the past, the City will follow the 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. For example, MWD declared a Stage Level 3 in April 2015 for a 15 percent reduction on imported deliveries and IEUA implemented Stage Level 3. This allocation was in effect for a 12 month period from July 1, 2015 to June 30, 2016.

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On May 9, 2016, the Governor issued Executive Order B-37-16 to make water conservation a way of life in California and directed the State Water Resources Control Board to establish permanent reporting and data collection by urban water suppliers. On April 21, 2020, the State Water Resources Control Board adopted Resolution No. 2020-0009, which requires monthly urban water conservation reporting. The Urban Water Supplier Reporting tool is used for monthly reporting. The monthly reporting required by the State Water Resources Control Board will be used for reporting purposes of this WSCP.

## 8.10 Refinement Procedures

The City is required to submit the Annual Assessment to DWR by July 1 of each year, starting in 2022. The annual report will be based on the assessment of demands on the system in conjunction with supply availability as outlined above. The City may at this time each year reevaluate the functionality of its WSCP process and make appropriate adjustments if warranted. At a minimum, the WSCP will be reviewed at least every five years as a part of the UWMP update.

## 8.11 Special Water Feature Distinction

There are no known special water features in the City's water service area.

## 8.12 Plan Adoption, Submittal, and Availability

This WSCP was adopted by the City Council June 14, 2021 and submitted to DWR in July of 2021. It is available to the public through the City website. It is a living document that is meant to be updated, as needed, between the required five year update. If the WSCP is amended, a copy will be provided to DWR within 30 days of adoption.

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## 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 twenty 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 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. Water use efficiency practices focus on the California Water Efficiency Partnership's (CalWEP) five BMPs and supporting sub-BMPs for promoting conservation and efficiency of urban water use. 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 and support WUE activities.

### 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.

#### 9.2.1 Water Waste Prevention Ordinances

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



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### 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 CalWEP 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. The City has conducted water education and community outreach at schools over the previous two decades.

### 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 members who handle 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 FY16 through FY20. The nature and extent of the DMM rebate programs (e.g., toilet replacement rebates provided, etc.) was discussed above and are quantified in Table 9-1. In addition to the rebates and devices

provided, the City started a Water Waste Hotline in response to the water shortage mandatory restrictions in the last drought, discussed in Chapter 8.

<b>Table 9-1: City of Upland Rebates and Devices Implemented</b>					
	Devices/Rebates				
	2015/16	2016/17	2017/18	2018/19	2019/20
<b>City of Upland Residential Rebates</b>					
High Efficiency Toilets	197	24	8	21	6
High Efficiency Clothes Washers	71	52	43	43	45
Rotating Nozzles for Pop-up Spray Heads	86	65	30		
Weather Based Irrigation Controllers	21	32	34	64	100
Turf Replacement (Apps)	108	26		8	24
Rain Barrels	97	6	2	7	2
Cisterns					
Soil Moisture Sensing Systems	1				
<b>IEUA Locally Implemented Residential Programs</b>					
FreeSprinklerNozzles.com Program (Nozzles)	300	174	50		
Res Landscape Retrofit Program (Sites)	52	4	6	24	61
Res Small Controller Upgrade Program (Sites)			1	55	43
Landscape Irrigation Tune-up Program (Sites)				24	58
Pressure Regulation Valve Program (Sites)			13	57	42
Flume Leak Detection Program (Sites)					
Landscape Transformation Program (Sites)	7				
<b>City of Upland Commercial Rebates</b>					
High Efficiency Toilets	545		284	146	237
Waterless Urinals					
Cooling Tower Controller					
Weather Based Irrigation Controllers	2	10	21	2	12
Rotating Nozzles for Pop-up Spray Heads	1,881		7,570		
Large Rotary Nozzles					
Central Computerized Irrigation Controller					
Laminar Flow Restrictor	210				
Air-Cooled Ice Machine					
Turf Replacement (Apps)	12			2	10
Soil Moisture Sensing Systems	1				
Plumbing Flow Control	706				
<b>IEUA Locally Implemented Commercial Programs</b>					
FreeSprinklerNozzles.com Program	100		1,587		

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Because the City’s conservation efforts have been so successful – resulting in a reduction in demands approximately five percent lower than its 2020 SB X7-7 target – it will continue to implement its current successful programs. The following passive and active water efficiency activities were undertaken to achieve this target.

- Continued implementation of demand management measures by the City and IEUA
- Water conservation permanent restrictions

## 9.4 Future Water Use Objectives

The Water Code requires that suppliers or the State develop new water use objectives that are based on specific standards for certain water use sectors. These water use objectives will not be developed until 2023. The first report will require information on what DMMs suppliers will implement to meet their objectives. DWR encourages the City to consider aligning conservation management actions in consideration of these future unknown obligations.



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## Chapter 10 – Plan Adoption, Submittal, and Implementation

This chapter discusses the UWMP and WSCP adoption, submittal, and implementation process. Since an addendum was provided for the 2015 UWMP to address reduced Delta reliance interests, this addendum was included in the noticing and review actions required for the 2020 UWMP and WSCP. It is noted here that the WSCP was adopted as a document that was created separately from the UWMP and which can be amended as needed without amending the UWMP. The WSCP can be updated at any time before the next required update in 2025.

### 10.1 Inclusion of all 2020 Data

Data provided in this UWMP and WSCP reflect fiscal years beginning July 1. Data utilized are current through the end of the last full fiscal year – June 30, 2020. The WSCP was adopted at the same time as the UWMP.

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 in 2015, IEUA 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 and WSCP process, the City provided notification of the preparation of the updated UWMP and WSCP and noticing of the public hearing. These steps were provided consistent with all California Water Code requirements for soliciting input and notification of availability of this document in its draft and final forms.

#### 10.2.1 Notice to Cities, County, and Other Entities

The City notified several agencies of the preparation of the UWMP and WSCP. 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 14, 2021, of the fact that the UWMP and WSCP was under

preparation, of the hearing time and place, and of the availability of the UWMP and WSCP to review prior to the hearing. A copy of the 60 day notification is provided in Appendix H.

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
City of Upland	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
County Name <small>Drop Down List</small>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
San Bernardino County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

In addition to the required city and county notifications, the 18 entities listed in Table 10-2 also received the 60 day notification of the preparation of the 2020 UWMP and WSCP. Upon preparation of the documents, a link to the draft UWMP and WSCP was emailed to the entities listed in Table 10-1 and Table 10-2 along with a notification of the public hearing date, time, and location.

### 10.2.2 Notice to the Public

The City encouraged public participation in the UWMP and WSCP development process through noticing of the public hearing and by encouraging review of the draft documents. A legal notice of the public hearing and of the availability of the draft UWMP and WSCP was first provided prior the June 14, 2020 public hearing. The public notice, provided in Appendix H, provided the date, time, and location of the hearing as well as the website address and location at City Hall where the UWMP and WSCP were available for public review. This notice was published in the Inland Valley Daily Bulletin once a week for two consecutive weeks with at least five days

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between each notice, prior to the public hearing on June 14, 2021. The public hearing was held consistent with the Dymally-Alatorre Bilingual Services Act. This act requires that every local public agency serving a substantial number of non-English speaking people shall employ persons to ensure the provision of information in the language of the non-English speaking person.

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
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:		

A copy of the draft UWMP and WSCP were made available for public review through the City's website upon the notification appearing in the newspaper. The use of the website for access to the document was due to the coronavirus pandemic, to minimize physical contact in City offices. However, a review copy was also available at City Hall 460 N. Euclid Ave, Upland, CA 91782. 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 14, 2021 at 6:00 p.m. at the Upland City Hall. The adoption of both the UWMP and WSCP occurred as

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separate actions following the public hearing on both items at the same meeting. During the public hearing, information was provided on City water use targets, WSCP, financial impacts, and other information. At this hearing date, an addendum to the 2015 UWMP (Appendix F of the 2020 UWMP) was approved to ensure consistency with the Reduced Delta Reliance support documentation. 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 and WSCP were made available for public review before the public hearing. The adopted plans were made available for public review through the City website for at least 30 days following submittal to DWR and a hard copy was available for review at City Hall. The final 2020 UWMP and WSCP were provided electronically to DWR, California State Library, IEUA, SAWCo, WFA, County of San Bernardino, and to anyone else who requested it, within 30 days after adoption. The documents were also posted on the City's website for public availability. DWR received the adopted UWMP and WSCP text and the UWMP data tables electronically through the WUEdata online submittal tool that DWR developed. The City submitted a CD of the adopted 2020 UWMP and WSCP 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 link to the website. The adoption resolutions are provided in Appendix H.



## **Appendix A**

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### **DWR 2020 UWMP Checklist**



**City of Upland**  
**Appendix A**  
**DWR 2020 Urban Water Management Plan Checklist**

<b>2020 Guidebook Location</b>	<b>Water Code Section</b>	<b>Summary as Applies to UWMP</b>	<b>Subject</b>	<b>2020 UWMP Location</b>
Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Section 1.1
Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Executive Summary
Section 2.2	10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1
Section 2.6	10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.2
Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	Appendix G
Section 2.6, Section 6.1	10631(h)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	Section 2.2
Section 2.6	10631(h)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Wholesale only

## Appendix A - DWR 2020 UWMP Checklist

Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Section 3.1
Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.2
Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Table 3-1
Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.4
Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Table 3-1
Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Section 3-5 Table 3-2
Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Tables 4-1 & 4-2
Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Section 4.3
Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans and other policies or laws.	System Water Use	Table 4-5
Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Section 4.4
Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Section 4.3
Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5
Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 4.6
Chapter 5	10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Section 5.1 & 5.2 Appendix D
Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Section 5.2.1

## Appendix A - DWR 2020 UWMP Checklist

Section 5.1	10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Wholesale only
Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	NA
Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.1
Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Appendix D
Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Section 7.2.3
Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, <i>including changes in supply due to climate change.</i>	System Supplies	Sections 7.2.1 & 7.2.3
Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Section 6.9
Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 6.8
Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Section 6.9 Table 6-9
Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2
Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2

## Appendix A - DWR 2020 UWMP Checklist

Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	Section 6.2
Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.5 Appendix E
Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	NA
Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2 Table 6-1
Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Section 6.2.5
Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7
Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2 Tables 6-2 & 6-3
Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Table 6-4
Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5
Section 6.2.5	10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5 Tables 6-5 & 6-4
Section 6.2.5	10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Sections 6.5.2 & 6.5.3 Table 6-6
Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3

## Appendix A - DWR 2020 UWMP Checklist

Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6
Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	Section 6.5.2 Table 6-2
Section 6.2.8, Section 6.3.7	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	Sections 6.8 & 6.9
Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Supplies, Energy Intensity	Section 6.11 Table 6-10
Section 7.2	10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.2.1
Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.2.4 Appendix F
Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.2.3
Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Section 7.3
Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Section 7.3.1
Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Section 7.3
Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Section 7.3.3 Table 7-5

## Appendix A - DWR 2020 UWMP Checklist

Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	Sections 3.3, 6.10, 7.2.1, & 7.3.1
Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Chapter 8
Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Section 8.1
Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Section 8.9
Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Section 8.2.1 Table 8-4
Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Section 8.2 Table 8-4
Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Section 8.3
Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Figure 8-1
Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Section 8.4.2 Table 8-7
Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Section 8.4.1 Table 8-6
Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Section 8.4.3



## Appendix A - DWR 2020 UWMP Checklist

Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	Section 8.4.1 Table 8-6
Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Table 8-6
Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Section 8.4.6
Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Section 8.5 Table 8-8
Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Section 8.5 & Table 8-8
Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	Section 8.6
Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Section 8.7
Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Section 8.2.2
Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Section 8.2.2
Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Section 8.8
Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Section 8.8
Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Section 8.8

## Appendix A - DWR 2020 UWMP Checklist

Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Section 8.9
Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	Section 8.11
Sections 8.12 and 10.4	10635(c)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Sections 8.12 & 10.4 Appendix G
Section 8.14	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Section 10.4
Sections 9.1 and 9.3	10631(e)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Wholesale only
Sections 9.2 and 9.3	10631(e)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Section 9.3
Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	Section 10.3
Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Section 10.2.1 Table 10-1
Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Section 10.4
Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Appendix G

## Appendix A - DWR 2020 UWMP Checklist

Section 10.2.2	10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Section 10.2
Section 10.3.2	10642	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Appendix G
Section 10.4	10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4
Section 10.4	10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4 Appendix G
Sections 10.4.1 and 10.4.2	10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Section 10.4
Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.4 Appendix G
Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.4 Appendix G
Section 10.6	10621(c)	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	NA
Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	Section 8.12



## **Appendix B**

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### **References**



## Appendix B – References

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## **Appendix C**

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### **Water Audits**





# AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0  
American Water Works Association  
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Click to access definition  
 Click to add a comment

Water Audit Report for: **City of Upland**  
Reporting Year: **2016** **1/2016 - 12/2016**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

**All volumes to be entered as: ACRE-FEET PER YEAR**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

## WATER SUPPLIED

Volume from own sources:   5 2,479.470 acre-ft/yr  
Water imported:   5 14,991.000 acre-ft/yr  
Water exported:   4 271.414 acre-ft/yr

## Master Meter and Supply Error Adjustments

Pcnt:   9     Value:  acre-ft/yr  
  9     Value:  acre-ft/yr  
  9     Value:  acre-ft/yr

Enter negative % or value for under-registration  
Enter positive % or value for over-registration

**WATER SUPPLIED:**  acre-ft/yr

## AUTHORIZED CONSUMPTION

Billed metered:   5 16,476.000 acre-ft/yr  
Billed unmetered:   9 58.800 acre-ft/yr  
Unbilled metered:   9 14.150 acre-ft/yr  
Unbilled unmetered:   5  acre-ft/yr

**AUTHORIZED CONSUMPTION:**  acre-ft/yr

## WATER LOSSES (Water Supplied - Authorized Consumption)

### Apparent Losses

Unauthorized consumption:    acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:   3  acre-ft/yr  
Systematic data handling errors:   5  acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

**Apparent Losses:**  acre-ft/yr

## Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:  acre-ft/yr

**WATER LOSSES:**  acre-ft/yr

## NON-REVENUE WATER

**NON-REVENUE WATER:**  acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

## SYSTEM DATA

Length of mains:   9  miles  
Number of active AND inactive service connections:   9   
Service connection density:  conn./mile main

Are customer meters typically located at the curbside or property line?

Average length of customer service line:   (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:   5  psi

## COST DATA

Total annual cost of operating water system:   10  \$/Year  
Customer retail unit cost (applied to Apparent Losses):   9  \$/100 cubic feet (ccf)  
Variable production cost (applied to Real Losses):   5  \$/acre-ft ☐ Use Customer Retail Unit Cost to value real losses

Retail costs are less than (or equal to) production costs; please review and correct if necessary

## WATER AUDIT DATA VALIDITY SCORE:

**\*\*\* YOUR SCORE IS: 62 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

## PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported

2: Customer metering inaccuracies

3: Billed metered



# AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0  
American Water Works Association  
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Click to access definition  
 Click to add a comment

Water Audit Report for: **City of Upland**  
Reporting Year: **2017** **1/2017 - 12/2017**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

**All volumes to be entered as: ACRE-FEET PER YEAR**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

## WATER SUPPLIED

Volume from own sources:   3,081.205 acre-ft/yr  
Water imported:   15,973.203 acre-ft/yr  
Water exported:   178.742 acre-ft/yr

## Master Meter and Supply Error Adjustments

Pcnt:      Value:  acre-ft/yr  
     Value:  acre-ft/yr  
     Value:  acre-ft/yr

Enter negative % or value for under-registration  
Enter positive % or value for over-registration

**WATER SUPPLIED:**  acre-ft/yr

## AUTHORIZED CONSUMPTION

Billed metered:   17,610.556 acre-ft/yr  
Billed unmetered:   72.013 acre-ft/yr  
Unbilled metered:   276.744 acre-ft/yr  
Unbilled unmetered:   2.000 acre-ft/yr

**AUTHORIZED CONSUMPTION:**  acre-ft/yr

## WATER LOSSES (Water Supplied - Authorized Consumption)

### Apparent Losses

Unauthorized consumption:   47.679 acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:   729.557 acre-ft/yr  
Systematic data handling errors:   44.026 acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

**Apparent Losses:**  acre-ft/yr

## Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:  acre-ft/yr

**WATER LOSSES:**  acre-ft/yr

## NON-REVENUE WATER

**NON-REVENUE WATER:**  acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

## SYSTEM DATA

Length of mains:   255.6 miles  
Number of active AND inactive service connections:   20,826  
Service connection density:  conn./mile main

Are customer meters typically located at the curbside or property line?

Average length of customer service line:   (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:   100.0 psi

## COST DATA

Total annual cost of operating water system:   \$24,886,170 \$/Year  
Customer retail unit cost (applied to Apparent Losses):   \$1.86 \$/100 cubic feet (ccf)  
Variable production cost (applied to Real Losses):   \$720.43 \$/acre-ft ☒ Use Customer Retail Unit Cost to value real losses

## WATER AUDIT DATA VALIDITY SCORE:

**\*\*\* YOUR SCORE IS: 65 out of 100 \*\*\***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

## PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported

2: Customer retail unit cost (applied to Apparent Losses)

3: Variable production cost (applied to Real Losses)

## **Appendix D**

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### **SB X7-7 Compliance Tables**



## Appendix D

### SB X7-7 Compliance Tables

**SB X7-7 Table 0: Units of Measure Used in 2020 UWMP\***  
(select one from the drop down list)

Acre Feet

*\*The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*

NOTES:

**SB X7-7 Table 2: Method for 2020 Population Estimate**

**Method Used to Determine 2020 Population**  
(may check more than one)

☐

**1. Department of Finance (DOF) or  
American Community Survey (ACS)**

☐

**2. Persons-per-Connection Method**

☐

**3. DWR Population Tool**

☒

**4. Other**  
DWR recommends pre-review

NOTES: Data developed by SCAG and provided by IEUA. Similar data as DOF.

**SB X7-7 Table 3: 2020 Service Area Population**

**2020 Compliance Year Population**

**2020**

78,383

NOTES:

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	2020 Volume Into Distribution System <i>This column will remain blank until SB X7-7 Table 4-A is completed.</i>	2020 Deductions					2020 Gross Water Use
		Exported Water *	Change in Dist. System Storage* (+/-)	Indirect Recycled Water <i>This column will remain blank until SB X7-7 Table 4-B is completed.</i>	Water Delivered for Agricultural Use*	Process Water <i>This column will remain blank until SB X7-7 Table 4-D is completed.</i>	
	18,431			-		-	18,431
* Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.							
NOTES:							

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment			
Complete one table for each source.			
Name of Source		Purchased or Imported Water	
This water source is (check one) :			
<input type="checkbox"/>	The supplier's own water source		
<input checked="" type="checkbox"/>	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System <sup>1</sup>	Meter Error Adjustment <sup>2</sup> Optional (+/-)	Corrected Volume Entering Distribution System
	3,395	-	3,395
<sup>1</sup> Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3. <sup>2</sup> Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document			
NOTES			



SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter Error Adjustment			
Complete one table for each source.			
Name of Source		Local Surface Water	
This water source is (check one) :			
<input checked="" type="checkbox"/>	The supplier's own water source		
<input type="checkbox"/>	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System <sup>1</sup>	Meter Error Adjustment <sup>2</sup> Optional (+/-)	Corrected Volume Entering Distribution System
	3,365		3,365
<sup>1</sup> Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3. <sup>2</sup> Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document			
NOTES:			

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment			
Complete one table for each source.			
Name of Source		Groundwater	
This water source is (check one) :			
<input checked="" type="checkbox"/>	The supplier's own water source		
<input type="checkbox"/>	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System <sup>1</sup>	Meter Error Adjustment <sup>2</sup> Optional (+/-)	Corrected Volume Entering Distribution System
	6,120		6,120
<sup>1</sup> Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3. <sup>2</sup> Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document			
NOTES:			

**SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment**

Complete one table for each source.

<b>Name of Source</b>	Purchased groundwater		
<b>This water source is (check one) :</b>			
<input type="checkbox"/>	The supplier's own water source		
<input checked="" type="checkbox"/>	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System <sup>1</sup>	Meter Error Adjustment <sup>2</sup> Optional (+/-)	Corrected Volume Entering Distribution System
	5,551		5,551
<sup>1</sup> Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3. <sup>2</sup> Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document			

**SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)**

2020 Gross Water Fm SB X7-7 Table 4	2020 Population Fm SB X7-7 Table 3	2020 GPCD
18,431	78,383	210

**SB X7-7 Table 9: 2020 Compliance**

Actual 2020 GPCD <sup>1</sup>	Optional Adjustments to 2020 GPCD					2020 Confirmed Target GPCD <sup>1, 2</sup>	Did Supplier Achieve Targeted Reduction for 2020?
	Enter "0" if Adjustment Not Used			TOTAL Adjustments <sup>1</sup>	Adjusted 2020 GPCD <sup>1</sup> <i>(Adjusted if applicable)</i>		
	Extraordinary Events <sup>1</sup>	Weather Normalization <sup>1</sup>	Economic Adjustment <sup>1</sup>				
210	-	-	-	-	210	220	YES
<sup>1</sup> All values are reported in GPCD							
<sup>2</sup> <b>2020 Confirmed Target GPCD</b> is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.							
NOTES:							

## **Appendix E**

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**Chino Basin Judgment**

**Six Basins Judgment**

**Cucamonga Basin Decree**



## **Chino Basin Judgment**

For a copy of the Chino Basin Judgment, please click on the link to Chino Basin Watermaster's website. Scroll to the Judgment or the 2012 Restated Judgment link.

[http://www.cbwm.org/rep\\_legal.htm](http://www.cbwm.org/rep_legal.htm)

For more information on the 2020 Optimum Basin Management Program (OBMP) Update, click on the link below.

<http://www.cbwm.org/docs/OBMP%20Update/201907%20OBMPU%20Progress%20Report%201%20July%202019%20Digital.pdf>

## **Six Basins Judgment**

For a copy of the Six Basins Judgment, please click on the link to Six Basins Watermaster's website. The link is highlighted in the text.

<http://www.6bwm.com/info.php?pnum=2>

Recorded April 29, 1958  
Book 4495, page 381,  
San Bernardino County  
Official Records

1 WALKER, WRIGHT, TYLER & WARD  
2 210 West 7th Street, Suite 631  
3 Los Angeles 14, California  
4 TRinity 8936

5 Attorneys for Plaintiff  
6  
7  
8

9 IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

10 IN AND FOR THE COUNTY OF SAN BERNARDINO  
11

12 SAN ANTONIO WATER COMPANY, a corporation,  
13 Plaintiff,

14 -vs-

15 FOOTHILL IRRIGATION COMPANY, a corporation;  
16 SUNSET WATER COMPANY, a corporation; IOAMOSA  
17 WATER COMPANY, a corporation; and OLD SETTLERS  
18 WATER COMPANY, a corporation; ALTA LOMA MUTUAL  
19 WATER COMPANY, a corporation; ARMSTRONG  
20 NURSERIES, a corporation; BANYAN HEIGHTS WATER  
21 COMPANY, a corporation; CARNELIAN WATER  
22 COMPANY, a corporation; CITRUS WATER COMPANY,  
23 a corporation; CUCAMONGA DEVELOPMENT COMPANY,  
24 a corporation; CUCAMONGA WATER COMPANY, a  
25 corporation; HEDGES WELL COMPANY, a corpor-  
26 ation; HELLMAN WATER COMPANY, a corporation;  
27 HERMOSA WATER COMPANY, a corporation;  
28 JOYA MUTUAL WATER COMPANY, a corporation;  
29 REX MUTUAL WATER COMPANY, a corporation;  
30 SAPPHIRE MUTUAL WATER COMPANY, a corporation;  
31 CHARLES SNYDER; UPLAND WATER COMPANY, a  
32 corporation; HENRY G. BODKIN and BANK OF  
AMERICA NATIONAL TRUST AND SAVINGS ASSOCIATION,  
as Executors of the last will of Giovanni Vai,  
deceased; WESTERN FRUIT GROWERS, a corporation;  
HUGH P. CRAWFORD; G. N. HAMILTON RANCH, a  
partnership composed of Arthur Bridge, Helen  
Bridge, and Grace W. Burt; JOHN DOE ONE to  
THIRTY inclusive, MARY ROE ONE to THIRTY  
inclusive, JOHN DOE COMPANY ONE to TWENTY  
inclusive,

Defendants.

No. 92645

D E C R E E

1 WHEREAS, there has been filed in the above entitled  
2 action, a Stipulation for Judgment duly executed by and on the  
3 part of each and all of the following named parties to said action  
4 (who are collectively hereinafter referred to as the "stipulating  
5 parties"), to wit:

6 San Antonio Water Company, a corporation;  
7 Foothill Irrigation Company, a corporation;  
8 Ioamosa Water Company, a corporation;  
9 Old Settlers Water Company, a corporation;  
10 Sunset Water Company, a corporation;  
11 Cucamonga Water Company, a corporation;  
12 Alta Loma Mutual Water Company, a corporation;  
13 Armstrong Nurseries, a corporation;  
14 Banyan Heights Water Company, a corporation;  
15 Carnelian Water Company, a corporation;  
16 Citrus Water Company, a corporation;  
17 Hedges Well Company, a corporation;  
18 Hellman Water Company, a corporation;  
19 Hermosa Water Company, a corporation;  
20 Joya Mutual Water Company, a corporation;  
21 Upland Water Company, a corporation;  
22 Western Fruit Growers, a corporation;  
23 Cucamonga Development Company, a corporation;  
24 Sapphire Mutual Water Company, a corporation;  
25 Charles Snyder;  
26 Hugh P. Crawford;  
27 Bank of America National Trust and Savings Association,  
28 a national banking association, and Henry G. Bodkin,  
29 as executors of the last Will of Giovanni Vai, deceased;  
30 G. N. Hamilton Ranch, a partnership composed of Arthur  
31 Bridge, Helen Bridge, Grace W. Burt;  
32

1 and Rex Mutual Water Company.

2 and,

3 WHEREAS, the Court has heard and considered evidence on the  
4 part of various of the stipulating parties,

5 NOW, THEREFORE, IT IS HEREBY ORDERED, ADJUDGED AND DECREED  
6 by this Court that:

7 FIRST: As used herein, the terms listed below shall have  
8 the respective meanings next following them, viz:

9 (a) "Cucamonga Basin" or "Basin" shall mean that certain  
10 territory in the County of San Bernardino, State of California,  
11 which is more particularly described upon Exhibit 1, and shall  
12 also include all percolating water and underground water and water  
13 sources underlying said territory;

14 (b) "Imported water" shall mean water derived from a  
15 stream flow in an area outside of any water shed draining into the  
16 Cucamonga Basin. Specifically, water derived from San Antonio  
17 Canyon and/or Creek is "imported water".

18 (c) "Irrigation season" shall mean that portion of each  
19 year when irrigating is required by the users of the water sold by  
20 the Plaintiffs and Defendants hereto. While this period varies  
21 considerably from year to year, the irrigating season generally  
22 commences during any month in which the rainfall does not exceed  
23 two inches, and the season generally terminates after the first  
24 rainfall of two inches or more. The season usually approximates  
25 the period from May 1st to November 1st.

26 "Spreading season" is the balance of each year remaining  
27 after deducting the irrigation season for such year, and is  
28 usually approximately the period from November 1st of one year to  
29 May 1st of the succeeding year.

30 "Spread" with respect to water shall mean to conduct the  
31 same upon and sink the same into the gravels of Cucamonga Basin  
32 during a spreading season.



1 (d) "Aggregate stipulated water" means the total number  
2 of acre feet of water set opposite the names of all stipulating  
3 parties in Exhibit 2.

4 (e) "Pro-rata" means, in each case, in the same propor-  
5 tion as the acre feet listed opposite the name or names of the  
6 party or respective parties in question bear to the aggregate  
7 stipulated water; and the verb "pro-rate" means to divide and  
8 share pro-rata among the stipulating parties.

9 (f) "Allocated water" of any stipulating party or parties  
10 in each case means the number of acre feet of water set out on  
11 Exhibit 2 opposite the name or names of such party or parties.

12 (g) "Ten preceding years" means the period of ten con-  
13 secutive calendar years which immediately precedes or has preceded  
14 the year or event mentioned.

15 (h) "Five-sixths of the water users" shall mean stipu-  
16 lating parties having in the aggregate allocated water which is  
17 not less than five-sixths of the total allocated water of all  
18 stipulating parties.

19 (i) An "inch" of water or a "miner's inch" of water shall  
20 mean a flow of water equal to one-fiftieth (1/50th) of a cubic  
21 foot of water per second of time.

22 (j) Any party hereto the corporate name of which ends  
23 with "Water Company" or "Mutual Water Company" will be hereinafter  
24 referred to without such words. Thus "San Antonio" means herein  
25 "San Antonio Water Company" and similarly with the other parties  
26 using said words "Water Company" or "Mutual Water Company".

27 (k) "Canyon pipeline" shall mean the pipeline (varying in  
28 size between approximately 32 inches in inside diameter and about  
29 18 inches) which extends Southerly from a point on the channel of  
30 Cucamonga Creek at an elevation of approximately 2350 feet above  
31 sea level (herein called "Northerly intake") to the "round weir"  
32 mentioned below.

(l) "Round weir" shall mean that certain weir of Ioamosa marked on the map Exhibit 3 as "Round Weir" and located near the top of the bluff on the East side of Cucamonga Creek and just Northerly from the Westerly prolongation of Almond Street, said weir being the point from which (a) two ten-inch water lines marked on the map Exhibit 3 as "Ioamosa 10 inch" lead Easterly to Ioamosa's Carnelian Street Reservoir (at about elevation 2030 feet above sea level on the East side of Carnelian Street between Hillside Road and Almond Street); (b) a six-inch water line marked on the map Exhibit 3 as "Hamilton 6 inch" leads Southeasterly to the Hamilton Ranch (which lies South of Hillside Road, North of Banyan Street, East of Sapphire Street and West of Carnelian Street), and, (c) an eight-inch water line marked on the map Exhibit 3 as "Banyan 8 inch" runs Southerly down Topaz Street to connect with the water system of Banyan Heights.

(m) "Reservoir Weir" means the weir of Ioamosa located at the Carnelian Street Reservoir.

(n) "Ioamosa Southerly Intake" shall mean a line extending West across the channel of Cucamonga Creek from the existing "Canyon Weir" of Ioamosa marked on the map Exhibit 3 as "Canyon Weir", which weir is located in Cucamonga Canyon, is part of the Canyon pipeline, and is situated about midway (or somewhat Northerly thereof) between the round weir and the Northerly intake mentioned above.

(o) "Schulhof pipe-line" means that certain three-inch water pipe-line marked on the map Exhibit 3 as "Schulhof 3 inch" which connects with the Canyon pipe-line Northerly of the round weir, and which is mentioned in paragraph Second(h) of that certain decree dated April 12, 1937, in action No. 29,799 (Schulhof v. Cucamonga Development Company) in the above entitled Superior Court.

(p) The water to which Ioamosa is entitled as provided in paragraph "Third" hereof is herein called "Ioamosa gravity water", or "gravity water".

(q) "An overflow year" shall mean any calendar year for which

1 the water level determined as hereinafter provided in the index  
2 well is at an elevation of 1345 feet or higher above sea level.

3 For the purposes of determination of elevation above sea  
4 level the United States Geological Survey bench mark on Baseline  
5 (also known as 16th Street) as it exists on the date this decree is  
6 entered, on or near the north boundary of Section 4, Township 1  
7 South, Range 7 west, and approximately four-fifths of a mile west of  
8 Vineyard Avenue, shall be deemed to be at an elevation above sea  
9 level of 1454 feet. The elevation of the water level in such index  
10 well shall be determined by measuring the elevation of such water  
11 in such well on October 1st of each year (Provided that if any such  
12 day falls on a Sunday or a holiday, measurements shall be made on  
13 the next business day). The index well shall be the well known  
14 as Shaft No. 9-A of the San Antonio Water Company located approx-  
15 imately 154 feet Southerly of the Northwest corner of Lot 14 of  
16 Red Hill subdivision and shown on the map Exhibit 5. Wells No. 11  
17 of Cucamonga Water Company and 20 and 22 of the San Antonio Water  
18 Company shall not be pumped within three days before such date of  
19 measurements, and the tunnel bulkhead adjacent to Red Hills Country  
20 Club will be kept closed for a like period before such date. If  
21 for any reason Shaft 9-A shall not be available for measurement,  
22 then the index well shall be Wells No. 11 of Cucamonga Water Company  
23 or 20 or 22 of the San Antonio Water Company, in the order herein  
24 listed. If for any reason none of said wells shall be available  
25 for such measurement, the identity and location of the index well  
26 may be determined by a written stipulation executed by five-sixths  
27 of the water users and filed in said action, or in default of  
28 said stipulation by order of the said court.

29 Annexed to this Decree and hereby incorporated herein are the  
30 following Exhibits:

31 Exhibit 1: A description of the territory under which  
32 lies the "Cucamonga Basin";

1        Exhibit 2: A list of the "allocated water" of each party  
2        (Other than the stream flow mentioned in paragraph "Third");

3        Exhibit 3: A map of "Cucamonga Pipe Lines";

4        Exhibit 4: A map of "Cucamonga Spreading Works";

5        Exhibit 5: A map of "Well and Shaft Locations";

6 and said exhibits are herein respectively referred to as "Exhibit 1",  
7 "Exhibit 2", "Exhibit 3", "Exhibit 4" and "Exhibit 5".

8        SECOND: This paragraph deals with the right and quantity of  
9 water San Antonio may annually hereafter extract from the Cucamonga  
10 Basin as reduced by its failure to previously annually spread therein  
11 the minimum amount of water hereinafter set forth, or as increased by  
12 its previously annually spreading more imported water therein than  
13 said minimum, excepting, however, in both such situations the spread-  
14 ing of imported water during years in which such spread causes  
15 the Basin to overflow resulting in such year constituting an overflow  
16 year, as defined in Paragraph First, subdivision (q) thereof.

17        For the purpose of the computation in this Paragraph Second,  
18 it shall be assumed that San Antonio has spread in each of the ten  
19 years previous to 1957, 2,000 acre feet of imported water.

20        With respect to each calendar year after entry of this decree  
21 each preceding ten year period shall be divided into "included" and  
22 "Excluded" years. "Excluded years" are those calendar years which  
23 are defined as overflow years in Paragraph First, subdivision (q)  
24 thereof. All other calendar years are "included years".

25        If in the ten preceding years San Antonio shall have spread  
26 less than 2,000 acre feet of imported water in any of the included  
27 years, as modified by the assumption above set forth, the difference  
28 between (a) The amount of imported water which shall have been so  
29 spread in such included years, and (b) The quantity of 2,000 acre  
30 feet multiplied by the number of included years, shall be known  
31 as the "ten year deficit".

32        Any right of San Antonio to extract water from the Cucamonga

1 Basin in any calendar year after the entry of this decree shall be  
2 reduced by the number of acre feet of water equal to the ten year  
3 deficit divided by the number of included years, if any such deficit  
4 shall have occurred, so that such right to extract water for such  
5 year shall not exceed 6,500 acre feet less the ten year deficit  
6 divided by the number of included years.

7 Correspondingly, with respect to each calendar year after  
8 the entry of this decree, if in the ten preceding years San Antonio  
9 shall have spread more than 2,000 acre feet of imported water in any  
10 of the included years, as modified by the assumption above set forth,  
11 the difference between (a) The amount of imported water which shall  
12 have been so spread in such included years, and (b) The quantity of  
13 2,000 acre feet multiplied by the number of included years, shall be  
14 known as the "ten year surplus".

15 The right of San Antonio to extract water from the Cucamonga  
16 Basin in any calendar year after the entry of this decree, shall be  
17 increased by a number of acre feet of water equal to 95 percent of  
18 the ten year surplus divided by the number of included years, if any  
19 such surplus shall have occurred, so that there shall be added for  
20 such year to San Antonio's right to extract 6,500 acre feet of water  
21 a number of acre feet of water equal to 95 percent of the ten year  
22 surplus divided by the number of included years. Provided, however,  
23 that in no case shall such increased extraction exceed 2,000 acre  
24 feet of water for any one calendar year.

25 So long as the water level in the index well referred to in  
26 paragraph First, subdivision (q) herein is at an elevation below  
27 1345 feet above sea level, and in the event San Antonio has available  
28 in any one calendar year after the year 1956 more than 2,000 acre feet  
29 of imported water, and desires to sell the same, it shall, before selling  
30 such imported water to others not parties to this Decree, annually  
31 offer to sell such imported water to the other stipulating parties  
32 hereto for spreading in the Cucamonga Basin and at a price to be fixed



1 between the parties by negotiation, but in any event to be not  
2 greater than the price San Antonio can obtain from others not  
3 parties of this Decree.

4 In the event San Antonio and the other stipulating parties  
5 hereto do not agree by October 1st to the terms for the purchase  
6 of said imported water to be sold and spread during the next  
7 succeeding spreading season, then San Antonio is thereafter free  
8 to sell such imported water to other persons not parties hereto,  
9 or at its option, it may spread such imported water in the Cucamonga  
10 Basin and by so spreading will receive the credit for water  
11 spread as provided in this paragraph Second. If the stipulating  
12 parties and San Antonio agree to the purchase from San Antonio  
13 of any imported water, and such stipulating parties, other than  
14 San Antonio, purchase said water and the same is spread in the  
15 Cucamonga Basin, then during such year no credit shall be  
16 given to San Antonio toward estimating its ten year surplus  
17 or deficit for the amount of water so purchased and spread.

18 THIRD: Ioamosa and Hamilton Ranch, a partnership composed  
19 of Arthur Bridge, Helen Bridge and Grace W. Burt, are the owners  
20 of the paramount right to take and divert throughout each year  
21 at or Northerly from the Ioamosa Southerly intake all surface  
22 and subsurface flow of Cucamonga Creek, not exceeding however  
23 two hundred fifty (250) miner's inches of water, (measured at  
24 the round weir and the intake to the Schulhof pipeline), including  
25 any water which shall be supplied to the Schulhof pipeline under  
26 the terms of said decree in action No. 29,799 or otherwise. The  
27 right to said flow of Cucamonga Creek up to 250 miner's inches  
28 per year is subject to an obligation of Hamilton Ranch and Ioamosa  
29 to deliver water into the Schulhof pipeline, and the balance of  
30 said water is owned by Hamilton Ranch and Ioamosa in the following  
31 proportions:

32 (a) Hamilton Ranch 128/1200ths thereof;

1 (b) Ioamosa 1072/1200ths thereof, subject to the right  
2 of Sapphire to the extent of one (1) inch from the weir box on  
3 Ioamosa's pipeline located approximately 1200 feet East of the  
4 "round weir".

5 The rights of Ioamosa to the Ioamosa gravity water are  
6 subject to the provisions hereof. Ioamosa may transport such  
7 gravity water to any location or locations whether within or without  
8 the basin, and use or deliver such water at any such location or  
9 location, provided, however, if any of the Ioamosa gravity water is  
10 used or conducted outside the Basin in any year, then the quantity of  
11 water which Ioamosa shall be entitled to develop or extract from the  
12 Basin by Paragraph Fourth and Exhibit 2 herein during the next  
13 succeeding year shall be reduced by an amount equal to the quantity  
14 of Ioamosa gravity water so used or conducted outside the Basin  
15 during such year.

16 The stipulating parties hereto shall within sixty (60) days  
17 after the date of this judgment, at their proportionate expense, con-  
18 struct in a manner which shall have been approved by San Antonio  
19 Water Company or by the above entitled Court a dividing weir located  
20 where Ioamosa now maintains the "round weir". Such dividing weir  
21 shall be so constructed that it will automatically limit to 249  
22 inches the amount of water that will flow into the above mentioned  
23 four outgoing lines that are now connected with the round weir and  
24 are referred to in paragraph First (1) herein.

25 Within sixty (60) days after the date of this judgment  
26 the stipulating parties hereto shall also construct in a manner  
27 which shall have been approved by San Antonio Water Company or  
28 by the above entitled Court a dividing weir at the said  
29 Carnelian Street reservoir. The dividing weir at this point shall  
30 be so constructed as to permit Ioamosa to divert fifty inches of  
31 such Ioamosa gravity water to domestic use.  
32

1 During each spreading season, the remaining amount of Ioamosa  
2 gravity water over and above fifty (50) inches, shall be either:

3 (a) Used for irrigation purposes over Cucamonga Basin; or,

4 (b) Spread over Cucamonga Basin in the spreading grounds  
5 of Ioamosa or Banyan Heights Water Company; or

6 (c) Returned by Ioamosa to the channel of Cucamonga Creek.

7 During each spreading season all of the flow of Cucamonga  
8 Creek in excess of such 250 inches after passing through the debris  
9 basins numbered C1 to C12 inclusive on Exhibit 4 shall be spread in  
10 spreading grounds which now exist, or are now under construction, or  
11 which are proposed, as shown on Exhibit 4, including the channel or  
12 wash of Cucamonga Creek, and which overlie the Cucamonga Basin and  
13 are North of Baseline Road. Whenever such spreading grounds are all  
14 overflowing, or would overflow, the waters which do or would so over-  
15 flow may be spread in the "15th St. Spreading Grounds" as shown on  
16 said map, and when the "15th St. Spreading Grounds" also do or would  
17 overflow, the waters which do or would so overflow the "15th St.  
18 Spreading Grounds" may be spread in what is known as the "8th Street  
19 Spreading Grounds", all as shown on Exhibit 4, even though all or part  
20 of such spreading grounds do not overlie the Cucamonga Basin.

21 Such spreading shall be done at one or more locations in said  
22 spreading grounds which shall be approved by San Antonio.

23 Such flow of Cucamonga Creek may be spread at other locations  
24 than above provided, and outside the area above described upon the  
25 written consent of 5/6th of the water users, as defined in paragraph  
26 First subdivision (k) of this Decree.

27 If any costs are incurred in such spreading by any party  
28 hereto, for which such party would not otherwise be reimbursed, such  
29 costs shall be pro-rated between the parties hereto.

30 FOURTH: The rights of all stipulating parties to take water  
31 from Cucamonga Basin, subject to the adjustments set forth in this  
32 decree and to the provisions of paragraphs Second and Third above,



are hereby fixed at the quantities set forth in Exhibit 2. Such rights are correlative, and except as to quantity or as herein otherwise stated are equal. No stipulating party shall have any right to export water from the Cucamonga Basin or use water extracted from the Cucamonga Basin at any place other than over the Cucamonga Basin except as provided in paragraph Third and as follows:

(a) The following stipulating parties, or any of them, may use water which they are entitled to extract from Cucamonga Basin in any location whatsoever, namely, San Antonio, Cucamonga, Upland, Old Settlers, and Sunset.

(b) Hermosa, Foothill Irrigation Company and Alta Loma are entitled to export water from Cucamonga Basin only to the extent hereinafter set forth, and none of said parties shall ever export from the Basin more water than said "Export quantity" herein listed for it, to wit:

<u>Party</u>	<u>Export Quantity</u>
HERMOSA	343 Acre Feet
FOOTHILL IRRIGATION COMPANY	483 Acre Feet
ALTA LOMA	51 Acre Feet

and if in any year water used outside the basin which has been extracted or developed from the basin by any of said parties exceeds the "Export Quantity" above listed for such party, the quantity of water which such party shall be entitled to develop or extract from the basin in the ensuing year shall be reduced by an amount equal to such excess.

FIFTH: Within sixty (60) days after the date of this judgment, San Antonio shall, in the event it has not already done so, install, at the following locations, suitable recording and measuring devises, by means of which all spread water passing through such devices may be accurately measured and the quantity of such water recorded. Said locations are as follows:

(1) On 23rd Street at the Northeast corner of Ontario

1 Colony Lot No. 170

2 (2) On 20th Street at the Northwest corner of Ontario  
3 Colony Lot No. 282; and

4 (3) On the West line of Ontario Colony Lot No. 301,  
5 400 feet North of 19th Street.

6 Such measuring and recording devices shall be of such design and  
7 construction as may be agreed upon by and between San Antonio and  
8 Cucamonga, or, if they fail to agree, as may be designated by the  
9 Chief Engineer of the San Bernardino County Flood Control District,  
10 or by the above entitled Court.

11 All imported water which is to be spread upon Cucamonga Basin,  
12 whether spread by San Antonio to earn its entitlement under paragraph  
13 Second hereof, or is spread after the purchase thereof by the parties  
14 hereto other than San Antonio, shall be conducted through said record-  
15 ing and measuring devices by San Antonio, unless otherwise agreed in  
16 writing by the stipulating parties, including San Antonio, having  
17 allocated water equal to at least five-sixths (5/6ths) of the aggre-  
18 gate stipulated water, and no water not so conducted through such  
19 devices and measured shall be counted as water spread under the terms  
20 of such paragraph Second, unless so agreed in writing by such parties.

21 Said devices shall be designed and operated so that they  
22 continuously record the amount of water passing therethrough between  
23 the start and finish of each spreading season. In case of failure  
24 of measuring devices, average of the preceding and succeeding  
25 measurements shall be used. Such records shall be open to the inspect  
26 ion of all other stipulating parties on reasonable notice.

27 Each stipulating party shall have the right to inspect such  
28 recording and measuring devices at any time, and, in the event that  
29 the same shall ever be locked, each of the stipulating parties shall  
30 be furnished by San Antonio with a key thereto so as to permit in-  
31 spection thereof. Further, San Antonio shall grant to the other  
32 stipulating parties hereto, insofar as it can do so without being

1 required to obtain the same from others, a non-exclusive right of  
2 ingress and egress from the nearest public street to said recording  
3 measuring devices. The stipulating parties hereto shall pro-rate the  
4 expense of the original installation of said recording measuring  
5 devices, and San Antonio shall thereafter operate and maintain and  
6 bear the expense of operating and maintaining such devices.

7 SIXTH: As between the stipulating parties only, no extraction  
8 of water from Cucamonga Basin by any party in excess of the amount  
9 herein provided to be taken by such party, shall be deemed adverse to  
10 any other stipulating party, and each stipulating party hereby waives  
11 as against each other stipulating party the right to plead any statute  
12 of limitations or laches with respect to any extraction of water by  
13 such party in excess of such amount.

14 SEVENTH: Except as provided in paragraph Second, if any stip-  
15 ulating party in any year shall fail to take or receive from the basin  
16 or transport beyond the confines of the basin, the full quantity of  
17 water which such party is entitled hereunder to take or receive or  
18 transport beyond said confines, as the case may be, such failure shall  
19 not entitle such party to take or receive or so transport from the  
20 basin in any succeeding year any greater quantity of water than if in  
21 each prior year such party had taken, received and so transported  
22 from the basin all water which such party was entitled hereunder to so  
23 take, receive and transport, and, subject to the provisions of Para-  
24 graph Fifteen, such failure shall not affect the rights of other  
25 parties to the decree to take the stipulated amounts of water they are  
26 entitled to receive by Exhibit 2 herein.

27 Likewise, except as provided in said paragraph Second, as  
28 between the stipulating parties, no right adjudged hereunder of any  
29 party to thereafter take water from the Basin or to thereafter trans-  
30 port such water beyond the confines of the Basin shall be lost,  
31 impaired or diminished by any failure to take or so transport from the  
32 Basin all or any of the water to which such party is entitled hereunder:  
33 unless and only to the extent that for a period of at least fifteen

1 consecutive years such right shall not be exercised.

2 EIGHTH: Each stipulating party shall always maintain records  
3 of all extractions of water from the Basin by such party such that it  
4 can be determined therefrom for each year what quantity of water was  
5 taken from each well, or combination of wells, or other water source  
6 within the Basin from which such party received water.

7 Upon written demand of any other stipulating party, the party  
8 keeping such records shall, within 30 days after receipt of such  
9 demand, supply to the party making such demand or to the person  
10 designated by such party in such demand a written statement of the  
11 amount of water (in acre feet) so taken from each such well or combin-  
12 ation of wells, or other source, for each year after 1957, with  
13 respect to which no such statement has previously been supplied.

14 Within six months hereafter as to existing wells, or upon  
15 commencement of operation as to wells first hereafter operated, each  
16 such well or combination of wells shall be so equipped with measuring  
17 devices at the expense of stipulating party who operates the same, as  
18 to show the quantity of water used or extracted.

19 Likewise, if any stipulating party hereafter transports water  
20 beyond the confines of the Basin, such transporting party shall there-  
21 after maintain such measuring box, meter, weir, or other measuring  
22 device as will show readily and accurately the quantity of water at  
23 the time being transported beyond the confines of the Basin. Measure-  
24 ments of the quantity of water being taken at each of said points  
25 shall be made by such transporting party at least daily by weir or  
26 weekly by meter throughout the entire period water is being taken at  
27 such point. A record of such measurements and hours of operation  
28 shall always be made and maintained by such party. In case of failure  
29 of measuring device, average of the preceding and succeeding measure-  
30 ments shall be used.

31 Each stipulating party and any agent of any such party shall  
32 at all reasonable hours be entitled to inspect all such meters, boxes,

1 weirs and other measuring devices, and to inspect, check, and copy  
2 any record of extractions and measurements and of all data and com-  
3 putations pertaining to the same in the possession or under the  
4 control of any other stipulating party or parties.

5 NINTH: Every provision of this Judgment in favor of or  
6 applying to any party hereto shall also apply to and inure to the  
7 benefit of, and also bind each and all of the heirs, legal represent-  
8 atives, successors and assigns of such party.

9 TENTH: The maximum quantity of water which any stipulating  
10 party shall be entitled to take from the Basin or transport beyond  
11 its confines shall not be increased or affected by the future  
12 acquisition by such party of additional lands, unless there shall be  
13 appurtenant to such lands rights to take water, which rights are  
14 in this action adjudged to exist.

15 Nothing in this judgment contained shall prevent any stipul-  
16 ating party from selling or otherwise disposing, or from purchasing  
17 or otherwise acquiring, any rights to water or to transport the same  
18 which may be adjudged to belong to any party to this action; but any  
19 such rights so acquired or so disposed shall remain subject to any  
20 limitations or restrictions herein expressed. Any transfer of the  
21 rights of any party herein shall be in writing, and notice thereof  
22 shall be given to San Antonio Water Company and Cucamonga Basin  
23 Protective Association, a corporation, whose address is Cucamonga,  
24 California, before the transferee may exercise such transferred rights.

25 ELEVENTH: The stipulating parties shall pro-rate the expense  
26 incurred after the date of this Judgment in prosecuting this action  
27 to Judgment against any other parties to this action.

28 The stipulating parties will unite in opposing any new,  
29 wrongful or unlawful taking of water from the Basin hereafter made  
30 by any person or corporation other than a stipulating party or  
31 parties, and will prorate the expense of making such opposition,  
32 including any litigation or engineering expense, provided that;



1 (a) The term "new taking" shall not include any water devel-  
2 opment in the Basin hereafter made for the sole purpose of maintain-  
3 ing but not increasing any quantity of water now being taken from  
4 the Basin by the person who may hereafter make such development.

5 (b) If any stipulating party does not join in prosecuting  
6 any future suit to prevent, enjoin or limit any such new, wrongful  
7 or unlawful taking, such stipulating party not so joining shall bear  
8 pro-rata the expense of such suit (including attorney's fees and  
9 engineering expense) only if final judgment is rendered in such  
10 suit preventing, enjoining or limiting such taking.

11 TWELFTH: Each stipulating party, and the agents and employees  
12 of each such party, is and are hereby perpetually enjoined and re-  
13 strained from doing any act or thing in violation of any provision  
14 of this judgment, other than paragraph Eleventh hereof.

15 THIRTEENTH: No stipulating party shall be entitled to  
16 recover court costs from any other stipulating party.

17 FOURTEENTH: The above entitled action shall continue and may  
18 be prosecuted and tried against all defendants therein, other than  
19 the stipulating parties; and the stipulating parties shall share  
20 the expense of such prosecution pro-rata. The Court will retain  
21 jurisdiction to enter modifications of this decree pursuant to  
22 stipulations provided for hereunder.

23 FIFTEENTH: In the event that through inadequacy of the  
24 supply of water in the Cucamonga Basin, or by reason of adjudication  
25 in any subsequent action, the stipulating parties in the aggregate  
26 shall be unable to pump and extract from the Cucamonga Basin a  
27 quantity of water so great as the aggregate stipulated water as is  
28 set forth in Exhibit 2, the stipulating parties shall pro-rate the  
29 aggregate quantity of water available in the Basin as long as such  
30 inability shall continue.

31 In the event between October 1st of any year and June 15th  
32 of the succeeding calendar year, five-sixths of the water users

1 shall agree in writing by a stipulation filed in said action that  
2 the supply of water in the Basin is inadequate to safely permit the  
3 stipulating parties to pump in such ensuing year the aggregate  
4 stipulated water and that the amount of water to be pumped by each  
5 stipulating party shall for such succeeding calendar year be limited  
6 to a specified percentage (uniform for all) of the allocated water,  
7 then for such succeeding calendar year, each stipulating party is  
8 hereby enjoined and restrained from pumping or extracting from the  
9 Basin more than such percentage of allocated water of such party  
10 (subject to the provisions of paragraphs Second and Third hereof).

11 SIXTEENTH: The listing upon Exhibit 2 of any number of  
12 acre feet for any party to this action other than a stipulating  
13 party, shall not be deemed an admission by any stipulating party  
14 that a non-stipulating party is entitled to any water whatsoever  
15 from Cucamonga Basin, nor as to the quantity which such non-  
16 stipulating party may take from said Basin, if any, but each such  
17 figure for any non-stipulating party is listed as a matter of con-  
18 venience and as a possible basis of compromise only.

19 SEVENTEENTH: This judgment supersedes and controls all  
20 previous agreements and decrees between the stipulating parties, or  
21 any of them but only insofar as they are inconsistent herewith.

22 Done in open Court this 25 day of April, 1958.  
23  
24

25 CARL B. HILLIARD

26 Judge  
27  
28  
29  
30  
31  
32

TERRITORY UNDER WHICH LIES THE "CUCAMONGA BASIN"

Beginning at the base of the hereinbefore mentioned Sierra Madre Mountains at a point situate 9000 feet due North of the Southwest corner of Lot 241, said lot being delineated on Map of Ontario Colony Lands, recorded in the Office of the County Recorder of said County in Book 11 of Maps, at page 6 thereof; thence running South to said Southwest corner of said Lot 241; thence running in a general Southeasterly direction to the Southeast corner of Lot 419, said lot being also delineated on said Map of said Ontario Colony Lands; thence continuing in a general Southeasterly direction to a point situate thirteen hundred feet North of the South line and thirteen hundred feet East of the West line of Section 4, Township 1 South, Range 7 West, S. B. B. & M., thence running in a general Easterly direction to a point situate on the East line of said Section 4, eighteen hundred feet North of the Southeast corner of said Section 4; thence running in a general Northeasterly direction to the Southeast corner of the Southwest quarter of the Northeast quarter of Section 3, Township 1 South, Range 7 West, S. B. B. & M., thence running Northeasterly to a point situate on the North line of Section 2, Township 1 South, Range 7 West, S. B. B. & M., fourteen hundred feet East of the West line of said Section 2; thence running in a general Northeasterly direction to the base of said mountains, to a point where the division line between ranges six and seven, S. B. B. & M. intersects the South base of said mountains; thence following the meandering line of the South base of said mountains, being curved northerly for canyons and southerly for ridges, in a westerly direction to the place of beginning.



212  
LIVER  
AT THE  
SAN FRANCISCO, CALIFORNIA

EXHIBIT 2

STIPULATED WATER

NAME

ACRE FEET PER YEAR

San Antonio Water Company	6500	6500
Alta Loma Mutual Water Company	571	600
Armstrong Nurseries		200
Banyan Heights Water Company		625
Carnelian Water Company		600
Citrus Water Company		450
Cucamonga Water Company	6500	6500
Cucamonga Development Company (included under Ioamosa)		None
Foothill Irrigation Company	483	1600
Hedges Well Company		732
Hellman Water Company (included under Ioamosa)		None
Hermosa Water Company	343	600
Ioamosa Water Company		920
Joya Mutual Water Company		390
Old Settlers Water Company	400	400
Rex Mutual Water Company		600
Charles Snyder		114
Sunset Water Company	400	400
Upland Water Company	750	750
Heirs and Devises of Giovanni Vai, deceased		500
Hugh P. Crawford		120
Western Fruit Growers		120
Sapphire Mutual Water Company		None
G. N. Hamilton Ranch, a partnership		None
AGGREGATE STIPULATED WATER		22,721

EXHIBIT 2

114  
15,381

1 WALKER, WRIGHT, TYLER & WARD  
2 210 W. 7th Street, Suite 631  
3 Los Angeles, 14, California,  
4 TRinity 8936

5 Attorneys for Plaintiff

6  
7  
8 IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA  
9 IN AND FOR THE COUNTY OF SAN BERNARDINO  
10

11 SAN ANTONIO WATER COMPANY, a corporation,  
12 Plaintiff,

13 vs.

14 FOOTHILL IRRIGATION COMPANY, a corporation;  
15 SUNSET WATER COMPANY, a corporation; IOAMOS  
16 WATER COMPANY, a corporation; and OLD SETTLERS  
17 WATER COMPANY, a corporation; ALTA LOMA MUTUAL  
18 WATER COMPANY, a corporation; ARMSTRONG  
19 NURSERIES, a corporation; BANYAN HEIGHTS WATER  
20 COMPANY, a corporation; CARNELIAN WATER  
21 COMPANY, a corporation; CITRUS WATER COMPANY,  
22 a corporation; CUCAMONGA DEVELOPMENT COMPANY,  
23 a corporation; CUCAMONGA WATER COMPANY, a  
24 corporation; HEDGES WELL COMPANY, a corpora-  
25 tion; HELLMAN WATER COMPANY, a corporation;  
26 HERMOSA WATER COMPANY, a corporation;  
27 JOYA MUTUAL WATER COMPANY, a corporation;  
28 REX MUTUAL WATER COMPANY, a corporation;  
29 SAPPHIRE MUTUAL WATER COMPANY, a corporation;  
30 CHARLES SNYDER; UPLAND WATER COMPANY, a  
31 corporation; HENRY G. BODKIN and BANK OF  
32 AMERICA NATIONAL TRUST AND SAVINGS ASSOCIATION,  
as Executors of the last will of Giovanni Vai,  
deceased; WESTERN FRUIT GROWERS, a corporation;  
HUGH P. CRAWFORD; G. N. HAMILTON RANCH, a partner-  
ship composed of Arthur Bridge, Helen Bridge, and  
Grace W. Burt; JOHN DOE ONE to THIRTY, inclusive,  
MARY ROE ONE to THIRTY inclusive, JOHN DOE  
COMPANY ONE TO TWENTY inclusive,

Defendants.

No.

STIPULATION

REGARDING

TRIAL AND

JUDGMENT

IT IS HEREBY STIPULATED AND AGREED by and between plaintiff  
San Antonio Water Company and the undersigned defendants (said  
plaintiff and defendants being herein called "Stipulating parties")

SU  
CLYER  
AT  
SAN ANTONIO, CALIFORNIA

1 that:

2 FIRST: Each of the undersigned defendants hereby appears in  
3 the above entitled action. The allegations of the complaint on  
4 file in said action shall be deemed denied by the undersigned  
5 defendants, and they shall be and are deemed to have alleged in  
6 said action that they own such rights to the waters of Cucamonga  
7 Creek and of Cucamonga Basin (mentioned in said judgment) as may  
8 be supported by any evidence which may be introduced at the trial  
9 of said action.

10 SECOND: At any time after the filing of this stipulation  
11 said action may be tried as between the stipulating parties. Said  
12 trial may be held without notice if the undersigned counsel for the  
13 stipulating parties are present or represented at said trial, and  
14 in such case notice of said trial is hereby waived.

15 THIRD: The stipulating parties consent that a Decree in the  
16 form which precedes and is attached to this stipulation may be  
17 rendered and entered by the Court in said action, in the event  
18 the Court finds such judgment proper under the evidence which shall  
19 have been introduced.

20 FOURTH: The stipulating parties hereby waive the signing  
21 or filing of any Findings of Fact in said action in the event a  
22 decree in said form is to be rendered.

23 Dated: <sup>April</sup> ~~November~~ 25<sup>th</sup>, 195<sup>8</sup>.

24 SAN ANTONIO WATER COMPANY

25 BY F. B. Buffington President  
26 AND C. Adams Secretary

27 WALKER, WRIGHT, TYLER AND WARD

28 BY Thos. S. Matthews  
29 Attorneys for Plaintiff

30 FOOTHILL IRRIGATION COMPANY

31 BY Hermon Hixson V. President  
32 AND Frank A. Van Dine Secretary

1 IOAMOSA WATER COMPANY

2 BY J. F. Green President  
3 AND Frank H. Van Fleet Secretary

4 OLD SETTLERS WATER COMPANY

5 BY Harold B. B. B. B. President  
6 AND Frank H. Van Fleet Secretary

7 SUNSET WATER COMPANY

8 BY Ernest B. B. B. President  
9 AND Ernest B. B. B. Secretary

10 CUCAMONGA WATER COMPANY

11 BY Leon T. Lucas President  
12 AND Clifton Chappell Secretary

13 ALTA LOMA MUTUAL WATER COMPANY

14 BY C. J. Minor President  
15 AND James P. Merchant Secretary

16 ARMSTRONG NURSERIES, INC.

17 BY Clayton Armstrong President  
18 AND Clayton Armstrong Secretary

19 BANYAN HEIGHTS WATER COMPANY

20 BY Robert L. B. B. President  
21 AND Robert L. B. B. Secretary

22 CARNELIAN WATER COMPANY

23 BY John C. B. B. President  
24 AND John C. B. B. Secretary

25 CITRUS WATER COMPANY

26 BY Woodrow H. B. President  
27 AND Woodrow H. B. Secretary

HEDGES WELL COMPANY,

BY Ronald E. Blair President

AND Marc V. Lamm Secretary

HELLMAN WATER COMPANY

BY D. F. Grassl President

AND Frank H. Van Fleet Secretary

HERMOSA WATER COMPANY

BY Paul H. Hutton President

AND Frank H. Van Fleet Secretary

JOYA ~~MUTUAL~~ WATER COMPANY

BY Richard A. Brown President

AND Harold H. Mason Secretary

UPLAND WATER COMPANY

BY *[Signature]* President

AND O. F. Eastell Secretary

WESTERN FRUIT GROWERS

BY W. H. O. O. O. O. President

AND M. Oliver Davis Secretary

CUCAMONGA DEVELOPMENT COMPANY

BY Robert H. Baker President

AND Frederick H. Van Fleet Secretary

SAPPHIRE MUTUAL WATER COMPANY

BY H. J. [Signature] President

AND Frank W. Van Fleet Secretary

Charles Snyder  
(Charles Snyder)

(Charles Snyder)  
Hugh P. Crawford  
 (Hugh P. Crawford)

HENRY G. BODKIN and  
BANK OF AMERICA NATIONAL TRUST AND  
SAVINGS ASSOCIATION,  
As Executors of the Last Will of  
Giovanni Vai, deceased;

BY [Signature]  
AND [Signature]  
(Henry G. Bodkin)

G. N. HAMILTON RANCH, a partnership,

BY [Signature]  
(Arthur Bridge)

BY [Signature]  
(Helen Bridge)

BY [Signature]  
(Grace W. Burt)

Partners

REX MUTUAL WATER COMPANY

BY [Signature] President

AND [Signature] Secretary

SUBB & HELLYER

BY [Signature]  
Attorneys for Ioamosa, Cucamonga,  
Banyan Heights, Joya Mutual, Rex Mutual,  
and Sapphire Water Companies, and for  
Hedges Well Company and Cucamonga  
Development Company.



## **Appendix F**

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### **Reduced Delta Reliance Reporting**





## **Appendix F**

### **Reduced Delta Reliance Reporting**

#### **Background**

The City of Upland (Upland or City) is an urban water supplier and a member agency of IEUA which is a member agency of Metropolitan Water District of Southern California (MWD or Metropolitan). MWD provides IEUA with imported water supplies which are treated at the Water Facilities Authority's water treatment plant, and distributed on a wholesale basis to its retail water purveyors. MWD is a contractor on the State Water Project (SWP) and, due to water quality considerations, all imported water supplies IEUA receives from MWD originate from the SWP system. The SWP system runs from Lake Oroville in Northern California to Southern California, crossing the Sacramento River - San Joaquin River Delta (Delta) along the way. MWD and its member agencies have made investments in water supply and demand management to regionally reduce impacts on the Delta. These investments bring regional reliability and reduced Delta reliance that make it infeasible for individual MWD member agencies to determine their individual Delta reliance.

As a recipient of imported water from the SWP delivered via MWD and IEUA, the City indirectly receives water through a proposed covered action, such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta. Through this appendix, the City is providing information in its 2015 and 2020 UWMPs that may be used in the covered action process, to demonstrate consistency with Delta Plan Policy WR P1, *Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance* (WR P1) [California Code of Regulations (CCR), Title 23, § 5003].

The Delta Plan is a comprehensive, long-term resource management plan for the Delta that was developed as part of the Delta Reform Act of 2009 (Water code section 85000 et seq) and includes both regulatory policies and recommendations, aimed at promoting a healthy Delta ecosystem. Delta Plan Policy WR P1 is one of 14 regulatory policies in the Delta Plan. WR P1 identifies UWMPs as the tool to demonstrate consistency with state policy to reduce reliance on the Delta for any supplier that is participating in or carrying out a proposed covered action or receiving Delta water from a proposed covered action.

Within the supplier's UWMP, information should be provided that can be used to demonstrate consistency with this policy. Section (c)(1) of WR P1 states that suppliers that have 1) completed an urban water management plan, 2) implemented the efficiency measures in that plan, and 3) shown a measurable reduction in Delta reliance and improvement in regional self-reliance in the plan and are contributing to reduced reliance on the Delta and are therefore consistent with WR P1 [CCR, Title 23, § 5003(c)(1)]. The analysis and documentation provided below include all elements described in WR P1(c)(1) to be included in the supplier's 2015 and 2020 UWMP to support certification of consistency for a future covered action.

#### **Demonstration of Reduced Reliance**

The methodology used to determine Upland's reduced Delta reliance and improved regional self-reliance is consistent with the approach detailed in DWR's UWMP Guidebook Appendix C, including the use of narrative justifications for the accounting of supplies and the documentation

of specific data sources. Some of the key assumptions underlying the City's demonstration of reduced reliance include:

- All data were obtained from the current 2020 UWMP or previously adopted UWMPs and represent average or normal water year conditions.
- All analyses were conducted at the City water service area level. Supplies are the total supplies Upland manages, which are imported water from MWD, recycled water from IEUA, groundwater, and local surface water.
- No projects or programs that are described in the UWMPs as "Projects Under Development" were included in the accounting of supplies.

## **Summary of Expected Outcomes for Reduced Reliance on the Delta**

As stated in WR P1(c)(1), the policy requires that, commencing in 2015, UWMPs include expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta.

It is important to note that MWD has prepared a detailed analysis that demonstrates the consistency with the Delta Plan Policy in its 2020 UWMP on a region-wide scale that includes its Member Agencies (MWD 2020 UWMP, Appendix 11). From its 2010 baseline, both long-term Regional Self-Reliance and Reduced Reliance on Supplies from the Delta are expected to increase over time. IEUA and Upland have adopted MWD's calculation of Reduced Reliance on Supplies from the Delta due to the infeasibility of separating out the Delta supplies that IEUA receives from MWD (see Section G.6 and G.7 for details).

Upland is reporting its own expected outcomes for Regional Self-Reliance in the following sections. These expected outcomes use the approach and guidance described in Appendix C of DWR's UWMP 2020 Guidebook Appendix C, finalized on March 29, 2021.

The following provides a summary of the near-term (2025) and long-term (2040) expected outcomes for Upland's regional self-reliance and reduction in reliance on Delta water supplies. The results show that the City is improving regional self-reliance, both as an amount of water used and as a percentage of water used. MWD's 2020 UWMP Appendix 11 results are presented later in this appendix; see IEUA's 2020 UWMP for their results.

- Near-term (2025) – Upland's normal water regional self-reliance is expected to increase by 3,133 from the 2010 baseline; this represents an increase of 14.4 percent of 2025 normal water year demands (Table F-2).
- Long-term (2040) – Upland's normal water regional self-reliance is expected to increase by 3,254 from the 2010 baseline; this represents an increase of 13.6 percent of 2040 normal water year demands (Table F-2).

## **Baseline and Calculation of Service Area Water Demands**

In order to calculate the expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance, a baseline is needed to compare against. This analysis uses a

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normal water year representation of 2010 as the baseline, which is consistent with the approach described in the DWR Guidebook Appendix C.

Table F-1 shows the total service area water demands for Upland for 2010 through 2040. These water demands are met with groundwater and local surface water, and to a lesser extent recycled water and imported water provided by IEUA. The table also shows reported water use efficiency and calculates the total service area water demands without water use efficiency.

The data sources for the values in this table and calculations are explained below.

*Service Area Demands with Water Use Efficiency Accounted For*

- Baseline (2010) value: Potable water demands, which include municipal and industrial demands, as reported in Upland's 2010 UWMP, Table 7.
- 2015 value: Potable water demand, as reported in Upland's 2015 UWMP, Table 4-1 and recycled water demand from Upland's 2015 UWMP Table 6-5. Non-potable supplies have a demand hardening effect due to the inability to shift non-potable supplies to meet potable water demands, therefore they were excluded from total demands.
- 2020-2040 values: Potable water demands, from Upland's 2020 UWMP, Tables 4-1 and 4-2. Recycled water demands from Upland's 2020 UWMP Tables 6-8 and 6-9. Non-potable supplies have a demand hardening effect due to the inability to shift non-potable supplies to meet potable water demands, therefore they were excluded from total demands.

*Reported Water Use Efficiency*

Service area demands are divided by the population to get per capita water use. The change from baseline is presented. The changes in per capita are then applied back to the service area population to calculate the estimated WUE supply. This WUE supply is considered an additional supply that demonstrates reduced reliance on Delta water supplies.

- Baseline (2010) value: Zero water use efficiency value is estimated to establish a conservative baseline
- 2015 value: Upland's 2015 UWMP, Tables 4-1 and 6-5
- 2020 value: Upland's 2020 UWMP, Table 4-1 and 6-5
- 2025-2040 values: Upland's 2020 UWMP, Table 4-3

The Service Area Water Demands without Water Use Efficiency Accounted For is the projected demands with up to 3 percent between 2025 and 2040 removed from total demand for passive conservation savings. Actual savings will be greater based on recent trends.

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**Table F-1 Calculation of Water Use Efficiency**

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Service Area Water Demands with Water Use Efficiency Accounted For	20,118	19,850	19,134	21,665	22,438	23,441	23,925
Non-Potable Water Demands		636	703	703	703	703	703
Potable Service Area Demands with WUE Accounted For	20,118	19,214	18,431	20,962	21,735	22,738	23,222

Total Service Area Population	Baseline (2010)	2015	2020	2025	2030	2035	2040
Service Area Population	73,732	75,787	78,383	81,177	84,071	87,036	89,902

Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Per Capita Water Use (GPCD)	244	226	210	231	231	233	231
Change in Per Capita Water Use from Baseline (GPCD)		(17)	(34)	(13)	(13)	(10)	(13)
Estimated Water Use Efficiency Since Baseline		1,465	2,956	1,187	1,204	1,010	1,308

## Calculation of Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1(c)(1) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. Table F-2 shows expected outcomes for supplies contributing to regional self-reliance both in amount and as a percentage. The numbers shown in Table F-2 represent efforts to improve regional self-reliance for the Upland service area, focused only on the supplies Upland manages, which are water use efficiency, water recycling, and indirect potable reuse. Supporting narratives and documentation for the all the data shown in the table are provided below.

### Water Use Efficiency

The water use efficiency information shown in Table F-2 is taken directly from Table F-1. It is now reflected as a supply contributing to regional self-reliance.

### Water Recycling

The water recycling values shown in Table F-2 are the recycled water supplies to meet the recycled water portion of the projected “service area water demands with water use efficiency accounted for” shown in Table F-1. Recycled water values come from Upland’s 2015 UWMP Table 6-5, and Upland’s 2020 UWMP Table 6-5. A description of these water supplies can be found in Upland’s 2020 UWMP Section 6.5, Recycled Water Use.

### Advanced Water Technologies

IEUA has calculated the City’s contribution to the regional groundwater replenishment and reuse program as 1,243 AF in 2020. This Indirect Potable Reuse supply volume is anticipated to be maintained or may increase in the future with additional recharge.

### Service Area Water Demands without WUE

The WUE assumptions built into the projected water demands presented in Table F-1 were for passive conservation savings. These were removed in the 2016 Demands Model to determine

service area water demands without WUE for Table F-2. It is anticipated that demands in the future will be greater than that estimated in the demand model, thus further reducing reliance on the Delta.

The results shown in Table F-2 demonstrate that Upland is improving its regional self-reliance, since the volume of water supplies contributing to regional self-reliance are projected to increase over time. In the near term (2025), the expected outcome for normal water year regional self-reliance increases by over 3,133 AF from the 2010 baseline; this represents an increase of about 14.4 percent of 2025 normal water year demands. In the long term (2040), normal water year regional self-reliance is expected to increase by more than 3,254 AF from the 2010 baseline, or 13.6 percent from 2010 levels.

**Table F-2 Calculation of Supplies Contributing to Regional Self-Reliance**

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Water Use Efficiency	-	1,465	2,956	1,187	1,204	1,010	1,308
Water Recycling		636	703	703	703	703	703
Stormwater Capture and Use							
Advanced Water Technologies			1,243	1,243	1,243	1,243	1,243
Conjunctive Use Projects							
Local and Regional Water Supply and Storage Projects							
Other Programs and Projects the Contribute to Regional Self-Reliance							
Water Supplies Contributing to Regional Self-Reliance	-	2,101	4,902	3,133	3,150	2,956	3,254

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Service Area Water Demands without WUE Accounted For	20,118	19,214	18,431	21,807	22,686	23,441	23,925

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Water Supplies Contributing to Regional Self-Reliance	-	2,101	4,902	3,133	3,150	2,956	3,254
Change in Water Supplies Contributing to Regional Self-Reliance		2,101	4,902	3,133	3,150	2,956	3,254

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Percent of Water Supplies Contributing to Regional Self-Reliance (%)	0.0%	10.9%	26.6%	14.4%	13.9%	12.6%	13.6%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance (%)		10.9%	26.6%	14.4%	13.9%	12.6%	13.6%

## Calculation of Reliance on Water Supplies from the Delta Watershed

WR P1(c)(1) requires that water suppliers report the expected outcomes for measurable reductions in supplies from the Delta watershed either as an amount or as a percentage. As summarized above, this analysis provides both calculations.

Although IEUA is a MWD member agency (and Upland is a member agency of IEUA), it is infeasible to individually account for the independent impact on the Delta. IEUA participates, through MWD, in various water supply investment and demand management programs that

reduce reliance on the Delta. The City continues to utilize its local supply sources first to the extent possible.

Reliance on water supplies from the Delta are taken from MWD's Reduced Delta Reliance assessment and are presented in its Table C-2 below (MWD 2020 UWMP, Appendix 11). Regional reliance on supplies from the Delta watershed are expected to decrease by 314 TAF over the 2010 baseline, a decrease of about 5.2 percent of 2045 demands. Increased regional self-reliance primarily comes from water use efficiency, conjunctive use projects, water recycling, and local/regional water supply and storage projects. The water supply accounting completed by MWD does not include any supplies from potential future covered actions. The following sections of the appendix relate to the MWD supplies.

**Table C-2 Metropolitan Reliance on Water Supplies from the Delta Watershed**

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
CVP/SWP Contract Supplies	1,472,000	1,029,000	984,000	1,133,000	1,130,000	1,128,000	1,126,000	1,126,000
Delta/Delta Tributary Diversions	-	-	-	-	-	-	-	-
Transfers and Exchanges of Supplies from the Delta Watershed	20,000	44,000	91,000	58,000	52,000	52,000	52,000	52,000
Other Water Supplies from the Delta Watershed	-	-	-	-	-	-	-	-
<b>Total Water Supplies from the Delta Watershed</b>	<b>1,492,000</b>	<b>1,073,000</b>	<b>1,075,000</b>	<b>1,191,000</b>	<b>1,182,000</b>	<b>1,180,000</b>	<b>1,178,000</b>	<b>1,178,000</b>

Service Area Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,938,000	5,019,000	5,143,000	5,248,000	5,361,000

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000
<b>Change in Supplies from the Delta Watershed</b>	<b>NA</b>	<b>(419,000)</b>	<b>(417,000)</b>	<b>(301,000)</b>	<b>(310,000)</b>	<b>(312,000)</b>	<b>(314,000)</b>	<b>(314,000)</b>

Percent Change in Supplies from the Delta Watershed (as a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Percent of Supplies from the Delta Watershed	27.2%	19.5%	20.6%	24.1%	23.6%	22.9%	22.4%	22.0%
<b>Change in Percent of Supplies from the Delta Watershed</b>	<b>NA</b>	<b>-7.6%</b>	<b>-6.6%</b>	<b>-3.0%</b>	<b>-3.6%</b>	<b>-4.2%</b>	<b>-4.7%</b>	<b>-5.2%</b>

## **Infeasibility of Accounting Supplies from the Delta Watershed for Metropolitan's Member Agencies and their Customers**

Metropolitan's service area, as a whole, reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand management measures. Metropolitan's member agencies coordinate reliance on the Delta through their membership in Metropolitan, a regional cooperative providing wholesale water service to its 26 member agencies. Accordingly, regional reliance on the Delta can only be measured regionally—not by individual Metropolitan member agencies and not by the customers of those member agencies.

Metropolitan's member agencies, and those agencies' customers, indirectly reduce reliance on the Delta through their collective efforts as a cooperative. Metropolitan's member agencies do not control the amount of Delta water they receive from Metropolitan. Metropolitan manages a statewide integrated conveyance system consisting of its participation in the State Water Project (SWP), its Colorado River Aqueduct (CRA) including Colorado River water resources, programs and water exchanges, and its regional storage portfolio. Along with the SWP, CRA, storage programs, and Metropolitan's conveyance and distribution facilities, demand management programs increase the future reliability of water resources for the region. In addition, demand

management programs provide system-wide benefits by decreasing the demand for imported water, which helps to decrease the burden on Metropolitan's infrastructure and reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Metropolitan's costs are funded almost entirely from its service area, with the exception of grants and other assistance from government programs. Most of Metropolitan's revenues are collected directly from its member agencies. Properties within Metropolitan's service area pay a property tax that currently provides approximately 8 percent of the fiscal year 2021 annual budgeted revenues. The rest of Metropolitan's costs are funded through rates and charges paid by Metropolitan's member agencies for the wholesale services it provides to them. Thus, Metropolitan's member agencies fund nearly all operations Metropolitan undertakes to reduce reliance on the Delta, including Colorado River Programs, storage facilities, Local Resources Programs and Conservation Programs within Metropolitan's service area.

Because of the integrated nature of Metropolitan's systems and operations, and the collective nature of Metropolitan's regional efforts, it is infeasible to quantify each of Metropolitan member agencies' individual reliance on the Delta. It is infeasible to attempt to segregate an entity and a system that were designed to work as an integrated regional cooperative.

In addition to the member agencies funding Metropolitan's regional efforts, they also invest in their own local programs to reduce their reliance on any imported water. Moreover, the customers of those member agencies may also invest in their own local programs to reduce water demand. However, to the extent those efforts result in reduction of demands on Metropolitan, that reduction may not equate to a like reduction of reliance on the Delta. Demands on Metropolitan are not commensurate with demands on the Delta because most of Metropolitan member agencies receive blended resources from Metropolitan as determined by Metropolitan—not the individual member agency—and for most member agencies, the blend varies from month-to-month and year-to-year due to hydrology, operational constraints, use of storage and other factors.

The accounting of regional investments that contribute to reduced reliance on supplies from the Delta watershed is straightforward to calculate and report at the regional aggregate level. However, any similar accounting is infeasible for the individual member agencies or their customers. As described above, the region (through Metropolitan) makes significant investments in projects, programs and other resources that reduce reliance on the Delta. In fact, all of Metropolitan's investments in Colorado River supplies, groundwater and surface storage, local resources development and demand management measures that reduce reliance on the Delta are collectively funded by revenues generated from the member agencies through rates and charges.

Metropolitan's revenues cannot be matched to the demands or supply production history of an individual agency, or consistently across the agencies within the service area. Each project or program funded by the region has a different online date, useful life, incentive rate and structure, and production schedule. It is infeasible to account for all these things over the life of each project or program and provide a nexus to each member agency's contributions to Metropolitan's revenue stream over time. Accounting at the regional level allows for the incorporation of the local supplies and water use efficiency programs done by member agencies and their customers through both the regional programs and through their own specific local programs. As shown above, despite the infeasibility of accounting reduced Delta reliance below the regional level, Metropolitan's member agencies and their customers have together made substantial contributions to the region's reduced reliance.

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## **Colorado River Programs**

As a regional cooperative of member agencies, Metropolitan invests in programs to ensure the continued reliability and sustainability of Colorado River supplies. Metropolitan was established to obtain an allotment of Colorado River water, and its first mission was to construct and operate the CRA. The CRA consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four regulating reservoirs, and 242 miles of aqueducts, siphons, canals, conduits and pipelines terminating at Lake Mathews in Riverside County. Metropolitan owns, operates, and manages the CRA. Metropolitan is responsible for operating, maintaining, rehabilitating, and repairing the CRA, and is responsible for obtaining and scheduling energy resources adequate to power pumps at the CRA's five pumping stations.

Colorado River supplies include Metropolitan's basic Colorado River apportionment, along with supplies that result from existing and committed programs, including supplies from the Imperial Irrigation District (IID)-Metropolitan Conservation Program, the implementation of the Quantification Settlement Agreement (QSA) and related agreements, and the exchange agreement with San Diego County Water Authority (SDCWA). The QSA established the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Since the QSA, additional programs have been implemented to increase Metropolitan's CRA supplies. These include the PVID Land Management, Crop Rotation, and Water Supply Program, as well as the Lower Colorado River Water Supply Project. The 2007 Interim Guidelines provided for the coordinated operation of Lake Powell and Lake Mead, as well as the Intentionally Created Surplus (ICS) program that allows Metropolitan to store water in Lake Mead.

IEUA has emergency service connections to the MWD's Upper Feeder, which includes CRA supplies. However, these connections are not currently utilized due to water quality concerns.

## **Storage Investments/Facilities**

Surface and groundwater storage are critical elements of Southern California's water resources strategy and help Metropolitan reduce its reliance on the Delta. Because California experiences dramatic swings in weather and hydrology, storage is important to regulate those swings and mitigate possible supply shortages. Surface and groundwater storage provide a means of storing water during normal and wet years for later use during dry years, when imported supplies are limited. The Metropolitan system, for purposes of meeting demands during times of shortage, regulating system flows, and ensuring system reliability in the event of a system outage, provides over 1,000,000 acre-feet of system storage capacity. Diamond Valley Lake provides 810,000 acre-feet of that storage capacity, effectively doubling Southern California's previous surface water storage capacity. Other existing imported water storage available to the region consists of Metropolitan's raw water reservoirs, a share of the SWP's raw water reservoirs in and near the service area, and the portion of the groundwater basins used for conjunctive-use storage.

Since the early twentieth century, DWR and Metropolitan have constructed surface water reservoirs to meet emergency, drought/seasonal, and regulatory water needs for Southern California. These reservoirs include Pyramid Lake, Castaic Lake, Elderberry Forebay, Silverwood Lake, Lake Perris, Lake Skinner, Lake Mathews, Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, Orange County Reservoir, and Metropolitan's Diamond Valley Lake (DVL). Some reservoirs such as Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, and Orange County Reservoir, which have a total combined capacity of about 3,500 AF, are used

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solely for regulating purposes. The total gross storage capacity for the larger remaining reservoirs is 1,757,600 AF. However, not all of the gross storage capacity is available to Metropolitan; dead storage and storage allocated to others reduce the amount of storage that is available to Metropolitan to 1,665,200 AF.

Conjunctive use of the aquifers offers another important source of dry year supplies. Unused storage in Southern California groundwater basins can be used to optimize imported water supplies, and the development of groundwater storage projects allows effective management and regulation of the region's major imported supplies from the Colorado River and SWP. Over the years, Metropolitan has implemented conjunctive use through various programs in the service area; the following table lists the groundwater conjunctive use programs that have been developed in the region.

Program	Metropolitan Agreement Partners	Program Term	Max Storage AF	Dry-Year Yield AF/Yr
Long Beach Conjunctive Use Storage Project (Central Basin)	Long Beach	June 2002-2027	13,000	4,300
Foothill Area Groundwater Storage Program (Monkhill/ Raymond Basin)	Foothill MWD	February 2003-2028	9,000	3,000
Orange County Groundwater Conjunctive Use Program	MWDOC OCWD	June 2003-2028	66,000+	22,000
Chino Basin Conjunctive Use Programs	IEUA TVMWD Watermaster	June 2003-2028	100,000	33,000
Live Oak Basin Conjunctive Use Project (Six Basins)	TVMWD City of La Verne	October 2002-2027	3,000	1,000
City of Compton Conjunctive Use Project (Central Basin)	Compton	February 2005-2030	2,289	763
Long Beach Conjunctive Use Program Expansion in Lakewood (Central Basin)	Long Beach	July 2005-2030	3,600	1,200
Upper Claremont Basin Groundwater Storage Program (Six Basins)	TVMWD	Sept. 2005- 2030	3,000	1,000
Elsinore Basin Conjunctive Use Storage Program	Western MWD Elsinore Valley MWD	May 2008- 2033	12,000	4,000
<b>TOTAL</b>			<b>211,889</b>	<b>70,263</b>

### Metropolitan Demand Management Programs

Demand management costs are Metropolitan's expenditures for funding local water resource development programs and water conservation programs. These Demand Management Programs incentivize the development of local water supplies and the conservation of water to reduce the need to import water to deliver to Metropolitan's member agencies. These programs

are implemented below the delivery points between Metropolitan's and its member agencies' distribution systems and, as such, do not add any water to Metropolitan's supplies. Rather, the effect of these downstream programs is to produce a local supply of water for the local agencies and to reduce demands by member agencies for water imported through Metropolitan's system. The following discussions outline how Metropolitan funds local resources and conservation programs for the benefit of all of its member agencies and the entire Metropolitan service area. Notably, the history of demand management by Metropolitan's member agencies and the local agencies that purchase water from Metropolitan's members has spanned more than four decades. The significant history of the programs is another reason it would be difficult to attempt to assign a portion of such funding to any one individual member agency.

#### Local Resources Programs

In 1982, Metropolitan began providing financial incentives to its member agencies to develop new local supplies to assist in meeting the region's water needs. Because of Metropolitan's regional distribution system, these programs benefit all member agencies regardless of project location because they help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs and free up conveyance capacity to the benefit of all the agencies that rely on water from Metropolitan.

For example, the Groundwater Replenishment System (GWRS) operated by the Orange County Water District is the world's largest water purification system for indirect potable reuse. It was funded, in part, by Metropolitan's member agencies through the Local Resources Program. Annually, the GWRS produces approximately 103,000 acre-feet of reliable, locally controlled, drought-proof supply of high-quality water to recharge the Orange County Groundwater Basin and protect it from seawater intrusion. The GWRS is a premier example of a regional project that significantly reduced the need to utilize imported water for groundwater replenishment in Metropolitan's service area, increasing regional and local supply reliability and reducing the region's reliance on imported supplies, including supplies from the State Water Project.

Metropolitan's local resource programs have evolved through the years to better assist Metropolitan's member agencies in increasing local supply production. The following is a description and history of the local supply incentive programs.

#### *Local Projects Program*

In 1982, Metropolitan initiated the Local Projects Program (LPP), which provided funding to member agencies to facilitate the development of recycled water projects. Under this approach, Metropolitan contributed a negotiated up-front funding amount to help finance project capital costs. Participating member agencies were obligated to reimburse Metropolitan over time. In 1986, the LPP was revised, changing the up-front funding approach to an incentive-based approach. Metropolitan contributed an amount equal to the avoided State Water Project pumping costs for each acre-foot of recycled water delivered to end-use consumers. This funding incentive was based on the premise that local projects resulted in the reduction of water imported from the Delta and the associated pumping cost. The incentive amount varied from year to year depending on the actual variable power cost paid for State Water Project imports. In 1990, Metropolitan's Board increased the LPP contribution to a fixed rate of \$154 per acre-foot, which was calculated based on Metropolitan's avoided capital and operational costs to convey, treat, and distribute water, and included considerations of reliability and service area demands.

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### *Groundwater Recovery Program*

The drought of the early 1990s sparked the need to develop additional local water resources, aside from recycled water, to meet regional demand and increase regional water supply reliability. In 1991, Metropolitan conducted the Brackish Groundwater Reclamation Study which determined that large amounts of degraded groundwater in the region were not being utilized. Subsequently, the Groundwater Recovery Program (GRP) was established to assist the recovery of otherwise unusable groundwater degraded by minerals and other contaminants, provide access to the storage assets of the degraded groundwater, and maintain the quality of groundwater resources by reducing the spread of degraded plumes.

### *Local Resources Program*

In 1995, Metropolitan's Board adopted the Local Resources Program (LRP), which combined the LPP and GRP into one program. The Board allowed for existing LPP agreements with a fixed incentive rate to convert to the sliding scale up to \$250 per acre-foot, similar to GRP incentive terms. Those agreements that were converted to LRP are known as "LRP Conversions."

### *Competitive Local Projects Program*

In 1998, the Competitive Local Resources Program (Competitive Program) was established. The Competitive Program encouraged the development of recycled water and recovered groundwater through a process that emphasized cost-efficiency to Metropolitan, timing new production according to regional need while minimizing program administration cost. Under the Competitive Program, agencies requested an incentive rate up to \$250 per acre-foot of production over 25 years under a Request for Proposals (RFP) for the development of up to 53,000 acre-feet per year of new water recycling and groundwater recovery projects. In 2003, a second RFP was issued for the development of an additional 65,000 acre-feet of new recycled water and recovered groundwater projects through the LRP.

### *Seawater Desalination Program*

Metropolitan established the Seawater Desalination Program (SDP) in 2001 to provide financial incentives to member agencies for the development of seawater desalination projects. In 2014, seawater desalination projects became eligible for funding under the LRP, and the SDP was ended.

### *2007 Local Resources Program*

In 2006, a task force comprised of member agency representatives was formed to identify and recommend program improvements to the LRP. As a result of the task force process, the 2007 LRP was established with a goal of 174,000 acre-feet per year of additional local water resource development. The new program allowed for an open application process and eliminated the previous competitive process. This program offered sliding scale incentives of up to \$250 per acre-foot, calculated annually based on a member agency's actual local resource project costs exceeding Metropolitan's prevailing water rate.

### *2014 Local Resources Program*

A series of workgroup meetings with member agencies was held to identify the reasons why there was a lack of new LRP applications coming into the program. The main constraint identified by the member agencies was that the \$250 per acre-foot was not providing enough of an incentive

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for developing new projects due to higher construction costs to meet water quality requirements and to develop the infrastructure to reach end-use consumers located further from treatment plants. As a result, in 2014, the Board authorized an increase in the maximum incentive amount, provided alternative payment structures, included onsite retrofit costs and reimbursable services as part of the LRP, and added eligibility for seawater desalination projects. The current LRP incentive payment options are structured as follows:

- Option 1 – Sliding scale incentive up to \$340/AF for a 25-year agreement term
- Option 2 – Sliding scale incentive up to \$475/AF for a 15-year agreement term
- Option 3 – Fixed incentive up to \$305/AF for a 25-year agreement term

#### *On-site Retrofit Programs*

In 2014, Metropolitan's Board also approved the On-site Retrofit Pilot Program which provided financial incentives to public or private entities toward the cost of small-scale improvements to their existing irrigation and industrial systems to allow connection to existing recycled water pipelines. The On-site Retrofit Pilot Program helped reduce recycled water retrofit costs to the end-use consumer which is a key constraint that limited recycled water LRP projects from reaching full production capacity. The program incentive was equal to the actual eligible costs of the on-site retrofit, or \$975 per acre-foot of up-front cost, which equates to \$195 per acre-foot for an estimated five years of water savings ( $\$195/\text{AF} \times 5 \text{ years}$ ) multiplied by the average annual water use in previous three years, whichever is less. The Pilot Program lasted two years and was successful in meeting its goal of accelerating the use of recycled water.

In 2016, Metropolitan's Board authorized the On-site Retrofit Program (ORP), with an additional budget of \$10 million. This program encompassed lessons learned from the Pilot Program and feedback from member agencies to make the program more streamlined and improve its efficiency. As of fiscal year 2019/20, the ORP has successfully converted 440 sites, increasing the use of recycled water by 12,691 acre-feet per year.

#### *Stormwater Pilot Programs*

In 2019, Metropolitan's Board authorized both the Stormwater for Direct Use Pilot Program and a Stormwater for Recharge Pilot Program to study the feasibility of reusing stormwater to help meet regional demands in Southern California. These pilot programs are intended to encourage the development, monitoring, and study of new and existing stormwater projects by providing financial incentives for their construction/retrofit and monitoring/reporting costs. These pilot programs will help evaluate the potential benefits delivered by stormwater capture projects and provide a basis for potential future funding approaches. Metropolitan's Board authorized a total of \$12.5 million for the stormwater pilot programs (\$5 million for the District Use Pilot and \$7.5 million for the Recharge Pilot).

#### *Current Status and Results of Metropolitan's Local Resource Programs*

Today, nearly one-half of the total recycled water and groundwater recovery production in the region has been developed with an incentive from one or more of Metropolitan's local resource programs. During fiscal year 2020, Metropolitan provided about \$13 million for production of 71,000 acre-feet of recycled water for non-potable and indirect potable uses. Metropolitan

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provided about \$4 million to support projects that produced about 50,000 acre-feet of recovered groundwater for municipal use. Since 1982, Metropolitan has invested \$680 million to fund 85 recycled water projects and 27 groundwater recovery projects that have produced a cumulative total of about 4 million acre-feet.

### Conservation Programs

Metropolitan's regional conservation programs and approaches have a long history. Decades ago, Metropolitan recognized that demand management at the consumer level would be an important part of balancing regional supplies and demands. Water conservation efforts were seen as a way to reduce the need for imported supplies and offset the need to transport or store additional water into or within the Metropolitan service area. The actual conservation of water takes place at the retail consumer level. Regional conservation approaches have proven to be effective at reaching retail consumers throughout Metropolitan's service area and successfully implementing water saving devices, programs and practices. Through the pooling of funding by Metropolitan's member agencies, Metropolitan is able to engage in regional campaigns with wide-reaching impact. Regional investments in demand management programs, of which conservation is a key part along with local supply programs, benefit all member agencies regardless of project location. These programs help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

#### *Incentive-Based Conservation Programs*

##### *Conservation Credits Program*

In 1988, Metropolitan's Board approved the Water Conservation Credits Program (Credits Program). The Credits Program is similar in concept to the Local Projects Program (LPP). The purpose of the Credits Program is to encourage local water agencies to implement effective water conservation projects through the use of financial incentives. The Credits Program provides financial assistance for water conservation projects that reduce demands on Metropolitan's imported water supplies and require Metropolitan's assistance to be financially feasible.

Initially, the Credits Program provided 50 percent of a member agency's program cost, up to a maximum of \$75 per acre-foot of estimated water savings. The \$75 Base Conservation Rate was established based Metropolitan's avoided cost of pumping SWP supplies. The Base Conservation Rate has been revisited by Metropolitan's Board and revised twice since 1988, from \$75 to \$154 per acre-foot in 1990 and from \$154 to \$195 per acre-foot in 2005.

In fiscal year 2020 Metropolitan processed more than 30,400 rebate applications totaling \$18.9 million.

##### *Member Agency Administered Program*

Some member agencies also have unique programs within their service areas that provide local rebates that may differ from Metropolitan's regional program. Metropolitan continues to support these local efforts through a member agency administered funding program that adheres to the same funding guidelines as the Credits Program. The Member Agency Administered Program allows member agencies to receive funding for local conservation efforts that supplement, but do not duplicate, the rebates offered through Metropolitan's regional rebate program.

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### *Water Savings Incentive Program*

There are numerous commercial entities and industries within Metropolitan's service area that pursue unique savings opportunities that do not fall within the general rebate programs that Metropolitan provides. In 2012, Metropolitan designed the Water Savings Incentive Program (WSIP) to target these unique commercial and industrial projects. In addition to rebates for devices, under this program, Metropolitan provides financial incentives to businesses and industries that created their own custom water efficiency projects. Qualifying custom projects can receive funding for permanent water efficiency changes that result in reduced potable demand.

### *Non-Incentive Conservation Programs*

In addition to its incentive-based conservation programs, Metropolitan also undertakes additional efforts throughout its service area that help achieve water savings without the use of rebates. Metropolitan's non-incentive conservation efforts include:

- residential and professional water efficient landscape training classes
- water audits for large landscapes
- research, development and studies of new water saving technologies
- advertising and outreach campaigns
- community outreach and education programs
- advocacy for legislation, codes, and standards that lead to increased water savings

### *Current Status and Results of Metropolitan's Conservation Programs*

Since 1990, Metropolitan has invested \$824 million in conservation rebates that have resulted in a cumulative savings of 3.27 million acre-feet of water. These investments include \$450 million in turf removal and other rebates during the last drought which resulted in 175 million square feet of lawn turf removed. During fiscal year 2020, 1.06 million acre-feet of water is estimated to have been conserved. This annual total includes Metropolitan's Conservation Credits Program; code-based conservation achieved through Metropolitan-sponsored legislation; building plumbing codes and ordinances; reduced consumption resulting from changes in water pricing; and pre-1990 device retrofits.

### **Infeasibility of Accounting Regional Investments in Reduced Reliance Below the Regional Level**

The accounting of regional investments that contribute to reduced reliance on supplies from the Delta watershed is straightforward to calculate and report at the regional aggregate level. However, any similar accounting is infeasible for the individual member agencies or their customers. As described above, the region (through Metropolitan) makes significant investments in projects, programs and other resources that reduce reliance on the Delta. In fact, all of Metropolitan's investments in Colorado River supplies, groundwater and surface storage, local resources development and demand management measures that reduce reliance on the Delta are collectively funded by revenues generated from the member agencies through rates and charges.

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Metropolitan's revenues cannot be matched to the demands or supply production history of an individual agency, or consistently across the agencies within the service area. Each project or program funded by the region has a different online date, useful life, incentive rate and structure, and production schedule. It is infeasible to account for all these things over the life of each project or program and provide a nexus to each member agency's contributions to Metropolitan's revenue stream over time. Accounting at the regional level allows for the incorporation of the local supplies and water use efficiency programs done by member agencies and their customers through both the regional programs and through their own specific local programs. As shown above, despite the infeasibility of accounting reduced Delta reliance below the regional level, Metropolitan's member agencies and their customers have together made substantial contributions to the region's reduced reliance.

## **City of Upland 2015 UWMP Appendix I**

The information contained in this Appendix F is also intended to be a new Appendix I attached to the City's 2015 UWMP consistent with WR P1 subsection (c)(1)(C) (Cal. Code Regs. tit. 23, § 5003). Upland provided notice of the availability of the draft 2020 UWMP (including this Appendix F which will also be a new Appendix I to its 2015 UWMP), its 2020 WSCP, and the public hearing to consider adoption of both plans and Appendix I to the 2015 UWMP in accordance with CWC Sections 10621(b) and 10642, and Government Code Section 6066, and Chapter 17.5 (starting with Section 7290) of Division 7 of Title 1 of the Government Code. The notice of availability of the documents was sent to agencies, cities, and San Bernardino County in the vicinity of the service area. Copies of the 60 day notification letter that was sent to the relevant agencies, cities, and San Bernardino County; and the notices published in the newspaper are included in the 2020 UWMP Appendix H. This Appendix F to the City's 2020 UWMP will also be recognized and treated as Appendix I to Upland's 2015 UWMP.

The City held the public hearing for the draft 2020 UWMP, draft Appendix I to the 2015 UWMP, and draft WSCP on June 14, 2021, at the City Council meeting. On June 14, the City Council determined that the 2020 UWMP and WSCP accurately represent the water resources plan for the City's service area. The City Council determined that Appendix F to the 2020 UWMP and Appendix I to the 2015 UWMP includes all of the elements described in Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (Cal. Code Regs. tit. 23, § 5003), which need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action. The Council adopted the 2020 UWMP, Appendix I to the 2015 UWMP, and 2020 WSCP and authorized their submittal to the State of California. The resolution is included in the 2020 UWMP Appendix H.

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## **Appendix G**

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### **Municipal Code for Shortage Plan**

## **Upland Municipal Code**

### **Chapter 13.16 WATER CONSERVATION**

#### **13.16.010 Generally**

- A. Declaration of Policy. It is declared that because of the water conditions prevailing in the city, the general welfare requires that the water resources available to the city, region and state be put to the maximum beneficial use, that the waste or unreasonable use of water be prevented, and that the conservation of water is to be encouraged at all times.
- B. Authorization.
1. The city manager shall request the city council to declare that demand for water is anticipated to be in excess of supply, immediately after it appears that such a situation exists or is threatened, if the city council is in session. If the council is not in session, the city manager shall immediately cause a request for a special meeting of the city council to be delivered to each council person who can be located.
  2. The city council shall have the power to declare the necessity to implement the applicable provisions of this chapter when in its opinion the demand for water consumption exceeds the city's available supply (allowing for a safe reserve), or threatens to do so, provided there are no immediate resources available to remedy the situation. Such declaration shall be made by public announcement and shall be published in a newspaper of general circulation and shall become effective immediately upon such publication.
- C. Application. The provisions of this chapter shall apply to all persons, customers within the city, or property utilizing city water wherever situated.
- D. Presumption. For purposes of this title, it shall be presumed that a person, corporation or association in whose name the water utility of the city is or was last billed or who is receiving the economic benefit of the water supply has knowingly made, caused, used or permitted the use of water received from the city for a purpose in a manner contrary to any provision of this title. (Ord. 1786 § 1, 2005; prior code § 7730.0)

#### **13.16.020 Penalties**

- A. Compliance—Guidelines.
1. No customer of the city or person who uses water within the city shall knowingly use, or permit the use of water in a manner contrary to any provision of this chapter, or in an amount in excess of that use permitted by the provisions of this title or that is reasonably necessary to satisfy the water usage need.
  2. Unless otherwise provided, any person, firm or corporation violating any provision of this title as adopted by reference above, other than the provisions of Sections [13.20.010](#) through [13.20.040](#) of this code, shall be guilty of an infraction or misdemeanor as hereinafter specified at the city's discretion, and each day or portion thereof such violation is in existence shall be a new and separate offense.
- B. Any person so convicted shall be:

1. Guilty of an infraction offense and punished by a fine of not less than \$25.00 but not exceeding \$100.00 for a first violation during any calendar year or declared conservation stage, whichever time period is shorter in duration;
  2. Guilty of an infraction offense and punished by a fine not less than \$50.00 and not exceeding \$200.00 for a second violation during any calendar year or declared conservation stage, whichever time period is shorter in duration;
  3. On conviction of a third violation, guilty of a misdemeanor offense and shall be punished by a fine not less than \$500.00 nor more than \$1,000.00 during any calendar year or declared conservation stage, whichever time period is shorter in duration.
- C. 1. Notwithstanding the above, a first or second offense may be charged and prosecuted as a misdemeanor at the city's sole discretion. In addition to the above penalties, such convicted person, firm, corporation or other entity may, in the discretion of the court, be ordered to reimburse the city for all necessary costs incurred through investigation, discovery, analysis, inspection, abatement and other actual costs incurred by the city or its agents pertaining to the violation.
2. The court shall fix the amount of any such reimbursements upon submission of proof of such costs by the city. Payment of any penalty herein provided shall not relieve a person, firm or corporation, or other entity from the responsibility of correcting the condition resulting from the violation.
- D. In addition to the above, the water utility director is empowered to enact other penalties and restrictive measures that are intended to abate the conductor circumstances comprising the violation, including but not limited to the following: placement of a flow restricting device upon the water service, locking off of water meter, removal of water meter, and shutting off of the service line valve. (Ord. 1812 § 1, 2006; prior code § 7731.00)

#### **13.16.030 Conservation program—Year-round stage.**

- A. The following activities are prohibited:
1. The washing of sidewalks, walkways, driveways, public and private parking areas and all other impervious hard surfaced areas by direct hosing when runoff water directly flows to a gutter or storm drain, except as may be necessary to properly dispose of flammable or other dangerous liquids or substances, wash away spills that present a trip and fall hazard, or to prevent or eliminate materials dangerous to the public health and safety;
  2. Excessive or unreasonable runoff of water or unreasonable spray of the areas being watered. Every customer is deemed to have his or her water system under control at all times, to know the manner and extent of this water use and any runoff, and to employ available alternatives to apply irrigation water in a reasonably efficient manner;
  3. Allowing, permitting or causing the escape of water through breaks or leaks within the customer's plumbing or private water distribution system for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of 72 hours after the customer discovers such a break or leak or receives notice from the city of a break or leak, is a reasonable time within which to correct such break or leak, or, at a minimum, to stop the flow of water from such break or leak;

4. Outdoor irrigation of landscape by sprinklers during the hours of 10:00 a.m. to 6:00 p.m. Citizens are encouraged to avoid the use of sprinklers on windy days. Irrigation by handheld hose, drip irrigation, hand-held bucket, or similar container or by use of a cleaning machine equipped to recycle any water used are permitted anytime. In no event shall any water so used be permitted to run off into adjacent property, streets, alleys or storm drains;
  5. Washing of automobiles, trucks, trailers, boats, airplanes, and other types of equipment (mobile or otherwise) unless done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses. The nozzle shall be removed when the hose is not in use to ensure the water supply is shutoff. However, this section does not apply to the washing of the above-listed vehicles or mobile equipment when conducted on the immediate premises of a commercial carwash;
  6. All eating and drinking establishments of any kind including, but not limited to, any restaurant, hotel, café, caf  teria, bar or club, whether public or private, shall not provide drinking water to any person unless it is expressly requested.
- B. Exceptions. None of these restrictions shall apply to the following:
1. The routine and necessary use of water, other than for landscape irrigation, by a governmental entity in pursuit of its governmental functions for the benefit of the public, such as construction projects and for the cleaning of streets to prevent debris and harmful substances from entering water systems via storm drains;
  2. The necessary use of water for the routine maintenance and/or repair of water distribution facilities, residential and commercial plumbing and permanently installed landscaped irrigation systems. (Ord. 1786 § 1, 2005: prior code § 7732.00)

#### **13.16.040 Conservation program—Moderate shortage stage.**

- A. In the event the city council determines that the measures outlined in Section [13.16.030](#) fail to produce a sufficient reduction in demand so as to produce a sufficient supply, the use of water within the city shall be additionally restricted and the following provisions shall become effective upon a declaration by the city council and publication of same as follows:
1. The washing of sidewalks, walkways, driveways, public and private parking areas and all other impervious hard surfaced areas by direct hosing when runoff water directly flows to a gutter or storm drain, except as may be necessary to properly dispose of flammable or other dangerous liquids or substances, wash away spills that present a trip and fall hazard, or to prevent or eliminate materials dangerous to the public health and safety.
  2. Excessive or unreasonable runoff of water or unreasonable spray of the areas being watered is prohibited. Every customer is deemed to have his or her water system under control at all times, to know the manner and extent of this water use and any runoff, and to employ available alternatives to apply irrigation water in a reasonably efficient manner.
  3. Allowing, permitting or causing the escape of water through breaks or leaks within the customer's plumbing or private water distribution system for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of 72 hours after the customer discovers such a break or leak or

receives notice from the city of a break or leak, is a reasonable time within which to correct such break or leak, or, at a minimum, to stop the flow of water from such break or leak.

4. Outdoor irrigation of landscape by sprinklers is permitted only on even days of the month for those locations having a street address with an even last digit. Outdoor irrigation by sprinklers is permitted only on odd days of the month for those locations having a street address with an odd last digit. Outdoor irrigation for locations not having a street address shall occur on even days of the month if located west of San Antonio Avenue or only on odd days of the month if located east of San Antonio Avenue. No outdoor irrigation shall take place between the hours of 10:00 a.m. and 6:00 p.m. Irrigation by hand-held hose, drip irrigation, hand-held bucket, or similar container or by use of a cleaning machine equipped to recycle any water used are permitted anytime. In no event shall any water so used be permitted to run off into adjacent property, streets, alleys or storm drains.

5. Washing of Vehicles, Trailers, Boats, Airplanes and Mobile Equipment.

a. The washing of automobiles, trucks, trailers, boats, airplanes and other types of equipment (mobile or otherwise) is prohibited except on the designated outdoor water use days pursuant to subsection (A)(4) of this section between the hours of 12:00 midnight to 12:00 noon and sundown to 12:00 midnight. Such washing, when allowed, shall be done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses. The nozzle shall be removed when the hose is not in use to ensure the water supply is shutoff.

b. No individual, firm or business that regularly washes vehicles for remuneration or provides facilities for customers to do so through coin-operated machinery shall be permitted to operate such a business unless their place of business is equipped and operating to approved city standards with equipment to recycle water for use within their facility.

c. Washing trucks, trailers and other types of mobile equipment (such as garbage trucks and vehicles used to transport food and other perishables), 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. Such washing, when allowed, shall be done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses. The nozzle shall be removed when the hose is not in use.

d. Nonprofit and community based organizations' fundraising car washes shall be allowed, provided they are otherwise in accordance with all other provisions of the Upland Municipal Code and this section, and have obtained a permit to operate a nonprofit carwash from the finance department, the cost of same to be \$5.00, which sum is found to cover the city's costs to issue the permit. Such activities shall be limited to no more than two times in one month. Permit shall become void upon the effective date of the declaration of severe shortage.

6. All eating and drinking establishments of any kind including, but not limited to, any restaurant, hotel, café, cafeteria, bar or club, whether public or private, shall not provide drinking water to any person unless it is expressly requested.

7. The refilling or adding of water to swimming pools is prohibited except on designated outdoor water use days, which shall be the same days as outdoor watering is permitted pursuant to subsection (A)(4) of this section.

8. Any non-business, operation-related pond, ornamental fountain or other structure making similar use of water is prohibited.
9. The irrigation of golf course fairways is prohibited. This section shall not apply to the irrigation of any golf course solely with reclaimed wastewater.
10. The 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 of Upland. This restriction shall not apply to businesses which require the use of water for land development and building construction processes, pursuant to prior written approval by the review board as defined in Section [13.16.070](#).

B. Exceptions. None of the moderate shortage restrictions shall apply to the following uses of water:

1. The routine and necessary use of water, other than for landscape irrigation, by a governmental entity in pursuit of its governmental functions for the benefit of the public, such as construction projects and for the cleaning of streets to prevent debris and harmful substances from entering water systems via storm drains;
2. The routine and necessary use of water, other than for landscape irrigation, for land development (e.g., roadway base preparation, flushing of utility lines, dust control, concrete and asphalt work) and for building construction processes;
3. The necessary use of water for the routine maintenance and/or repair of water distribution facilities, residential and commercial plumbing and permanently installed landscape irrigation systems;
4. The use of water necessary to irrigate large, landscaped areas in commercial and institutional establishments as authorized by the terms and conditions of an approved compliance agreement issued by the review board, as defined in Section [13.16.070](#);
5. The use of water pursuant to the approved terms and conditions of a variance granted by the review board as defined in Section [13.16.070](#). (Ord. 1786 § 1, 2005; prior code § 7733.00)

#### **13.16.050 Conservation program—High shortage stage.**

A. In the event the city council determines that the measures outlined in Section [13.16.040](#) fail to produce a sufficient reduction in demand so as to produce a sufficient supply, the use of water within the city shall be additionally restricted and the following provisions shall become effective upon a declaration by the city council and publication of same as follows:

1. The washing of sidewalks, walkways, driveways, public and private parking areas and other impervious hard surfaced areas by direct hosing when runoff water directly flows to a gutter or storm drain, except as may be necessary to properly dispose of flammable or other dangerous liquids or substances, wash away spills that present a trip and fall hazard, or to prevent or eliminate materials dangerous to the public health and safety is prohibited.
2. Excessive runoff of water or unreasonable spray of the areas being watered is prohibited. Every customer is deemed to have his or her water system under control at all times, to know the manner and extent of this water use and any runoff, and to employ available alternatives to apply irrigation water in a reasonably efficient manner.

3. Allowing, permitting or causing the escape of water through breaks or leaks within the customer's plumbing or private water distribution system for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of 72 hours after the customer discovers such a break or leak or receives notice from the city of a break or leak, is a reasonable time within which to correct such break or leak, or, at a minimum, to stop the flow of water from such break or leak.
4. Outdoor irrigation of landscape by sprinklers is permitted only on Wednesday and Sunday for those locations having street address with an even last digit. Outdoor irrigation by sprinklers is permitted only on Tuesday and Saturday for those locations having a street address with an odd last digit. Outdoor irrigation for locations not having a street address shall occur on Wednesday and Sunday if located west of San Antonio Avenue or only on Tuesday and Saturday if located east of San Antonio Avenue. No outdoor irrigation shall take place between 6:00 a.m. until one hour before sundown. Irrigation by hand-held hose, drip irrigation, or handheld bucket or similar container or by use of a cleaning machine equipped to recycle any water used are permitted anytime. In no event shall any water so used be permitted to run off into adjacent property, streets, alleys or storm drains.
5. Washing of Vehicles, Trailers, Boats, Airplanes and Mobile Equipment.
  - a. The washing of automobiles, trucks, trailers, boats, airplanes and other types of equipment (mobile or otherwise) is prohibited except on the designated outdoor water use days pursuant to subsection (A)(4) of this section between the hours of 12:00 midnight to 12:00 noon and sundown to 12:00 midnight. Such washing, when allowed, shall be done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses. The nozzle shall be removed when the hose is not in use to ensure the water supply is shutoff.
  - b. No individual, firm or business that regularly washes vehicles for remuneration or provides facilities for customers to do so through coin-operated machinery shall be permitted to operate such a business unless their place of business is equipped and operating to approved city standards with equipment to recycle water for use within their facility.
  - c. Washing trucks, trailers and other types of mobile equipment (such as garbage trucks and vehicles used to transport food and other perishables), 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. Such washing, when allowed, shall be done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses. The nozzle shall be removed when the hose is not in use.
  - d. Nonprofit and community-based organizations' fundraising car washes shall be allowed, provided they are otherwise in accordance with all other provisions of the Upland Municipal Code and this section, and have obtained a permit to operate a nonprofit carwash from the finance department, the cost of same to be \$5.00, which sum is found to cover the city's costs to issue the permit. Such activities shall be limited to no more than two times in one month. Permit shall become void upon the effective date of the declaration of severe shortage.

6. All eating and drinking establishments of any kind whatsoever including, but not limited to, any restaurant, hotel, café, cafeteria, bar or club, whether public or private, shall not provide drinking water to any person unless it is expressly requested.

7. The 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 pursuant to subsection (A)(4) of this section. New pool construction filling shall be by permit only.

8. Any non-business, operation-related pond, ornamental fountain or other structure making similar use of water is prohibited.

9. The watering of golf course tee areas and fairways is prohibited unless done with reclaimed wastewater.

10. The 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 of Upland. This restriction shall not apply to businesses which require the use of water for land development and building construction processes, pursuant to prior written approval by the review board as defined in Section [13.16.070](#).

B. Exceptions. None of the high shortage restrictions shall apply to the following uses of water, provided there is prior written approval by the review board as defined in Section [13.16.070](#):

1. The routine and necessary use of water, other than for landscape irrigation, by a governmental entity in pursuit of its governmental functions for the benefit of the public, such as construction projects and for the cleaning of streets to prevent debris and harmful substances from entering water systems via storm drains;

2. The routine and necessary use of water, other than for landscape irrigation, for land development (e.g., roadway base preparation, flushing of utility lines, dust control, concrete and asphalt work) and for building construction processes;

3. The necessary use of water for the routine maintenance and/or repair of water distribution facilities, residential and commercial plumbing and permanently installed landscape irrigation systems;

4. The use of water necessary to irrigate large landscaped areas in commercial and institutional establishments as authorized by the terms and conditions of an approved compliance agreement issued by the review board, as defined in Section [13.16.070](#). (Ord. 1786 § 1, 2005; prior code § 7734.00)

### **13.16.060 Conservation program—Severe shortage stage.**

In the event the city council determines that the measures outlined in Section [13.16.050](#) fail to produce a sufficient reduction in demand so as to produce a sufficient supply, then the use of water within the city shall be additionally restricted and the following provisions shall become effective upon a declaration by the city council and publication of same as follows:

A. The washing of sidewalks, walkways, driveways, public and private parking areas and other impervious hard surfaced areas by direct hosing when runoff water directly flows to a gutter or storm drain, except as may be necessary to properly dispose of flammable or other dangerous liquids



or substances, wash away spills that present a trip and fall hazard, or to prevent or eliminate materials dangerous to the public health and safety is prohibited.

B. Excessive runoff of water or unreasonable spray of the areas being watered is prohibited. Every customer is deemed to have his or her water system under control at all times, to know the manner and extent of this water use and any runoff, and to employ available alternatives to apply irrigation water in a reasonably efficient manner.

C. Allowing, permitting or causing the escape of water through breaks or leaks within the customer's plumbing or private water distribution system for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of 72 hours after the customer discovers such a break or leak or receives notice from the city of a break or leak, is a reasonable time within which to correct such break or leak, or, at a minimum, to stop the flow of water from such break or leak.

D. Outdoor irrigation of landscape by sprinklers is permitted only on Sunday for those locations having street address with an even last digit. Outdoor irrigation by sprinklers is permitted only on Saturday for those locations having a street address with an odd last digit. Outdoor irrigation for locations not having a street address shall occur on Sunday if located west of San Antonio Avenue or only on Tuesday and Saturday if located east of San Antonio Avenue. No outdoor irrigation shall take place between 6:00 a.m. until one hour before sundown. Irrigation by hand-held hose, drip irrigation, or hand-held bucket, or similar container or by use of a cleaning machine equipped to recycle any water used are permitted anytime. In no event shall any water so used be permitted to run off into adjacent property, streets, alleys or storm drains.

E. Washing of Vehicles, Trailers, Boats, Airplanes and Mobile Equipment.

1. The washing of automobiles, trucks, trailers, boats, airplanes, and other types of equipment (mobile or otherwise) is prohibited except as provided elsewhere in this section.

2. No individual, firm or business that regularly washes vehicles for remuneration or provides facilities for customers to do so through coin-operated machinery shall be permitted to operate such a business unless their place of business is equipped and operating to approved city standards with equipment to recycle water for use within their facility. Washing of vehicles in such facilities shall occur only between the hours of 6:00 a.m. and 12:00 noon.

3. Washing trucks, trailers, and other types of mobile equipment (such as garbage trucks and vehicles used to transport food and other perishables), 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 12:00 noon. Such washing when allowed, shall be done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses. The nozzle shall be removed when the hose is not in use.

F. All eating and drinking establishments of any kind including, but not limited to, any restaurant, hotel, café, cafeteria, bar or club, whether public or private, shall not provide drinking water to any person unless it is expressly requested.

G. Washing sidewalks, driveways, public and private parking areas, tennis courts, patios, or other paved areas, except to alleviate an immediate health hazard, is prohibited.

H. The 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 pursuant to subsection D of this section. New pool construction filling shall be by permit only.

- I. Any non-business, operation-related pond, ornamental fountain or other structure making similar use of water is prohibited.
- J. The watering of golf course tee areas and fairways is prohibited unless done with reclaimed wastewater. (Ord. 1786 § 1, 2005: prior code § 7735.00)

### **13.16.070 Implementation.**

- A. Review Board—Variances, Permits and Compliance Agreements. A review board is established to review special cases which cannot follow the letter of this chapter. The review board shall consist of the water utility director, the city engineer, the fire chief, the city planning director and the city attorney, or their appointed representative.
- B. Appeal of review board decisions shall be made to the city council. It is the purpose of the review board to review special cases and to determine whether or not such cases warrant a variance, permit or compliance agreement including conditions of approval. The board shall consider the facts of each case and decide whether to grant a variance or a permit or to enter into a compliance agreement within five working days of the receipt of a properly completed application for variance/permit/compliance agreement form.
- C. A variance shall be granted only for reasons of economic hardship, which is defined as a threat to an individual business's primary source of income. (Under no circumstances shall inconvenience or the potential for damage of landscaping be considered an economic hardship, which justifies a variance.) The board shall authorize only the implementation of equitable water use restrictions which further the purpose and intent of the water conservation plan. The special water use restrictions authorized by the board in each case shall be set forth on the face of the variance, permit or compliance agreement. A nonrefundable fee of \$50.00 per permit application for all requests shall be assessed to reimburse the city for administrative costs.
- D.
  - 1. A variance or permit issued under moderate shortage shall not be valid upon implementation of high or severe shortage stages unless the permit specifically addresses either or both of those stages upon initial issuance. The multistage permit would have to reflect significant additional savings of water, or nonuse of water, under progressively more critical shortage stages. A variance or permit shall expire under its own terms and conditions and/or when another water conservation stage is in effect.
  - 2. Exception. If, within the period of the permit, the conservation stage for which the permit was originally issued is reinstated, the permit will be considered valid until the original expiration date, as long as that conservation stage is in effect.
- E. Any person, corporation or association who is issued a variance or permit and makes use of water pursuant to the variance, permit or compliance agreement shall provide proof of the variance, permit or compliance agreement upon demand by any peace officer or person authorized by the city to enforce this title.
- F. Upon conviction of a person, corporation or association of violating any provision of this chapter, the review board shall revoke any permit, variance, or compliance agreement previously granted. However, the board shall notify applicant of the proposed revocation five working days before taking such action, and applicant shall be given the opportunity to be heard by the review board prior to its taking such action.

G. Persons wishing to appeal the decision of the review board shall have the right of appeal to the city council. Appeal shall be made in writing within 10 working days of the review board decision. The decision of the city council shall be final. (Ord. 1786 § 1, 2005: prior code § 7736.00)

## Appendix H

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### Public Participation and Plan Adoption

#### **Notifications sent to:**

City of Upland  
San Bernardino County  
Chino Basin Watermaster  
City of Chino  
City of Chino Hills  
City of Claremont  
City of Fontana  
City of La Verne  
City of Montclair  
City of Ontario  
City of Pomona  
County of San Bernardino  
Cucamonga Valley Water District  
Fontana Water Company  
Golden State Water Company  
Inland Empire Utilities Agency  
Monte Vista Water District  
San Antonio Water Company  
Three Valley Municipal Water District  
Water Facilities Authority



**PUBLIC WORKS DEPARTMENT**  
**1370 North Benson Avenue**  
**Upland, California 91786-0460**  
**Telephone (909) 291-2930**  
**Facsimile (909) 291-2974**

April 7, 2021

San Antonio Water Company  
ATTN: Brian Lee, General Manager  
139 N Euclid Ave.  
Upland CA 91786-6036

**Subject: Upland 2020 Urban Water Management Plan Update**

Dear Mr. Lee,

The City of Upland is currently preparing an update to its 2020 Urban Water Management Plan (UWMP) in compliance with the California Urban Water Management Planning Act and the Water Conservation Act of 2009, commonly referred to as SBX7-7. Water Code section 10621(b) requires an urban water supplier updating its UWMP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing. This letter serves as Upland's notice that it is preparing and updating its 2015 UWMP. Upland anticipates holding a public comment period in May 2021 with a public hearing planned for June 2021.

The Urban Water Management Planning Act requires every "urban water supplier" of a certain size to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The UWMP is a planning document in which water suppliers evaluate and compare their water supply and reliability to their existing and projected demands. A complete UWMP is necessary for the City of Upland to remain eligible for state grants and loans to fund future programs. The UWMP must be approved by July 1, 2021.

Concurrent with the UWMP Update, City of Upland will update the Water Shortage Contingency Plan consistent with California Water Code Section 10632 and Section 10635. The Water Code states that water agencies must develop a water shortage contingency plan to prepare for the event of drought as well as other shortage scenarios. The contingency plan must demonstrate the ability of a water agency to meet demands under a supply shortage of up to 50 percent and greater than 50 percent of the current supply. Emphasis is placed on protection of public health, sanitation, fire protection, and public welfare.

All interested persons are invited to attend the public hearing and provide comments regarding the Draft Upland 2020 UWMP. In the event an in-person public meeting is not able to be conducted, the Public Hearing will be conducted via teleconference Zoom webinar.

Additional information regarding the Public Hearing, including the draft 2020 UWMP Update and Water Shortage Contingency Plan, will be available on and after May 17, 2021 on the City website at [www.ci.upland.ca.us/water](http://www.ci.upland.ca.us/water). A draft hard copy will be available to review at City Hall located at 460 N.

Euclid Avenue, as well as at Upland's Public Works City Yard located at 1370 N. Benson Avenue, beginning May 17, 2021. The draft will also be provided electronically to all interested parties. We would appreciate your comments prior to the public hearing.

A final copy will be provided to all necessary parties within 30 days of adoption.

Upland welcomes you to submit comments and consult with Upland regarding its 2020 UWMP update and Water Shortage Contingency Plan. If you or your agency would like more information on the Upland 2020 UWMP Update or the Water Shortage Contingency Plan Update, please contact Michelle Madriz at (909) 291-2935, or by email [mmadriz@ci.upland.ca.us](mailto:mmadriz@ci.upland.ca.us).

Sincerely,

A handwritten signature in dark ink, appearing to read 'Braden Yu', is positioned above the typed name.

Braden Yu, P.E.  
Public Works Director/City Engineer

cc: Stephen Parker, Acting City Manager  
Keri Johnson, City Clerk