CITY OF COLTON

2020 IRUWMP - DRAFT

Part 2, Chapter 2

Colton 2020 UWMP

MAY 27, 2021

Prepared by Water Systems Consulting, Inc.

WSC

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

RETAIL URBAN WATER MANAGEMENT PLAN

2 City of Colton

This chapter describes information specific to the City of Colton, its supplies, demands and water use efficiency programs. The information and analysis in this chapter is supplemental to the regional information presented in Part 1 of the 2020 IRUWMP and is provided to meet the City of Colton's reporting requirements for 2020 under the UWMP Act.

The City of Colton Water Department (Colton) is the municipally owned utility that provides potable and non-potable water at retail to customers primarily within the City of Colton. Colton is a retail public water supplier that meets the definition of an urban water supplier with over 10,200 municipal water service connections in 2020.

The City of Colton was incorporated in 1887 and is bounded by the City of San Bernardino on the north and northeast, the City of Grand Terrace and unincorporated areas of Riverside County on the south, the City of Loma Linda on the east, and the City of Rialto on the west.

Colton's service area covers approximately 90 percent of the City of Colton. It includes 14 square miles in the City of Colton and approximately 0.8 square miles of unincorporated area in San Bernardino County. **Figure 2-1** shows the boundary of the Colton Water Service Area.

IN THIS SECTION

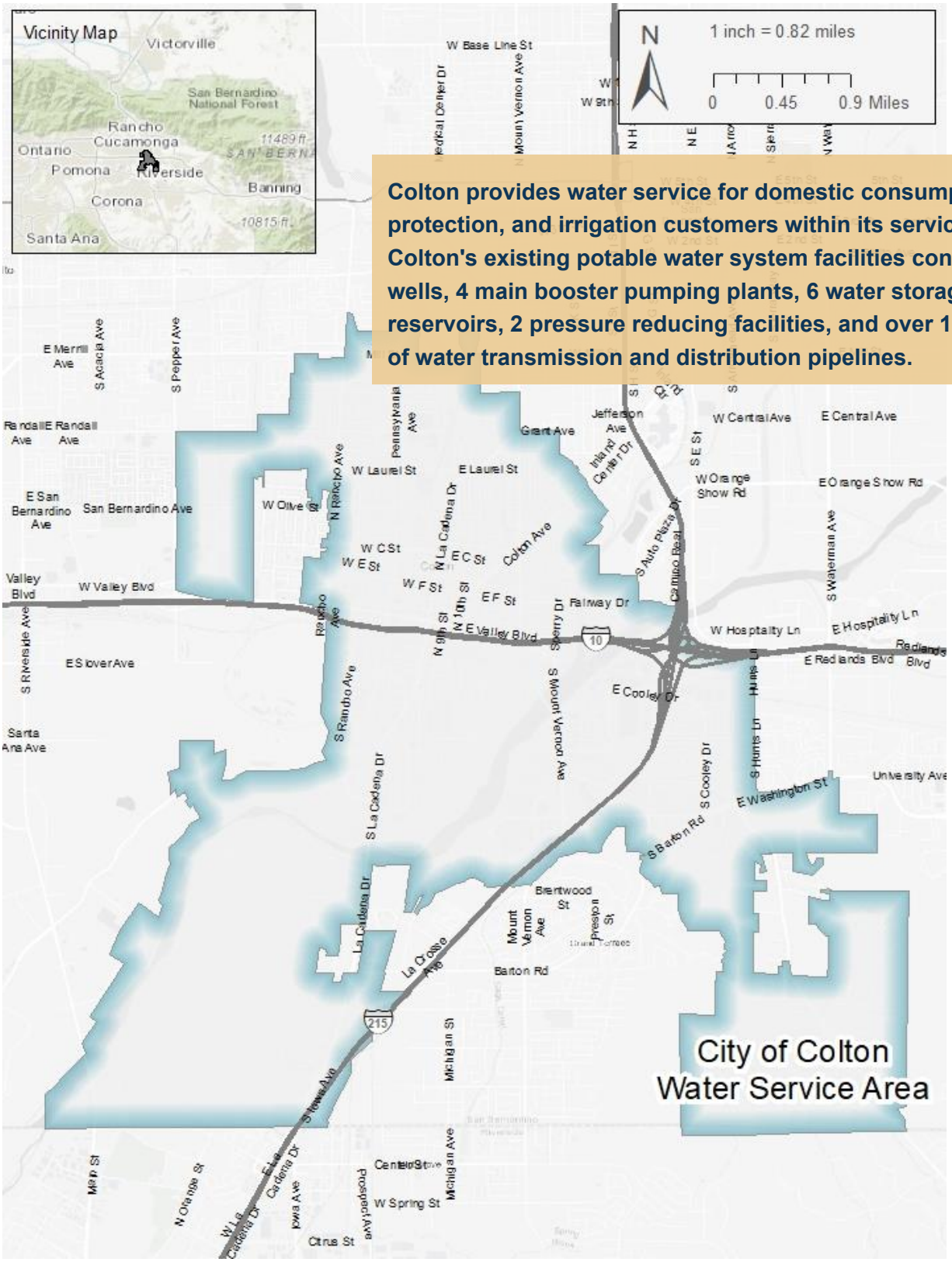

Figure 2-1: City of Colton Water Service Area Map

2.1 System Description

This section describes the population and land uses within Colton's service area.

2.1.1 Population

For the purposes of consistent reporting of population estimates, the California Department of Water Resources (DWR) has developed a GIS-based tool (DWR Tool) to estimate the population within a water agency's service area using census data and number of water service connections. The DWR Tool was used to intersect the service area boundary with census data to provide population estimates for 1990, 2000, and 2010. The DWR Tool uses the number of service connections in those prior census years, where available, to calculate a persons-per-connection factor, which is then projected forward to estimate population in a given year using the number of connections in that year. The service area population for 2020 was estimated in the DWR Tool using the number of connections in 2010 and 2020.

Prior to drafting this UWMP, Colton prepared an estimate of 2020 population of 47,187 based on the number of single family connections and an assumed number of persons per connection, and a detailed investigation of the number of actual multi-family dwellings in the service area and an assumed number of persons per dwelling. This estimate takes into account that multiple dwellings may be provided water by a single service. However, for purposes of this report, the DWR Tool output of 46,525 was assumed to be the official estimate of population in 2020, and serves as the basis for SBx7-7 compliance calculations and all future population projection years.

To estimate population for future years, projections from the Southern California Association of Governments (SCAG) were used. SCAG has developed a forecast called the 2020 Connect SoCal Regional Transportation Plan and has estimated the population, households, and employment in 2020, 2035, and in 2045 inside each of the approximately 11,300 traffic analysis zones (TAZs) that cover the SCAG region. The service area boundary was intersected with a GIS shapefile of the SCAG TAZs to provide an estimate of population within the service area for years 2020, 2035, and 2045. These estimates were used to calculate compound annual population growth rates for years 2020-2035 and 2035-2045. The population growth rates were applied to the 2020 population to estimate future population. Estimated 2020 and future year population is shown in **Table 2-1**.

Per SCAG requirements, it must be noted that this population modeling analysis was performed by Water Systems Consulting, Inc. based upon modeling information originally developed by SCAG. SCAG is not responsible for how the model is applied or for any changes to the model scripts, model parameters, or model input data. The resulting modeling data does not necessarily reflect the official views or policies of SCAG. SCAG shall not be held responsible for the modeling results and the content of the documentation.

SCAG prepares demographic forecasts based on land use data for their region through extensive processes that emphasizes input from local planners and is done in coordination with local or regional land use authorities, incorporating essential information to reflect anticipated future populations and land uses. SCAG's projections undergo extensive local review, incorporate zoning information from city and county general plans, and are supported by Environmental Impact Reports.

Table 2-1: DWR 3-1R Current and Projected Population

POPULATION SERVED	2020	2025	2030	2035	2040	2045
TOTAL	**46,525**	**49,164**	**51,954**	**54,902**	**56,629**	**58,411**

2.1.2 Land Use

Per the 2013 City of Colton General Plan Land Use Element, 27% of the land within the City of Colton is residential, 4% is commercial, 12% is industrial, 5% is public and institutional, 2% is railroad and utility rights of way, 14% is open space, and 36% is vacant land.

2.2 Water Use

This section describes the current and projected water uses within Colton's service area. Colton serves only potable drinking water.

2.2.1 Water Use by Sector

Colton categorizes its water customers into four categories for the purposes of billing: Residential, Commercial, Municipal, and Sales to Other Agencies. The number of active connections in each category from 2016 to 2020 are shown in **Table 2-2**. Residential connections include both single family and multifamily connections.

Table 2-2: City of Colton 2016-2020 Connections by Customer Class

CUSTOMER CLASS	2016	2017	2018	2019	2020
Residential	8,893	8,918	8,952	8,977	9,003
Commercial	1,060	1,058	1,061	1,052	1,075
Municipal	161	165	165	165	165
TOTAL	**10,114**	**10,141**	**10,178**	**10,194**	**10,243**

2.2.1.1 Past Water Use

Colton's actual water use by customer class from 2016-2020 is shown in **Table 2-3**. Colton's water consumption by customer class in the last five years is shown in **Figure 2-2**.

Approximately 55% of Colton's total deliveries were to residential connections, followed by 42% to commercial customers, and the remainder to municipal customers.

Table 2-3: 2016-2020 Actual Water Use (AF)

CUSTOMER CLASS	2016	2017	2018	2019	2020
Residential	4,340	4,496	4,928	4,457	4,597
Commercial	3,323	3,4499	3,610	3,421	3,545
Municipal	189	468	99	239	253
Water Losses	1,263	1,255	877	378	849
TOTAL	**9,114**	**9,668**	**9,514**	**8,495**	**9,244**

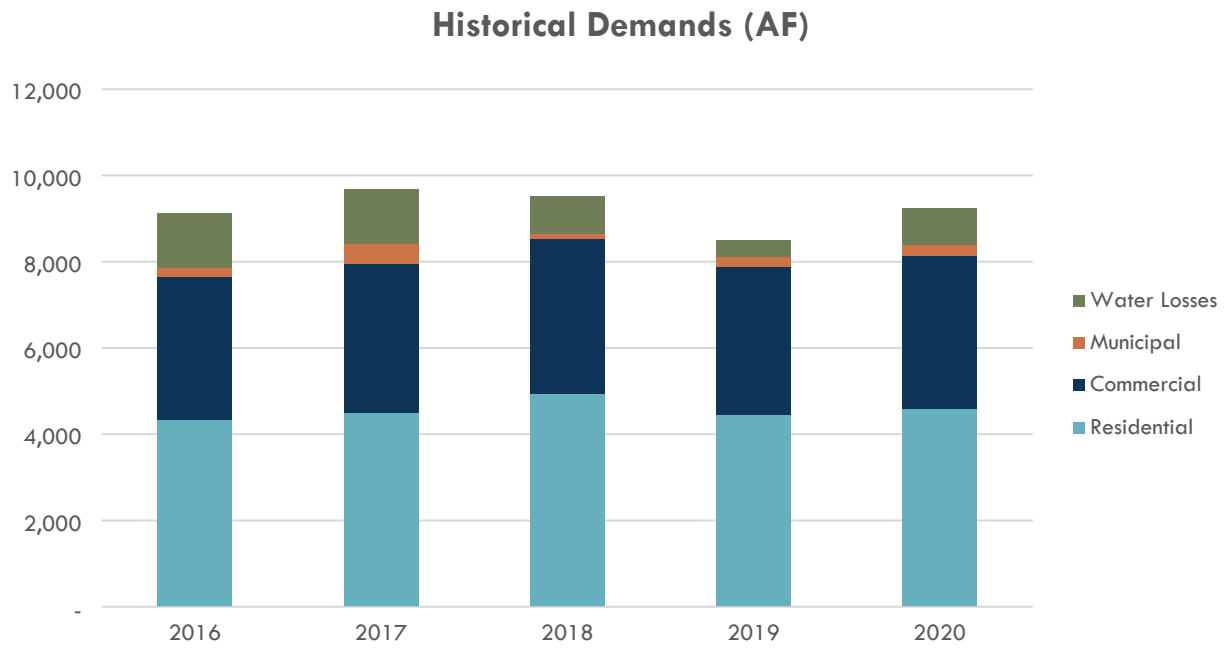

Figure 2-2: City of Colton 2016-2020 Water Consumption by Customer Class

2.2.1.2 Distribution System Water Losses

Distribution system water losses are the physical potable water losses from the water system, calculated as the difference between water produced and the amount of water billed to customers plus other authorized uses of water.

Sources of water loss include:

- **Leaks from water lines.** Leakage from water pipes is a common occurrence in water systems. A significant number of leaks remain undetected over long periods of time as they

are very small; however, these small leaks contribute to the overall water loss. Aging pipes typically have more leaks.

- **Water used for flushing and fire hydrant operations.**
- **Unauthorized uses or theft of water.**
- **Customer Meter Inaccuracies.** Customer meters can under-represent actual consumption in the water system.

Colton monitors its water loss and prepares an annual AWWA Water Audit, attached in **Part 4 Appendix B-8**, to estimate the volume of water loss. The results of the water audits from 2016 to 2019 are shown in **Table 2-4**. The 2020 water loss is estimated based on the difference between production and consumption for 2020.

Colton will complete a 2020 AWWA Water Audit by October 1, 2021 in accordance with reporting requirements to the State.

Table 2-4: DWR 4-4R 12 Month Water Loss Audit Reporting (AF)

REPORT PERIOD START DATE		
MM	YYYY	VOLUME OF WATER LOSS*
1	2016	927
1	2017	1,131
1	2018	577
1	2019	573
1	2020	849 (Estimated)

In the past 5 years, Colton's water loss has ranged from 7% to 13% of water sales. For the purposes of future water use projections, water loss is assumed to be 10%.

Colton is committed to managing system water losses to reduce water waste and will endeavor to meet the future water loss performance standard that is being developed by the State Water Board. A discussion of current and planned water loss management measures is included in **Section 2.8.1.5**.

2.2.2 Projected Water Use

A demand forecast tool was developed to estimate future demands based on individual customer categories and connections, with the ability to forecast how future changes in indoor and outdoor water use may impact overall water use within each different customer type for current and future customers.

The tool has three steps to project demand:

1. Establish a demand factor per connection for each customer class based on historical consumption data.
2. Project the number of new connections anticipated for each customer class in each 5-year period after 2020.
3. Modify demand factors as appropriate to account for expected changes in future water use.

The demand factors for each customer class were based on connection and demand data from calendar year 2020, which was reviewed against demand factors from other years and determined to be a reasonable representation of average demands. The number of future new connections for each customer category was estimated for each 5-year period through 2045 based on the projected SCAG population growth rate for years 2020-2035 and 2035-2045.

To estimate future water use for each customer category, the demand factor is multiplied by the number of estimated new connections and added to the 2020 use of existing customers in that category. This process is applied to each customer type, then all of the category results are added to estimate the total future water use. Projected future demands by customer class are presented in **Table 2-5**, **Table 2-6**, and **Figure 2-3**.

Table 2-5: DWR 4-2R Projected Demands for Water (AF)

	PROJECTED WATER USE				
CUSTOMER CLASS	2025	2030	2035	2040	2045
Residential	4,858	5,119	5,379	5,524	5,669
Commercial	3,746	3,947	4,148	4,260	4,371
Municipal	268	282	296	304	312
Water Loss	887	935	982	1,009	1,035
TOTAL:	**9,759**	**10,283**	**10,806**	**11,097**	**11,388**

Table 2-6: DWR 4-3R Total Gross Water Use (AF)

	2020	2025	2030	2035	2040	2045
Potable and Raw Water From Table 4-1R and 4-2R	9,244	9,759	10,283	10,806	11,097	11,388
Recycled Water Demand* From Table 6-4R	-	-	-	-	-	-
TOTAL WATER USE:	**9,244**	**9,759**	**10,283**	**10,806**	**11,097**	**11,388**

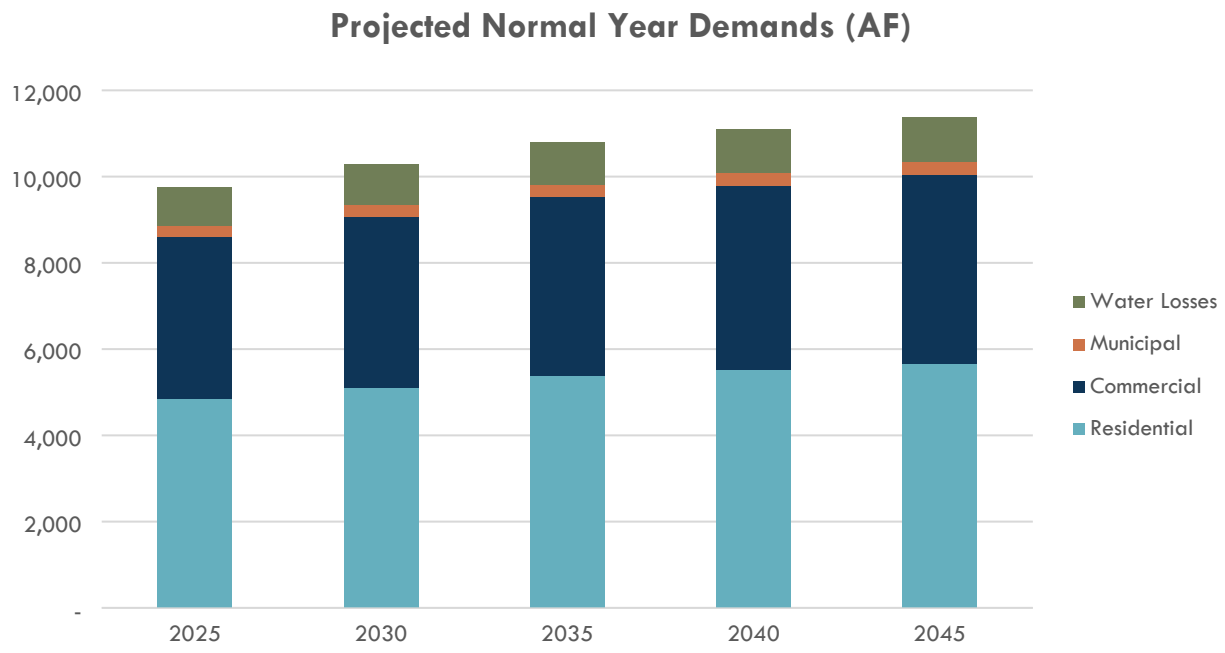

Figure 2-3: City of Colton Projected Future Water Consumption by Customer Class (AF)

2.2.2.1 Estimating Future Water Savings

The demand tool used to project future water use has the capability to modify demand factors for both new and existing connections to quantify reductions in current and future customer demand that may occur as a result of active conservation programs implemented by Colton or passive savings from more water efficient fixtures and landscapes that are required by current and future building codes and standards. Colton may use this tool in the future to consider the impacts of changing customer water use on overall demand; however, Colton has elected not to incorporate demand reductions from future conservation programs and passive savings from codes and standards into the demand projections at this time. In 2018, the legislature enacted SB 606 and AB 1668, which provide for implementation of a water budget-based approach to establishing new urban water use objectives for water suppliers. The series of water use efficiency standards that will inform calculation of Colton's new water use objective are still under development and will take effect in 2023. Once the new standards have been established, Colton will reevaluate customer demands and identify approaches to comply with the new standard, which will be incorporated into the next UWMP prepared in 2025. Colton is committed to promoting water use efficiency and will continue to implement a comprehensive set of programs intended to reduce customer demands and support sustainable use of regional water supplies.

2.2.3 Water Use for Lower Income Households

Senate Bill 1087 requires water use projections in an UWMP include the projected water use for single-family and multi-family residential housing for lower income households as identified in the housing element of any city, county, or city and county in the service area of the supplier.

The Colton Water Department serves two jurisdictions: Colton and certain unincorporated areas in the County of San Bernardino. Based on SCAG's 6th cycle final regional housing needs allocation (RHNA), it is estimated that about 37 percent of all Colton households qualify as low income. Water usage by low-income households has been included in future demand projections in **Table 2-5**.

2.2.4 Climate Change Considerations

A topic of growing concern for water planners and managers is climate change and the potential impacts it could have on California's future water supplies.

Recent climate change modeling for the SAR watershed suggests that a changing climate will have multiple effects on the Region. Adaptation and mitigation measures will be necessary to account for these effects. **Part 1 Chapter 2** includes an assessment of the potential impacts of climate change.

2.3 SBX7-7 Baseline and Targets

With the adoption of SBX7-7, also known as the Water Conservation Act of 2009, the State of California was required to reduce urban per capita water use by 20% by 2020. This section summarizes the past targets the City developed and demonstrates that compliance by 2020 was achieved.

Water use targets were developed in terms of gallons per capita per day, or GPCD, which is calculated by dividing the total water from all customer categories by the population.

DWR has prepared standardized tables to record and document the calculations required for this section. The standardized tables for Colton's calculations are included in **Part 4 Appendix B-7**.

2.3.1 Baseline and Target

Colton's baseline and 2020 target were calculated in the 2015 RUWMP and has not changed for this plan. More details on the development of the baselines and target can be found in the 2015 RUWMP and **Part 4 Appendix B-7**. Colton's calculated water use target for 2020 is 205 GPCD.

2.3.2 2020 Compliance Daily Per-Capita Water Use (GPCD)

Through the implementation of its active water conservation program, Colton has met its Confirmed Water use Target for 2020 of 205 GPCD, as shown in **Table 2-7**. To maintain this level of water use, Colton intends to continue its current level of outreach and programs for the foreseeable future.

Table 2-7: SBX 7-7 2020 Compliance

2020 WATER USE TARGET GPCD	ACTUAL 2020 GPCD	2020 SUPPLIER ACHIEVED TARGETED REDUCTION
205	177	Yes

2.4 Water Supply

Colton's water supply is comprised entirely of groundwater extracted from the Bunker Hill Basin (part of the San Bernardino Basin Area) the Rialto-Colton Basin, and the Riverside-Arlington Basin (Riverside North Basin portion). Colton does not currently import water in order to meet the demands of its service area. More information about local groundwater basins is included in **Part 1 Chapter 3** of the 2020 IRUWMP.

2.4.1 Purchased or Imported Water

Colton does not currently import water. For the period of this Plan, groundwater pumped by Colton is expected to meet all water supply needs.

2.4.2 Groundwater

Colton extracts groundwater from three adjudicated basins: Bunker Hill (part of the San Bernardino Basin or SBB), Rialto-Colton, and Riverside North Basin Areas. Colton currently utilizes three SBB wells, four Rialto-Colton Basin wells, and one Riverside North Basin well. Colton participates in several ongoing water conservation measures and contributes to regional recharge projects through the SBB Groundwater Council and Rialto Basin Groundwater Council to optimate and enhance the reliability of local groundwater resources. Relevant portions of the adjudications and judgments that govern groundwater use are discussed in Part 1, Chapter 3 of the 2020 IRUWMP.

2.4.2.1 San Bernardino Basin (or SBB, which includes the Bunker Hill Basin)

There are no restrictions on Colton’s extractions from the Bunker Hill Basin except within the Lytle Creek Region and the City of San Bernardino’s groundwater management zone, which restricts new or additional pumping. Restrictions on Colton’s rights from the Bunker Hill Basin are that all the water is to be used within the boundaries of the Valley District.

2.4.2.2 Rialto-Colton

Colton has groundwater extraction rights in the Rialto-Colton Basin. The basin was adjudicated under the 1961 Decree No. 81,264 of the Superior Court of San Bernardino County, and is managed by the Rialto Basin Management Association (stipulated parties of the judgment). When the basin's three index wells' (WVWD Well No. 11 and 13, and Rialto's Well 4) average mean groundwater level elevation is above 1002.3 feet when measured during March, April or May, Colton has no restrictions on yearly extractions. Colton has no restrictions on the rate of pumping per minute or day. When the average standing water level in the three index wells falls below 1002.3 feet msl and is above 969.7 feet msl, Colton is restricted to total groundwater extractions of 3,900 AFY. This extraction right is based on Colton's listed rights in the decree and ownership of wells listed in the decree. The extraction rights listed in the 1961 decree total 15,290 AFY.

When the average of the three index wells drops below 969.7 feet msl, ground water extractions are reduced for all parties stipulated in the decree by 1 percent per foot below the 969.7-foot level, but not to exceed 50-percent reduction. For 2020, the groundwater levels in the index wells led to a 29-percent reduction in allowable production.

Several other entities also withdraw water from the Rialto Basin. The Fontana Union Water Company (FUWC) has one well located within the basin, but was omitted from the adjudication decree. In 2018, Colton, Valley District, FUWC and Cucamonga Valley Water District entered into a Settlement Agreement that resulted in FUWCs No Man's Land production of 5,014 acre feet/year will being counted as part of the Rialto Basin production limits in the 1961 decree. These parties also agreed to form a Rialto Basin Groundwater Council (Rialto Basin GC), which was formed in 2021. The Rialto Basin GC will develop, adopt, and implement a sustainable groundwater management plan, which will include implementing groundwater recharge projects to restore groundwater levels.

Colton has a total water right allocation in the Rialto Basin of 3,900 AFY, including 890 AFY that are fixed rights and 3,010 AFY that are adjustable and subject to a percent reduction each year based on groundwater levels in the index wells. Over the previous 10 years, the average percent reduction has been nearly 30 percent, and was 29 percent in 2020. For the purposes of this plan, Colton and the other agencies who pump from the Rialto Basin are assuming a 30-percent reduction in adjustable rights in 2025 and a 2% gain in adjustable rights for every 5-year period thereafter based on planned recharge to increase water levels and adjustable rights.

> For 2025, Colton's average water supply from the Rialto Basin is expected to be 2,997 AFY (890 AFY fixed plus 3,010 AFY reduced by 30 percent). By 2045, the average water supply is assumed to increase to 3,238 AFY.

The City of Colton's historical production for the past five years is shown in **Table 2-8**.

Table 2-8. DWR 6-1R Groundwater Volume Pumped (AF)

GROUNDWATER TYPE	LOCATION OR BASIN NAME	2016	2017	2018	2019	2020
Alluvial Basin	Bunker Hill (part of SBB)	3,022	3,930	3,698	2,944	2,623
Alluvial Basin	Rialto-Colton	2,485	1,983	1,931	1,943	2,899
Alluvial Basin	Riverside-Arlington (North)	3,607	3,755	3,985	3,708	3,722
	TOTAL:	**9,114**	**9,668**	**9,614**	**8,595**	**9,244**

2.4.3 Surface Water

Colton currently has no plans for future use of surface water supplies.

2.4.4 Stormwater

Colton is participating in regional project planning efforts to capture additional stormwater for purposes of groundwater recharge to increase sustainability of the basins Colton produces water from. These regional projects are discussed in **Chapter 3**.

2.4.5 Wastewater and Recycled Water

The City of Colton owns, operates, and maintains a wastewater collection, pumping and treatment system. The wastewater treatment plant also serves the City of Grand Terrace and unincorporated San Bernardino County areas. The plant utilizes a conventional and extended aeration secondary treatment process to product treated effluent in compliance with Regional Water Quality Control Board regulations.

Treated effluent from Colton's wastewater treatment plant is conveyed to the Rapid Infiltration-Extraction (RIX) facility, which Colton jointly owns with SBMWD. The RIX facility treats a combined secondary-treated effluent stream of approximately 5 million gallons per day (MGD) from Colton's WWTP and 20 MGD from the San Bernardino Water Reclamation Plant to tertiary standards. The RIX facility utilizes natural biofiltration through the use of percolation basins, followed by an ultraviolet disinfection system. All of the RIX-treated water is discharged to the Santa Ana River.

> It is estimated that approximately 73% or 3.7 MGD of the wastewater collected at the City of Colton WWTP was generated within Colton's water service area in 2020.

Information about wastewater collected and treated is presented in **Table 2-9** and **Table 2-10**.

Table 2-9. DWR 6-2R Wastewater Collected within Service Area in 2020 (AF)

WASTEWATER COLLECTION			RECIPIENT OF COLLECTED WASTEWATER			
NAME OF WASTEWATER COLLECTION AGENCY	WASTEWATER VOLUME METERED OR ESTIMATED	WASTEWATER VOLUME COLLECTED FROM UWMP SERVICE AREA IN 2020	NAME OF WASTEWATER AGENCY RECEIVING COLLECTED WASTEWATER	WASTEWATER TREATMENT PLANT NAME	WASTEWATER TREATMENT PLANT LOCATED WITHIN UWMP AREA	WWTP OPERATION CONTRACTED TO A THIRD PARTY
City of Colton	Metered	4,092	City of Colton	Colton Water Reclamation Facility	Yes	No
	TOTAL:	**4,092**				

Table 2-10. DWR 6-3R Wastewater Treatment and Discharge within Service Area in 2020 (AF)

-							2020 VOLUMES				
WASTEWATER TREATMENT PLANT NAME	DISCHARGE LOCATION NAME OR IDENTIFIER	DISCHARGE LOCATION DESCRIPTION	WASTEWATER DISCHARGE ID NUMBER	METHOD OF DISPOSAL	PLANT TREATS WASTEWATER GENERATED OUTSIDE THE SERVICE AREA	TREATMENT LEVEL	WASTEWATER TREATED	DISCHARGED TREATED WASTEWATER	RECYCLED WITHIN SERVICE AREA	RECYCLED OUTSIDE OF SERVICE AREA	INSTREAM FLOW PERMIT REQUIREMENT
Colton Water Reclamation Facility	Rapid Infiltration/Extraction (RIX) Plant	to RIX for additional treatment		Other	Yes	Secondary, Disinfected - 2.2	5,627	5,627			
RIX		Santa Ana River		River of creek outfall	Yes	Tertiary	29,816	29,816			
						TOTAL:	**35,443**	**35,443**	**-**	**-**	**-**

2.4.5.1 Potential, Current, and Projected Recycled Water Uses

No recycled water is currently used in the Colton service area. Construction of such facilities is cost prohibitive at this time and no recycled water use is anticipated during the period covered by this Plan. More information about the regional approach for utilizing recycled water for direct use and meeting habitat needs in the Santa Ana River is presented in **Part 1 Chapter 3**.

2.4.6 Water Exchanges and Transfers

Colton does not anticipate regular or long-term transfers or exchanges, during the period covered by this Plan. Any transfer or exchanges would be as-needed related to an emergency.

2.4.6.1 Emergency Interties

Colton has two emergency water system connections with the City of San Bernardino (1,000 GPM and 800 GPM); one with the City of Riverside (800 GPM); two with Riverside Highland Water Company (1,000 GPM and 800 GPM), and one with WVWD (1,500 GPM).

2.4.6.2 Future Water Projects

The City recently completed a Water Master Plan to identify necessary upgrades to its water distribution system. These projects are intended to increase the reliability of the City's system; they are not intended to create new sources of supply. The City recently completed Well 30 in the Riverside North Basin. Well 31, also in the Riverside North Basin, has been drilled but has not yet been outfitted.

2.4.7 Summary of Existing and Planned Sources of Water

Colton's water supply is comprised entirely of groundwater extracted from the San Bernardino Basin Area (Bunker Hill Basin portion), the Rialto-Colton Basin, and the Riverside-Arlington Basin (Riverside North Basin portion). This same mix of supplies is anticipated to be used in the future.

The volume of water utilized from each source in 2020 is summarized in **Table 2-11** and projected supply by source is summarized in **Table 2-12**.

Table 2-11. DWR 6-8R Actual Water Supplies in 2020 (AF)

		2020		
WATER SUPPLY	ADDITIONAL DETAIL ON WATER SUPPLY	ACTUAL VOLUME	WATER QUALITY	TOTAL RIGHT OR SAFE YIELD
Groundwater (not desalinated)	Bunker Hill (part of SBB)	2,623	Drinking Water	See Note
Groundwater (not desalinated)	Rialto-Colton	2,899	Drinking Water	See Note
Groundwater (not desalinated)	Riverside North	3,722	Drinking Water	See Note
	TOTAL:	**9,244**		-

See Part 1, Chapter 3 for discussion of safe yield of regional groundwater basins

Table 2-12. DWR 6-9R Projected Water Supplies (AF)

		PROJECTED WATER SUPPLY				
		2025	2030	2035	2040	2045
WATER SUPPLY	ADDITIONAL DETAIL ON WATER SUPPLY	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME	REASONABLY AVAILABLE VOLUME
Groundwater (not desalinated)	Bunker Hill (part of SBB)	4,425	4,968	5,510	5,784	6,058
Groundwater (not desalinated)	Rialto-Colton	2,800	2,800	2,800	2,801	2,802
Groundwater (not desalinated)	Riverside-Arlington	3,800	3,800	3,800	3,800	3,800
Purchased or Imported Water	State Water Project - Rialto Colton Groundwater Supplemental Supply	197	257	317	377	436
	TOTAL:	**11,222** -	**11,825** -	**12,427** -	**12,762** -	**13,096**

Supplies shown in this table are planned pumping or diversions, except supplies from San Bernardino Basin are increased to meet the Total Supply Target with 15% Reliability Factor.

Table 2-13. DWR 7-2R Normal Year Supply and Demand Comparison (AF)

	2025	2030	2035	2040	2045
Supply Totals From Table 6-9R	11,222	11,825	12,427	12,762	13,096
Demand Totals From Table 4-3R	9,759	10,283	10,806	11,097	11,388
DIFFERENCE:	**1,463**	**1,542**	**1,621**	**1,665**	**1,708**

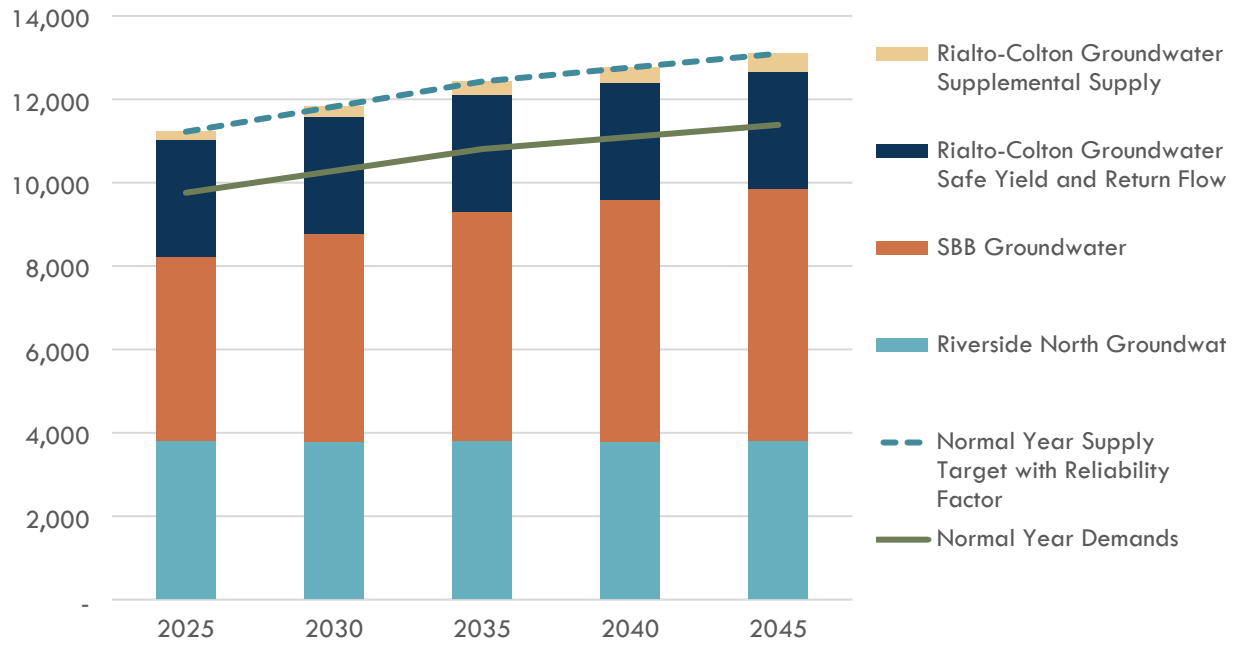

Figure 2-4: City of Colton Projected Supply and Demand Comparison (AF)

2.4.8 Energy Intensity

Reporting water energy intensity has many benefits for water utilities and their customers including:

- Identifying energy saving opportunities as energy consumption is often a large portion of the cost of delivering water.
- Calculating energy savings and greenhouse gas (GHGs) emissions reductions associated with water conservation programs.
- Potential opportunities for receiving energy efficiency funding for water conservation programs.
- Informing climate change mitigation strategies.
- Benchmarking of energy use at each water acquisition and delivery step and the ability to compare energy use among similar agencies.

Colton has two major contributors to water facility energy consumption: well consumption and water treatment. The energy consumption for each of these processes in 2019 are as follows:

- Well Production = 4,562,560 kWh
- Water Treatment = 4,898,000 kWh

In 2019, Colton consumed a total of 9,460,560 kWh of energy for water facilities, for an energy intensity of 1,114 kWh per AF.

2.5 Water Service Reliability Assessment

This section considers Colton's water supply reliability during normal years, single dry years, and up to 5 consecutive dry water years. The supply reliability assessment discusses factors that could potentially limit the expected quantity of water available from Colton's current source of supply through 2045.

2.5.1 Constraints on Water Sources

Perchlorate was first detected in Colton's water supply wells in the Rialto-Colton Basin (RCB) in 1997. Colton evaluated best available treatment technologies for perchlorate, and two ion exchange treatment systems were installed in 2003 to treat water from three wells (Colton -15, -17 and -24). These systems are still in use.

Ongoing investigations by Colton and others in 2009 and 2010 have shown that the perchlorate plume persists. Until basin-wide efforts are implemented by the responsible parties to remediate the perchlorate, Colton will continue to use wellhead treatment systems.

Based on current conditions, water quality is not expected to affect Colton's supply reliability. However, water quality issues are constantly evolving. Colton will take action to protect and treat supplies when needed, though water quality treatment is known to have significant costs.

2.5.2 Year Type Characterization

In general, groundwater is less vulnerable to seasonal and climatic changes than surface water (i.e. local and imported) supplies. The Western-San Bernardino Watermaster, in collaboration with the BTAC, monitor groundwater levels and implement supplemental recharge to maintain long term sustainability of local groundwater sources. Further discussion of regional water resource management is included in **Part 1 Chapter 3**.

Per UWMP requirements, Colton has evaluated reliability for an average year, single dry year, and a 5 consecutive dry year period. The UWMP Act defines these years as:

- **Normal Year:** this condition represents the water supplies a supplier considers available during normal conditions. This could be a single year or averaged range of years that most closely represents the average water supply available.
- **Single Dry Year:** the single dry year is recommended to be the year that represents the lowest water supply available.
- **Five-Consecutive Year Drought:** the driest five-year historical sequence for the Supplier, which may be the lowest average water supply available for five years in a row.

2.5.3 Water Service Reliability

The results of the reliability assessment are summarized in the tables below.

Under single dry and consecutive dry year conditions, the assessment assumes that demands will increase by as much as 10% due to increased outdoor water use. Although water use may decrease in the later years of a multiple year drought due to implementation of conservation measures and drought messaging, the assessment is based on a 10% increase throughout the 5-year drought to be conservative.

As described in **Part 1 Chapter 3**, the effects of a local drought are not immediately recognized since the region uses the local groundwater basins to simulate a large reservoir for long term storage. Colton is able to pump additional groundwater from Bunker Hill and Riverside North to meet increased demands in dry years and participates in efforts to replenish the basins with imported and local water through regional recharge programs. Colton's groundwater supplies are not reduced in dry years so 2020 is considered the base year for all year types. Based on the analysis, Colton does not anticipate any shortage due to single or consecutive dry years. Even though localized drought conditions should not affect supply, Colton participates in several ongoing water conservation measures and regional recharge projects to optimize and enhance the use and reliability of regional water resources. Colton also has a water shortage contingency plan to put into action as appropriate to reduce the demand during critical drought years or other supply emergencies.

A summary of the basis of water year data is presented in **Table 2-14**. The percent of average supply increases in drought years because Colton's groundwater production will increase to meet an assumed increase in demands.

Table 2-14. Basis of Water Year Data

YEAR TYPE	BASE YEAR	AVAILABLE SUPPLY IF YEAR TYPE REPEATS AS PERCENT OF AVERAGE SUPPLY
Average Year	2020	100%
Single-Dry Year	2020	110%
Consecutive Dry Years 1st Year	2020	110%
Consecutive Dry Years 2nd Year	2020	110%
Consecutive Dry Years 3rd Year	2020	110%
Consecutive Dry Years 4th Year	2020	110%
Consecutive Dry Years 5th Year	2020	110%

The projected supply and demand during a normal year are shown in **Table 2-13**.

The projected supply and demand during a single dry year are shown in **Table 2-15**. Colton's demands in single dry years are assumed to increase by 10% above normal year demands. The local groundwater basins Colton produces water from have storage for use in dry years so Colton can produce the volume of water needed to meet 100% of demands in single dry years. Colton's supplies are 100% reliable during single dry years.

Table 2-15. DWR 7-3R Single Dry Year Supply and Demand Comparison (AF)

-	2025	2030	2035	2040	2045
Supply Totals	12,345	13,007	13,670	14,038	14,405
Demand Totals	10,734	11,311	11,887	12,207	12,526
DIFFERENCE:	**1,610**	**1,697**	**1,783**	**1,831**	**1,879**

The projected supply and demand during five consecutive dry years are shown in **Table 2-16**. Colton's demands in multiple dry years are assumed to increase by 10% above normal year demands. The local groundwater basins Colton produces water from have storage for use in dry years so Colton can produce the volume of water needed to meet 100% of demands in multiple dry years. Colton's supplies are 100% reliable during multiple dry years.

Table 2-16. DWR 7-4R Multiple Dry Years Supply and Demand Comparison (AF)

		2025	2030	2035	2040	2045
First Year	Supply Totals	12,345	13,007	13,670	14,038	14,405
	Demand Totals	10,734	11,311	11,887	12,207	12,526
	DIFFERENCE:	**1,610**	**1,697**	**1,783**	**1,831**	**1,879**
Second Year	Supply Totals	12,345	13,007	13,670	14,038	14,405
	Demand Totals	10,734	11,311	11,887	12,207	12,526
	DIFFERENCE:	**1,610**	**1,697**	**1,783**	**1,831**	**1,879**
Third Year	Supply Totals	12,345	13,007	13,670	14,038	14,405
	Demand Totals	10,734	11,311	11,887	12,207	12,526
	DIFFERENCE:	**1,610**	**1,697**	**1,783**	**1,831**	**1,879**
Fourth Year	Supply Totals	12,345	13,007	13,670	14,038	14,405
	Demand Totals	10,734	11,311	11,887	12,207	12,526
	DIFFERENCE:	**1,610**	**1,697**	**1,783**	**1,831**	**1,879**
Fifth Year	Supply Totals	12,345	13,007	13,670	14,038	14,405
	Demand Totals	10,734	11,311	11,887	12,207	12,526
	DIFFERENCE	**1,610**	**1,697**	**1,783**	**1,831**	**1,879**

2.6 Drought Risk Assessment

The Drought Risk Assessment (DRA) is a new analysis required for the 2020 UWMP, with a focus on the five-year consecutive drought scenario beginning in 2021. Because Colton has access to groundwater basins with significant storage, total available supplies do not vary on a monthly or seasonal basis, so this analysis is conducted on an annual basis. Projected demands and supplies from 2021-2025 are shown in **Table 2-17**.

Demands for 2021 – 2025 were assumed to increase at a uniform rate between the 2020 actual use and 2025 projected use and were then increased by 10% to reflect higher anticipated demands during dry years. This DRA uses the same water supply reliability assumptions used in the Water Service Reliability Assessment described in Section 2.5 and the 15% Reliability Factor is also applied to supplies in this DRA, therefore, this analysis shows a 15% supply surplus for Colton. Colton can produce additional groundwater to meet any increases in demand in dry years.

As shown in **Part 1 Chapter 5**, the region as a whole has sufficient supplies to meet demands plus the 15% Reliability Factor, even in a 5-year drought. As shown in **Part 1 Chapter 5 Figure 5-1**, the SBB had over 4.8 million acre-feet in storage as of 2020 due to regional efforts to store water in wet years for use during dry years.

> Although projections in this Plan show that the regional water supplies are sufficient to meet the demands of Colton and the Region as a whole, even during a 5-year drought (see Part 1 Chapter 5), Colton remains committed to water conservation and to being a good steward of regional water resources to preserve supplies for the future due to the possibility of experiencing more severe droughts than anticipated in this Plan.

Table 2-17: Five-Year Drought Risk Assessment (AF)

2021	Gross Water Use	10,282
	Total Supplies	11,824
	SURPLUS	**1,542**
2022	Gross Water Use	10,395
	Total Supplies	11,954
	SURPLUS	**1,559**
2023	Gross Water Use	10,508
	Total Supplies	12,084
	SURPLUS	**1,576**
2024	Gross Water Use	10,621
	Total Supplies	12,214
	SURPLUS	**1,593**
2025	Gross Water Use	10,734
	Total Supplies	12,345
	SURPLUS	**1,610**

2.7 Water Shortage Contingency Plan

The Water Shortage Contingency Plan (WSCP), which is a strategic plan that Colton uses to prepare for and respond to foreseeable and unforeseeable water shortages. A water shortage occurs when water supply available is insufficient to meet the normally expected customer water use at a given point in time. A shortage may occur due to a number of reasons, such as water supply quality changes, climate change, drought, regional power outage, and catastrophic events (e.g., earthquake). Additionally, the State may declare a statewide drought emergency and mandate that water suppliers reduce demands, as occurred in 2014. The WSCP serves as the operating manual that Colton will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages. The WSCP provides a process for an annual water supply and demand assessment and structured steps designed to respond to actual conditions. The level of detailed planning and preparation provide accountability and predictability and will help Colton maintain reliable supplies and reduce the impacts of any supply shortages and/or interruptions.

> The WSCP was prepared in conjunction with the 2020 IRUWMP and is a standalone document that can be modified as needed. Colton's WSCP is attached as Part 4 Appendix B-9.

2.8 Demand Management Measures

The City of Colton is committed to an effective water conservation program and has had a program in place since 1997. The Demand Management Measures (DMM) section provides a comprehensive description of the water conservation programs that Colton has implemented for the past five years, is currently implementing, and plans to implement in order to maintain reliability of groundwater supplies.

2.8.1 Existing Demand Management Measures

Consistent with the requirements of the CWC, this section describes the required demand measurement measures (DMM) that have been implemented in the past five years and will continue to be implemented into the future.

2.8.1.1 Water Waste Prevention Ordinances

Colton supports measures prohibiting gutter flooding, single-pass cooling systems in new connections, non-recirculating systems in all new conveyor car wash and commercial laundry systems, and nonrecycling decorative water fountains. As part of their 2010 UWMP, Colton prepared a draft no-waste ordinance, An Ordinance of the City Council of the City of Colton Prohibiting the Wasteful Use of Water and Setting Forth Regulations and Restrictions on Water Use.

Colton has full authority to adopt and enforce ordinances through their municipal codes. The no-waste ordinance was adopted in September of 2014 and updated in June of 2015 (both attached in Part 4, Appendix B-9). Colton will enforce the no-waste ordinance, including responding to reported or observed violations and educating and assisting the user in corrective action.

2.8.1.2 Metering

All of Colton's customers (residential and commercial) are metered, as are all new connections. All customers are billed with commodity rates. Colton has a meter maintenance and replacement plan where meters are replaced either when they fail or every 10 years.

2.8.1.3 Conservation Pricing

Colton bills all domestic water accounts volumetrically, per 100 cubic feet of use, plus a monthly service based on meter size. Based on the ratio of volumetric to total charges over the past five years.

2.8.1.4 Public Education and Outreach

The public information program encourages Colton's customers to conserve water and provides a means by which customers can measure the effectiveness of water conservation efforts.

Specific program components include:

- Informational pamphlets on landscaping using water efficient methods for distribution with utility bills;
- Current water bills show the current months versus the past few months. The City of Colton is looking to change this to show the same month in the last several years;
- Distribution of pamphlets which include specific conservation practices; facts concerning state, local, residential, and individual water consumption statistics; and waste statistics;
- Colton is working to get a web based water conservation tool in place that shows usage comparisons, and provide monthly reports; and
- Providing water conservation information on public access television (Channel 3) and postings on social media at Colton Public Utilities Facebook and Twitter pages.
- The City is working to coordinate school visits where possible and will visit should a school/teacher reach out utilizing Project WET curriculum.
- The Water Conservation division coordinates with customers using Flume technology to identify possible leaks in the home or outdoors.
- Providing education on the City's website https://www.ci.colton.ca.us/515/Conservation
- Participates in the City's annual community earth day event educating the public on water efficiency efforts

2.8.1.5 Programs to Assess and Manage Distribution System Water Loss

Colton plans to implement the standard water audit approach per Manual 36. The AWWA water audit methodology will be performed annually and losses carefully monitored. To date, Colton has been conducting system water audits, leak detection and repair as necessary in order to maintain its distribution system. Meters that are 2 inches or less are repaired or replaced as-needed, if found to be operating incorrectly. Defective meters are usually found by the meter reader or by the customer service department, which reviews consumption histories. Colton maintains a complete record and map of distribution system leaks and repairs. Analysis of this record allows pipelines and other facilities to be scheduled for replacement as part of Colton's capital improvement program. Most of the older, steel water mains throughout Colton have been replaced, greatly reducing the incidence of leaks within the distribution system. Maintenance crews are on call at all times to respond to water leaks, pipeline ruptures, and damaged facilities as needed. Continued implementation of water loss control practices and procedures is not anticipated to have an effect on Colton's ability to further reduce demand.

Colton is looking into developing a program to perform water audits in conjunction with electrical audits.

2.8.1.6 Water Conservation Program Coordination and Staffing Support

In 2013 a Water Conservation Specialist was hired and in 2015 they were promoted to Senior Water Conservation Specialist. In 2019, the City also hired Management Interns to assist in water waste reporting.

2.8.1.7 Other Demand Management Measures

All building codes are up to date and the City of Colton offers rebates for: high efficiency toilets, dishwashers, washing machines, shower heads, sprinkler heads, weather based irrigation timers, drought tolerant plants, drip irrigation systems, and mulch. We also offer a turf removal incentive. The rebate amounts are considered on a case by case basis. This means that, for example, if a customer applies for a rebate for 30 toilets, we would assess our budget to see if we can provide them a $100 rebate for all 30 toilets. The same "formula" would apply for all rebates except the outdoor. Commercial Customers can apply for up to $5000 for turf, and up to $2500 for drought tolerant plants, drip, and mulch combined.

> Colton is in the planning phase for direct install program of efficient fixtures for multi-family properties. As well as a program where a contractor will remove grass lawns or landscapes and plant drought tolerant landscaping for commercial properties. Colton is also in the process of installing City wide weather controlled smart irrigation controllers for all City owned landscape maintenance areas including parks and medians.

2.9 Adoption, Submittal and Implementation

This section describes Colton's process for adopting, submitting, and implementing the 2020 IRUWMP and Colton's WSCP.

2.9.1 Notice of Public Hearing

A joint notice was provided on behalf of all agencies whose 2020 UWMPs are part of the 2020 IRWUMP to all cities and counties and other stakeholders within the region that that 2020 IRUWMP is being prepared. This notice was sent at least 60 days prior to Colton's public hearing. The recipients are identified in **Part 1 Chapter 1** and include all cities and counties within Colton's service area. A second notice was provided to these cities and counties with the date and time of the public hearing and the location where the draft report was available for review.

Colton provided notice to the public through its website and published announcements of the public hearing in a newspaper on two occasions before the hearing. Copies of the proof of publication are included in Part 4 Appendix B-2.

2.9.2 Public Hearing and Adoption

Colton held a public hearing on June 15, 2021 to hear public comment and consider adopting this 2020 IRUWMP and Colton's WSCP.

As part of the public hearing, the Colton provided information on their baseline values, water use targets, and implementation plan required in the Water Conservation Act of 2009. The public hearing on the 2020 IRUWMP took place before the adoption of the Plan, which allowed Colton the opportunity to modify the 2020 IRUWMP in response to any public input before adoption. After the hearing, the Plan was adopted as prepared or as modified after the hearing.

Colton's adoption resolution for the 2020 IRUWMP and Colton's WSCP is included in Part 4 Appendix B-3.

2.9.3 Plan Submittal

Colton will submit the 2020 IRUWMP and Colton's WSCP to DWR, the State Library, and cities and counties within 30 days after adoption.

2020 IRUWMP submittal to DWR will be done electronically through WUEdata, an online submittal tool.

2.9.4 Public Availability

No later than 30 days after filing a copy of its Plan with DWR, Colton will make the plan available for public review during normal business hours by placing a copy of the 2020 IRUWMP and Colton's WSCP at the front desk of the City's office, and by posting the plans on the City's website for public viewing.

2.9.5 Amending an Adopted UWMP or Water Shortage Contingency Plan

If the adopted 2020 IRUWMP or Colton's WSCP is amended, each of the steps for notification, public hearing, adoption, and submittal will also be followed for the amended plan.