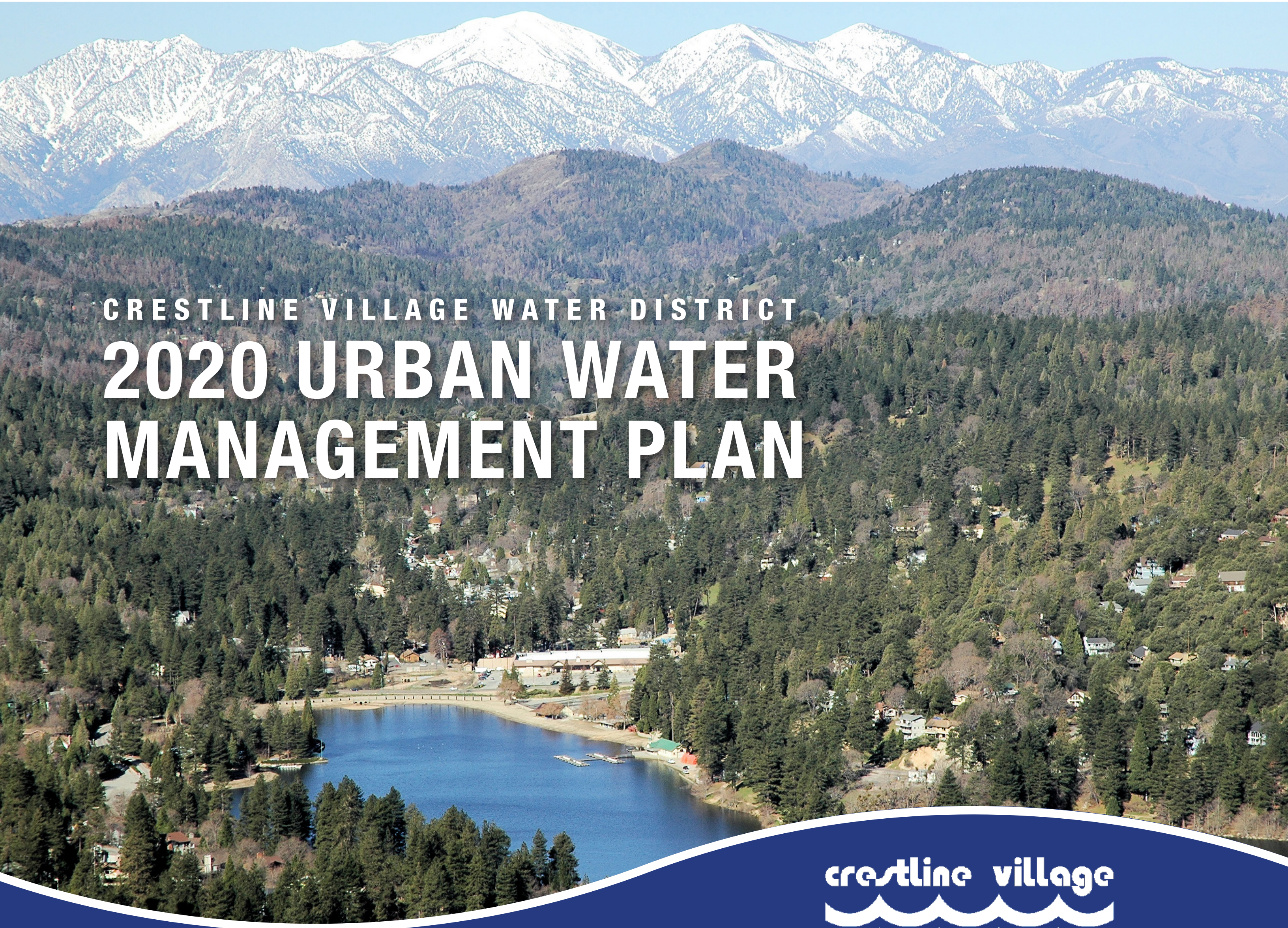

CRESTLINE VILLAGE WATER DISTRICT

2020 URBAN WATER MANAGEMENT PLAN

ADOPTED JUNE 15, 2021

crestline village WATER DISTRICT

PREPARED BY

ALBERT A. WEBB ASSOCIATES

crestline village
WATER DISTRICT

P.O. Box 3347
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Crestline, CA 92325-3347
(909) 337-1727
General Manager: Jordan W. Dietz

2020 Urban Water Management Plan

Adopted June 15, 2021

Prepared by:

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Acronyms

ACS	American Community Survey
AMI	Advanced Meter Infrastructure
AWWA	American Water Works Association
BDCP	Bay Delta Conservation Plan
BMP	Best Management Practice
CASGEM	California Statewide Groundwater Elevation Monitoring
CCR	California Code of Regulations
CDP	Census Designated Place
CEC	California Energy Commission
CIMIS	California Irrigation Management Information System
CLAWA	Crestline-Lake Arrowhead Water Agency
CSD	Crestline Sanitation District
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CVWD	Crestline Village Water District
CWC	California Water Code
CWP	California Water Plan
DAC	Disadvantaged Community
DCR	Delivery Capability Report
DDW	Division of Drinking Water
DMM	Demand Management Measure

Acronyms

DWR	Department of Water Resources
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
GAC	Granulated Activated Carbon
HMP	Hazard Mitigation Plan
IGC	Independent Geo-Environmental Consultants
ILI	Infrastructure Leaking Index
LACSD	Lake Arrowhead Community Services District
LAFCO	Local Agency Formation Commission (of San Bernardino County)
LGWC	Lake Gregory Water Company
MHI	Median Household Income
MOU	Memorandum of Understanding
MJHMP	Multi-Jurisdictional Hazard Mitigation Plan
N/A	Not Applicable
NOAA	National Oceanic and Atmospheric Administration
PWS	Public Water System
PWSS	Public Water System Statistics
RWQCB	Regional Water Quality Control Board
SB	California Senate Bill
SBVMWD	San Bernardino Valley Municipal Water District
SGMA	2014 Sustainable Groundwater Management Act
SGPWA	San Gorgonio Pass Water Agency
SWP	State Water Project
SWRCB	State Water Resources Control Board
THMs	Trihalomethanes
UWMP	Urban Water Management Plan
WEBB	Albert A. Webb Associates
WRCC	Western Regional Climate Center
WSCP	Water Shortage Contingency Plan
WUE	Water Use Efficiency

Units of Measurement and Chemical Symbols

AF	Acre Feet
AF/Yr	Acre Feet per Year
°C	Celsius
CCF	Hundred Cubic Feet
CF	Cubic Feet
CY	Calendar Year
ET_O	Reference Evapotranspiration Rate
°F	Fahrenheit
FY	Fiscal Year
GPCD	Gallons per Capita per Day

Acronyms

GPM	Gallons per Minute
MGD	Million Gallons per Day

CHAPTER 1 INTRODUCTION AND LAY DESCRIPTION

1.1 REGULATORY BACKGROUND

As specified in the California Water Code (CWC or Water Code) Sections §10608-10656, Urban Water Management Plans (UWMPs or Plans) are required by urban water suppliers pursuant to the Urban Water Management Planning Act of 1983. An urban water supplier may be publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet (AF) of water annually. UWMPs are intended to support long-term resource planning by urban water suppliers, and to ensure adequate water supplies are available to meet existing and future water demands.

Every urban water supplier is also required by the Water Conservation Act of 2009 (SB X7-7) to report its progress toward a 20-percent reduction in per-capita urban water consumption by the year 2020. UWMPs must be updated by the urban water supplier at least once every five years and submitted to the Department of Water Resources (DWR). DWR staff then reviews the submitted plans to make sure they have completed the requirements identified in the CWC, Sections §10608–10656, then submits a report to the Legislature summarizing the status of the plans.

Since adoption of the 2015 Crestline Village Water District UWMP, the Urban Water Management Planning Act has been significantly expanded and revised (WEBB(a)). The most significant of the many new requirements and additions to the 2020 Plan are:

- Reporting of water loss for the previous five years and inclusion of annual water audits;
- Creating a drought risk assessment for the five-year period of 2021 through 2025;
- Assessing seismic risk to District facilities and creating a mitigation plan for them;
- Developing a water shortage contingency plan that takes into account drought and catastrophic supply interruptions; and
- Detailed examination throughout the Plan of the potential effects of climate change on water use and demand.

The purpose of the 2020 UWMP is to outline progress toward conservation and supply reliability goals since the 2015 UWMP was prepared, and to outline future long-term opportunities to meet projected water demands. To be clear, the identification of future potential opportunities for water supplies in the UWMP neither commits CVWD to any stated endeavor, nor precludes them from exploring a different project that is not identified in the UWMP.

The sections of the CWC that apply to UWMPs (§10608–10656) require water suppliers to report, describe, and evaluate:

- Water deliveries;
- Water supply sources;
- Reasonable and practical water uses;
- Demand management measures; and
- Water shortage contingency planning.

Another purpose of the UWMP is to obtain eligibility for any water management grant or loan administered by DWR. In order for CVWD to be eligible, it must have a current UWMP on file that has been determined by DWR to address the requirements of the CWC. A current UWMP must also be maintained by CVWD throughout the term of any grant or loan administered by DWR.[1] Beginning in 2016, retail water suppliers like CVWD are also required to comply with the water conservation requirements in SB X7-7 in order to be eligible for State water grants or loans (CWC §10608.56(a)).

A further purpose of this document is to inform the future needs of the District to its wholesale imported water provider, which is Crestline-Lake Arrowhead Water Agency (CLAWA). Likewise, this document is also intended to communicate forecasted growth to the wastewater services provider, Crestline Sanitation District (CSD).

Albert A. Webb Associates (WEBB) is the District Engineer for CVWD and has prepared this Plan with staff guidance and submits this document on their behalf with the review and

[1] A UWMP may also be required in order to be eligible for other State funding sources other than DWR, depending on the conditions that are specified in the funding guidelines.

approval of the CVWD Board of Directors. A copy of Resolution No. 470 to adopt this UWMP by the CVWD Board of Directors on June 15, 2021 is provided in **Appendix A**.

1.2 SIMPLE LAY DESCRIPTION OF 2020 UWMP FINDINGS

Water Code Section 10630.5 requires water suppliers to provide a simple lay description that describes the supplier's plans for water availability and strategies for meeting future requirements and needs. This requirement is met in this simple description.

CVWD was organized on January 19, 1954 and was originally known as the Crestline Village County Water District and served only the immediate Crestline area, with approximately 1,600 service connections. By the end of CY 2020, there were 4,892 connections in the District, the vast majority of which (4,659) were Single Family Residential. All of CVWD's water supplies were from local sources until Crestline-Lake Arrowhead Water Agency (CLAWA) began delivering imported water to local suppliers in 1972. Imported water in this report implies water from the Sacrament/San Joaquin Delta and delivered to CLAWA via the State Water Project (SWP) facility, Silverwood Lake. Since then, CVWD has relied on both local and imported water supplies. The area served by CVWD has grown over the years as additional land has been annexed, and now covers 2,840 acres (4.4 square miles) of unincorporated San Bernardino County and includes the mountain communities of Crestline, Lake Gregory, and portions of Twin Peaks and Valley of Enchantment areas. To illustrate the CVWD service area boundary in relation to surrounding features, a regional vicinity map is provided in **Figure 1-1**, a city/community vicinity map in **Figure 1-2,** and a topographic map in **Figure 1-3** (all figures are located at the end of the chapter).

The District is governed by a five-member Board of Directors that are elected by the registered voters of the District and serve four-year terms. Day-to-day operations are managed by the General Manager who currently oversees a staff of 15 people. The Mission Statement of Crestline Village Water District (CVWD or District) states: "To provide our community with a reliable water system that delivers high quality water for its health and safety needs."

Over the past five years since the 2015 UWMP was adopted, CVWD has been successful in meeting the goals and intent of the Urban Water Management Planning Act of 1983 and the Water Conservation Act of 2009. During that time, the District has accomplished the following:

- Supplied 309,927 hundred cubic feet (CCF) of potable drinking water to 4,892 service connections serving an estimated population of 8,215 people in CY 2020.
- Achieved 77 gallons per capita per day (GPCD) for CY 2020 and met the District's SB X7-7 target water use goal of 161 GPCD for 2020, thus the target reduction has been met and the District is compliant with SB X7-7.
- Updated the Emergency Response Plan and Hazard Mitigation Plan in 2018, including information on the risks and mitigation of seismic hazards. The District was a participating special district with San Bernardino County's *Multi-Jurisdictional Hazard Mitigation Plan* (2017).
- Adopted a new water rate schedule in 2020 for the next five years, which provides financial disincentives for water waste in the form of surcharges through successive declared drought phases, serving to promote water conservation in dry years.
- Coordinated with CLAWA with regard to water supply reliability aspects of this UWMP.
- Coordinated with the San Bernardino County Land Use Services Department to determine current and projected land uses within the existing or anticipated service area affecting the District's water management planning, pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.
- Transitioned from its previous customer management software to a new Tyler system and server in 2019 to improve customer billing accuracy and its ability to preemptively monitor and manage leaks.
- Began recertifying in 2019 and 2020 every currently installed meter and updating their software.
- Began a program in 2020 that ultimately replaced all 4,892 meter transmission units (MTUs) to help improve metering accuracy.

District Population, Supply, and Demand

Using DWR's methodology, this Plan estimates the District's full-time 2020 population at 8,215 persons and, based on data produced by the Southern California Association of Governments

(SCAG) for unincorporated San Bernardino County, forecasts that it will rise by 953 additional full-time residents to 9,168 by 2045, a 12-percent increase. Water use in the Crestline community is highly seasonal, with many residences used intermittently as short-term rentals or vacation homes such that on a holiday weekend for example, the population can quickly double (HMP, p. 3). Full-time residents constitute 58 percent of total connections, which is coincidentally the average percentage over the past 25 years. By 2040, the District's normal year total water demand is estimated to be approximately 373,993 CCF (858.6 AF), an increase of approximately 64,000 CCF (146.9 AF) from 2020.

CVWD produces water locally from 39 wells located on 22 individual sites. Historically, the District has had as many as 50 wells. These wells are in fractured rock aquifers typical of the mountain region, so they are dependent on and responsive to annual precipitation. When local well production is not sufficient to meet local demand, CVWD purchases supplemental water supply from CLAWA, which is a State Water Project (SWP) Contractor and the water wholesaler to the San Bernardino Mountains area. CVWD has nine connections to the CLAWA water system; so, depending on their location, customers may receive a mixture of well water and imported water, just well water or just imported water. Based on average well production and purchased water from the last 20 years, approximately half of the District's annual supply has come from wells and the remainder from purchased imported water.

During years of extreme drought, imported water purchased from CLAWA makes up a considerable proportion of the total water supply. For example, in 1990 more than 84 percent of CVWD supplies came from imported water purchased from CLAWA. On the other hand, local CVWD wells have been able to meet nearly 80 percent of annual customer demand several times over the past 20 years. This is due in part to CVWD adding several wells from 1994 through 2004. In 2020, which was considered an average rainfall year, CVWD wells provided 68 percent of the total, while supplies purchased from CLAWA made up 32 percent of the total water supply.

Consideration of drought conditions and potential effects of climate change both statewide and in the District service area are equally important because water supply projections made in this plan are based on the District's recorded roughly equal reliance on local sources of water and imported water purchased through CLAWA.

Supplemental water purchased from CLAWA has been treated at CLAWA's water treatment facility at Silverwood Lake. Water produced locally from CVWD's wells meets applicable drinking water standards and does not require treatment, other than chlorination of some wells. CVWD chlorinates water from its Pioneer, Horst, Wilson, and Old Mill Springs wells and monitors water quality at all wells, thus, the District does not operate a treatment facility. The District's existing Chamois well and the new Electra well (slated to come online in 2021) show elevated levels of gross alpha radiation, which will be removed by a separate, onsite process.

The District currently has 14 water storage tanks at 12 locations, with a total storage capacity of 8.644 million gallons (11,555 CCF). The distribution system has 11 water pressure zones, 15 pump stations, and approximately 73 miles of pipelines moving water through the system. Pumping and pressure-reducing facilities are used where needed.

Based on the growth assumptions contained in this Plan, two additional wells at the rate of two by 2025 and then one every five years thereafter would be needed to meet projected water demands over the next 20 years, assuming a conservative growth rate, historical rainfall amounts, and considering the potential future effects of climate change. One additional well may be required by 2035 for single-dry year conditions. Assumptions used herein for future reliability of imported water supplies are based on DWR's projections in the 2019 *Delivery Capability Report*. Further, this plan assumes up to 30 percent of the SWP water delivered to CLAWA each year is available supply to CVWD based on the District's recorded purchases and CLAWA's actual SWP supply.

Fundamental Determinations of the Plan

This Plan projects that from current and planned sources, CVWD will be able to meet projected customer demands over the next 20 years in normal-year and multiple-dry-year (five-year) scenarios, considering potential effects of climate change and water conservation efforts. The assumptions herein show a supply deficit occurring during a single-dry year scenario beginning in 2035 and 2040. The deficit is relatively small and would be overcome with the addition of just one more well by 2035. Ongoing conservation efforts will be necessary, because the District water supplies from fractured bedrock aquifers are contingent on precipitation. In light of anticipated future drought conditions, which decrease local well production, and spikes in water use that can vary seasonally, meeting 100 percent of Crestline Village customer water demands will continue to be predicated on delivery of imported water purchased from the wholesale supplier, CLAWA. In turn, CLAWA's ability to supply water to CVWD will depend on the future reliability of supplies from the State Water Project including carryover and exchange agreements.

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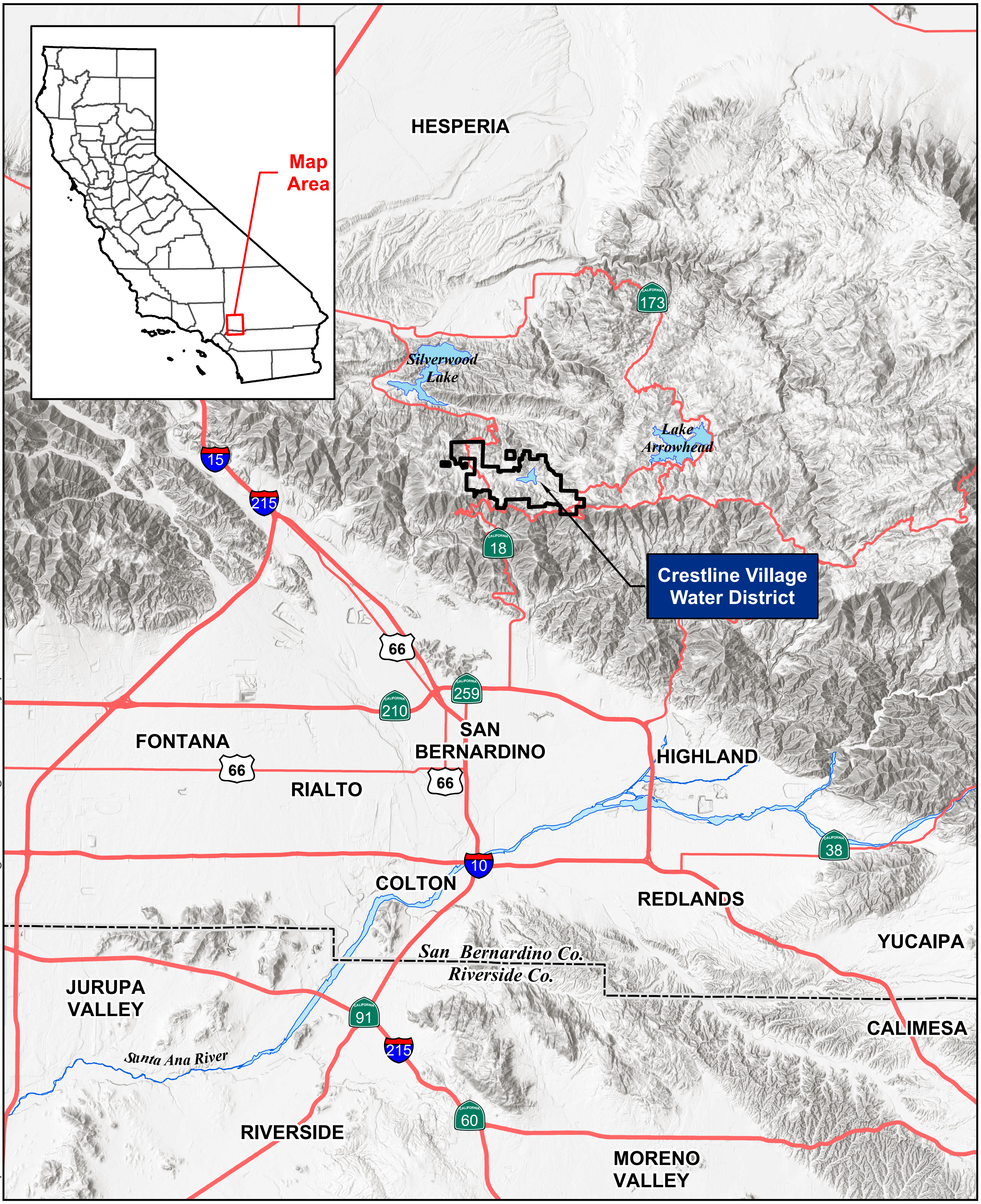


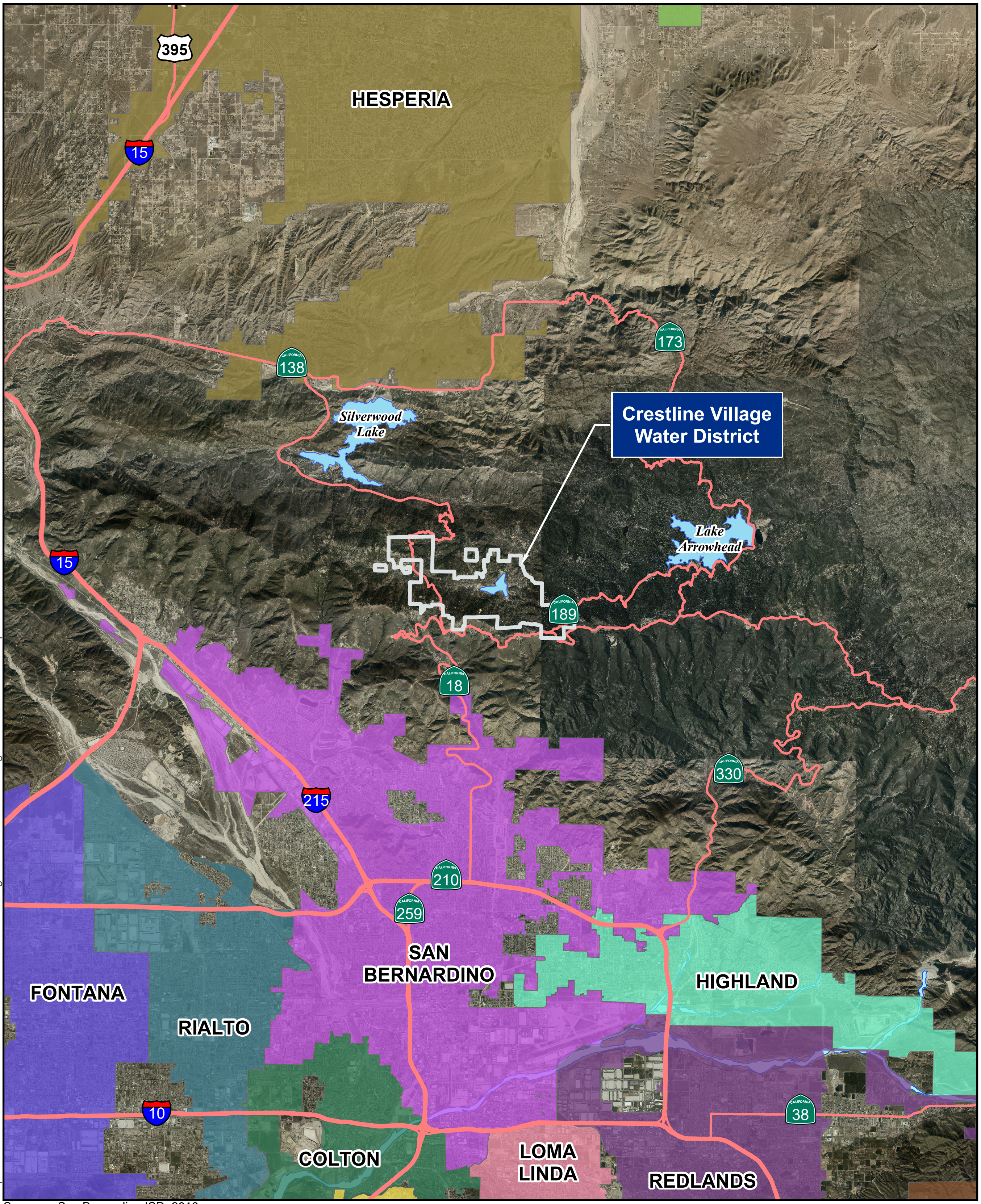
Figure 1-1 Regional Vicinity

CVWD Urban Water Management Plan 2020

0 2 4 6 Miles

crestline village WATER DISTRICT

ALBERT A. WEBB ASSOCIATES



Sources: San Bernardino ISD, 2016
San Bernardino Co. GIS, 2021.

0 2 4 Miles

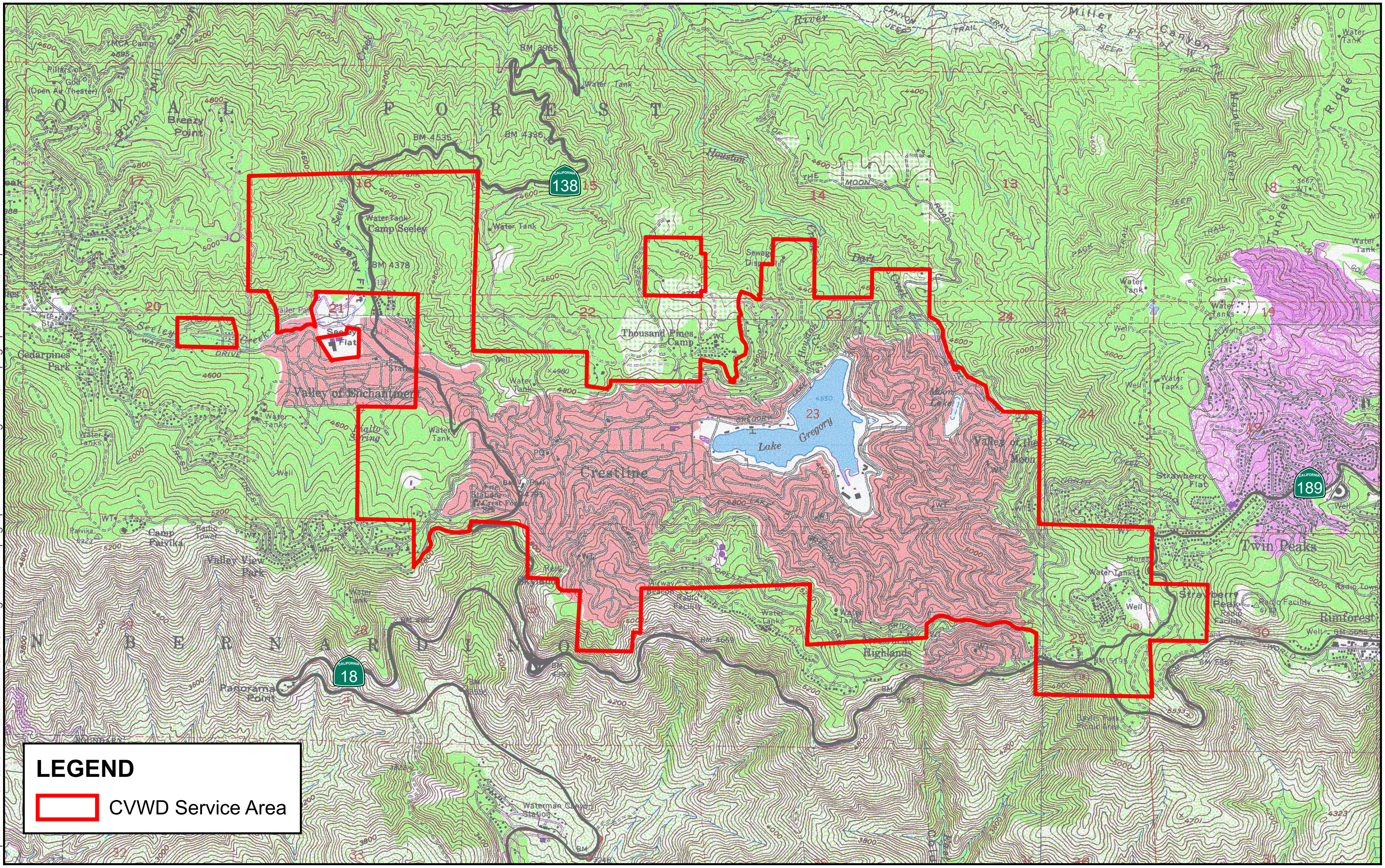
Figure 1-2 Neighboring Cities and Waterbodies

CVWD Urban Water Management Plan 2020

crestline village WATER DISTRICT

ALBERT A. WEBB ASSOCIATES

Map created 5/10/2021 H:\2021\21-0036\GIS\Figure 1-3 Topographic Features.aprx



Sources: ESRI / USGS 7.5min Quad

Figure 1-3 Topographic Features

CVWD Urban Water Management Plan 2020

0 2,000 4,000 6,000 Feet

crestline village WATER DISTRICT

ALBERT A. WEBB ASSOCIATES

CHAPTER 2 PLAN PREPARATION

2.1 PLAN PREPARATION

This chapter provides information on the organization, format and the metrics used in the UWMP, and provides basic definitions of the retail and wholesale suppliers that serve the District population. Chapter 2 also outlines some of the processes, including coordination and outreach, that were employed to gather data for the document and provide transparency and inclusion for affected entities and the general public in development of this Plan.

Water Code Section 10620(b) states: *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.*[1] Crestline Village Water District (CVWD) is considered an "urban retail water supplier" because it directly provides potable municipal water to more than 3,000 connections. The District is not a "wholesale" supplier. Therefore, the tables and information provided in the subject UWMP follow the requirements for "retail" water suppliers. A checklist to ensure compliance of this Plan with the UWMP Act requirements is provided in **Appendix B**.

This UWMP follows the chapter organization outlined in the DWR UWMP Guidebook (March 2021) and utilizes data kept and maintained by Crestline Village Water District, as well as supplemental data from Crestline-Lake Arrowhead Water Agency, Crestline Sanitation District, and the San Bernardino County Land Use Services Department. The required UWMP tables provided by DWR are in shades of blue and titled "Submittal Table 2-1," for example. The additional tables created during the writing of this report are grey and white and contain letters after the Table number (e.g., Table 2A). Required tables pertaining to Chapter 5 Baselines and Targets begin with "SB X7-7 Table…" and are shaded green and brown.

Public Water Systems (PWSs) are the systems that provide drinking water for human consumption. These are regulated by the State Water Resources Control Board (SWRCB or State Water Board), Division of Drinking Water (DDW). The PWS name and number, the total number of active connections and volume of water supplied to all CVWD customers as of December 31, 2020, is shown in **Submittal Table 2-1.**

[1] "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity (CWC §10614).

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 *
Add additional rows as needed			
CA3610015	Crestline Village Water District	4,892	309,927
	TOTAL	4,892	309,927
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: Volume in hundred cubic feet (CCF). From "Draft 2020 Annual Report to the Division of Drinking Water for Year Ending Dec. 31, 2020."			

DWR guidelines require the water use and planning data for the entire year of 2020, and because CVWD reports on a calendar year (CY) basis, data included in this UWMP is through December 31, 2020. During CY 2020, CVWD delivered 309,927 hundred cubic feet (CCF) of water to 4,892 active connections (Submittal Table 2-1).

Submittal Tables 2-2 and **2-3** below identify the District as a water retailer and this Plan as an individual UWMP, because the District is an individual water retailer rather than a member of a regional alliance or regional UWMP. Submittal Table 2-2 further indicates the data provided herein is based on CY reporting, with volumes calculated in units of “hundred cubic feet” or CCF.

Submittal Table 2-2: Plan Identification			
Select Only One	Type of Plan		Name of RUWMP or Regional Alliance *if applicable* (select from drop down list)
☑	Individual UWMP		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	Regional Urban Water Management Plan (RUWMP)		

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☐	Supplier is a wholesaler
☑	Supplier is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables are in calendar years
☐	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
Units of measure used in UWMP * (select from drop down)	
Unit	CCF
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*	

2.2 PLAN COORDINATION

Beginning in 1972 through present-day, CVWD has supplemented its well production with purchased supplies from the local wholesaler in the region, CLAWA.[2] Chapter 6 details CLAWA's supply and relationship with CVWD. **Submittal Table 2-4** identifies CLAWA as the District's wholesale supplier and acknowledges that CLAWA has been notified of this Plan.

[2] CLAWA has told CVWD that they do not meet the thresholds for having to prepare a UWMP, including water use reduction targets for SB X7-7.

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
Add additional rows as needed
Crestline-Lake Arrowhead Water Agency

Retail agencies, like CVWD, that receive a water supply from one or more wholesalers, like CLAWA, are required to provide their wholesaler(s) with their projected water demand from that source, in five-year increments for 20 years. Water Code Section 10631(j) requires CVWD to include documentation in the UWMP that they have provided CLAWA with their water use projections. **Appendix C** contains documentation that CVWD provided **Submittal Table 4-2**: Demands for Potable and Raw Water-Projected, and **Submittal Table 6-9**: Water Supplies-Projected to CLAWA on June 7, 2021.

Since one of the goals of this UWMP, as stated in Chapter 1.2, is to inform CLAWA of the future increases in demand for imported water supplies, CVWD hopes this plan will foster future collaboration with CLAWA and other mountain water suppliers. CVWD has notified and solicited input from the following pertinent agencies for preparation of this Plan:

- County of San Bernardino
- Crestline-Lake Arrowhead Water Agency
- Lake Arrowhead Community Services District
- Running Springs Water District
- Arrowbear Park County Water District
- U.S. Department of Agriculture Forest Service
- Crestline Sanitation District
- San Bernardino County Fire
- Rim of the World Unified School District
- Lahontan Regional Water Quality Control Board
- Save Our Forest Association
- Division of Drinking Water, San Bernardino District
- Sierra Club, Big Bear Group
- Santa Ana Regional Water Quality Control Board
- Santa Ana Watershed Project Authority
- Mojave Water Agency
- Cedarpines Park Mutual Water Company
- Valley of Enchantment Mutual Water Company
- Valley View Park Mutual Water Company

- Strawberry Lodge Mutual Water Company
- Alpine Water Users Association
- Crestline/Lake Gregory Chamber of Commerce
- Rim of the World Recreation & Park District

At least 60 days before the public hearing on the Plan, the District is required to notify every city or county to whom they provide water that they are reviewing and considering changes to the Plan. CVWD issued a notification letter to the County and agencies listed above on March 18, 2021 and then issued a second letter on May 15, 2021, which included the exact date, time, and location of the public hearing held on June 15, 2021. The draft UWMP was provided for public review on the CVWD Web site, and a hard copy was posted at the District offices beginning June 1, 2021. Copies of the required letters and public notification in *The Alpine Mountaineer* and *The Mountain News* newspapers of the public hearing are included in **Appendix D**. Chapter 10 includes detailed information regarding notifications and Plan adoption proceedings.

2.2.1 Land Use Agency Coordination

In addition to providing notice to the County of San Bernardino regarding preparation of the 2020 UWMP, CVWD also coordinated with the County to gather information related to past, current, and future land use in the District area to be used in both the UWMP and the Water Shortage Contingency Plan (WSCP) located in Chapter 8.

WEBB contacted the San Bernardino County Land Use Services Department on March 9, 2021 to request current land use information specifically for this UWMP, including, but not limited to:

- any large-scale projects proposed within the District service area;
- recent or pending permits for accessory dwelling units;
- descriptions of current and future demographics, population, socioeconomics and housing stock; and
- current land use designations and associated shapefiles.

The San Bernardino County Land Use Services Department responded on March 18, 2021 that the District would be required to complete a Professional Consultation Application in the

County's permit system and pay a fee of $825 for research and compilation of data by County staff. CVWD subsequently completed the application and paid the fee. On April 16, 2021, the requested information was provided to CVWD from the Land Use Services Department. Correspondence related to Plan coordination with the San Bernardino County Land Use Services Department may be found in **Appendix C**.

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CHAPTER 3 SYSTEM DESCRIPTION

3.1 GENERAL DESCRIPTION

Crestline Village Water District (CVWD) provides domestic water service to the Crestline and Lake Gregory communities in unincorporated San Bernardino County, California. Crestline is located about ten miles north of the City of San Bernardino in the San Bernardino Mountains, where most land in the community is within the Mountaintop Ranger District of the San Bernardino National Forest. Crestline and neighboring mountain communities occupy islands of private land surrounded by National Forest territory. The CVWD service area is located along the crest of the San Bernardino Mountains and in adjacent valleys high on the mountains' north slopes. The terrain is rugged, with moderate-to-steep slopes and elevations ranging from about 4,000 feet to over 5,600 feet. The elevation at Lake Gregory, which is located at roughly the center of the District, is 4,550 feet (USGS datum). Unlike Southern California's valleys, this area experiences a four-season climate. The District’s service area lies predominantly on the north side of State Highway 18 (Rim of the World Drive) and is served by State Highways 138 and 18.

CVWD was organized on January 19, 1954 by the citizens of Crestline, under the authority of the County Water District Law (Water Code Sections 31000, et seq.). CVWD was originally known as the Crestline Village County Water District and served only the immediate Crestline area, with approximately 1,600 service connections. All of CVWD’s water supplies were from local sources until Crestline-Lake Arrowhead Water Agency (CLAWA) began delivering imported water in 1972. Since then, CVWD has relied on both local and imported water supplies. The area served by CVWD has grown over the years, as additional land has been annexed. The largest change occurred on October 1, 1979, when CVWD acquired the facilities of the Lake Gregory Water Company (LGWC) and accepted responsibility for providing retail water service in the area around Lake Gregory. By acquiring the LGWC, the District almost doubled in size.

CVWD is a public agency with an elected five-person Board of Directors. The Board of Directors is the legislative governing body for CVWD and is responsible for developing and implementing laws that govern the services provided within the jurisdiction of its community services. Each of the five Board Members is elected to four-year terms by registered voters who reside within the CVWD service territory. The Board of Directors conducts public meetings on the 3rd Tuesday of each month at the CVWD office located at 777 Cottonwood Drive in Crestline.

3.2 SERVICE AREA BOUNDARY

The CVWD service area covers 2,840 acres (4.4 square miles) of unincorporated San Bernardino County and includes the mountain communities of Crestline and Lake Gregory. Refer to **Figures 1-1, 1-2,** and **1-3** for vicinity maps. The District's service area is generally bounded by Highway 18 and the south face of the San Bernardino Mountains to the south, the community surrounding Lake Arrowhead to the east, very rural National Forest land to the west and generally uninhabited north slope of the mountains and start of the 'high desert' to the north. The service area generally surrounds Lake Gregory and its surrounding community.

CVWD has a Sphere of Influence determined by the Local Agency Formation Commission of San Bernardino County (LAFCO), which is shown in **Figure 3-1 – Sphere of Influence.** A Sphere of Influence is defined as, "A plan for the probable physical boundaries and service area of a local agency, as determined by the commission." The CVWD Sphere of Influence covers approximately 12 square miles and encompasses the CVWD service area. The most recent update to the Sphere of Influence for CVWD was adopted January 19, 2011.[1] Although designation of a Sphere of Influence is a legal requirement for public agency water suppliers, it does not affect pre-existing service arrangements by others within the sphere. Also, inclusion in the Sphere of Influence does not mean that land will inevitably become annexed to CVWD. CVWD may consider annexing property into its service area only if requested by the property owner. The District is actively studying the feasibility of one annexation at this time. See Section 3.2.1 for further information.

As shown on **Figure 3-2 – National Forest Boundary,** there are three non-contiguous portions of the CVWD service area, as described from west to east: first, an isolated residential area called Stewart Ranch; second, the Valley of Enchantment elementary school, and third, an

[1] LAFCO, County of San Bernardino Resolution No. 3122, available at http://www.sbcounty.gov/uploads/lafco/proposals/servicereviews/crest_forest/resolution3122.pdf.

isolated residential area just north of Thousand Pines Christian Camp. Each of the non-contiguous areas in the service area was served previously by private wells or small mutual water companies that could not continue service and asked CVWD to annex them into the District service area. The lands immediately outside the service area are served by either private wells or small mutual water companies.

During 2020, CVWD produced water locally from 39 wells located on 22 individual sites. There are currently 17 inactive wells. When local well production does not meet demand, CVWD purchases supplemental water supply from CLAWA, which is the State Water Project (SWP) contractor and water wholesaler to the San Bernardino Mountains area. CVWD has nine connections to the CLAWA water system at several different locations; therefore, customers may receive a mixture of well and imported water, just well water or just imported water.

Supplemental water purchased from CLAWA has been treated at CLAWA's water treatment facility at Silverwood Lake. Water produced locally from CVWD's wells meets applicable drinking water standards and does not require treatment, other than chlorination of some wells. CVWD chlorinates water from its Pioneer, Horst, Wilson, and Old Mill Springs wells and monitors water quality at all wells. The District's existing Chamois well and the new Electra well (slated to come online in 2021) show elevated levels of gross alpha radiation, which is a treatable type of energy released when radioactive elements from naturally occurring uranium in the rocks decay or break down, and they are treated through a separate, onsite process. Thus, the District operates no centralized, complete water treatment facilities of its own.

The District currently has 14 water storage tanks at 12 locations, with a total storage capacity of 8.644 million gallons (11,555 CCF). Pumping and pressure-reducing facilities are used where needed. The distribution system has 11 water pressure zones in one contiguous area, 15 pump stations and approximately 73 miles of pipelines moving water through the system. A schematic plan of CVWD's water system and a pressure zone map are provided in **Appendix E**. The system contains many miles of pipelines, of varying ages, types, and conditions.

3.2.1 Annexations

There have been no annexations, consolidations, or other changes to the service area since the 2015 UWMP. In early 2020, CVWD began studying the annexation of Valley View Park Mutual

Water Company (VVPMWC), a small water retailer located within the District's sphere of influence. At that time, a full system analysis was done including financials, main pipeline inspection, infrastructure analysis and detailed cost analysis. The analysis found that the consolidation into the District would have been beneficial for the shareholders of VVPMWC, but disproportionately expensive for CVWD.

As of January 2021, DWR and the District's State engineer confirmed funding opportunities for the consolidation of Districts in need. Based on VVPMWC's 2019 income, it likely meets the criteria for an agency in "need" and CVWD may be able to secure funding for consolidation. Funding opportunities were briefly discussed and were found to be substantial. CVWD will be researching the opportunity further in 2021 (CVWD(a), 2020).

VVPMWC estimates the annexation would result in approximately $132,631 in additional annual revenue for CVWD and an increase of 2 million gallons (2,674 CCF) of locally produced well water with potential for more from current VVPMWC well assets (LOI, 2020).

No potential effects on the District's water supply, water demands or service reliability from this potential consolidation have been considered in this 2020 UWMP.

3.3 SERVICE AREA CLIMATE

For the purposes of the analysis in this section, and the next section, "Climate Change Considerations," it is important to first point out the difference in the terms, "weather" and "climate." Weather is defined as how the atmosphere behaves over short periods, (i.e., days and weeks), while climate refers to how the atmosphere behaves over the long-term. When considering climate and long-term potential effects of climate change, we are looking at averages of temperature, rainfall, snowfall water equivalent, humidity, evaporation, and other metrics over a period of years and decades.

CVWD's service area is located in a mountainous climate that is generally cooler than the surrounding lower elevations. As shown on proceeding tables, summers are dry with average temperatures as high as 81°F, and winters are wet and cool, with average temperatures as low as 25°F. The average evapotranspiration rate (ET_o), maximum and minimum temperature data and rainfall data gathered from the Lake Arrowhead CIMIS (California Irrigation Management

Information System) station for the years of 2005 (the year after the station was established) through 2020 are provided in **Table 3A.**

Table 3A: Evapotranspiration, Temperature and Precipitation Data for the District Service Area, 2005-2020

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Standard Monthly Average ET_o (inches)	1.7	2.2	3.7	5.0	6.1	7.1	7.4	7.0	5.3	3.7	2.4	1.7	
Average Max. Temperature (°F)	51	51	55	60	66	75	81	80	76	67	58	50	
Average Min. Temperature (°F)	25	26	29	32	36	42	50	49	44	35	28	25	
Average Total Precipitation (inches)	3.7	2.9	2.0	1.8	0.6	0.3	0.3	0.1	0.3	0.4	1.0	3.06	**17.2**

Source: CIMIS Station 192 Lake Arrowhead-San Bernardino (http://www.cimis.water.ca.gov/Default.aspx

As shown in Table 3A, the average annual rainfall from 2005 to 2020 totaled 17.2 inches. The average monthly snowfall data from the National Oceanic and Atmospheric Administration (NOAA) Crestline weather station from 2010 to 2015 are presented in **Table 3B**. The average annual snowfall was approximately 12 inches. (Reporting of snowfall data for the years 2016 through 2020 from this station and other local stations contains considerable gaps in data, therefore only the most recent full six-year data is presented here.)

Table 3B: Average Monthly Snowfall for the District Service Area, 2010-2015

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average Total Snowfall[1] (inches)	4.0	4.5	2.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	**12.2**

Source: NOAA National Environmental Satellite, Data, and Information Service (http://www.ncdc.noaa.gov/cdo-web/. Station: CRESTLINE 0.2 WSW, CA US GHCND:US1CASR0019. Values in table represent rounded averages, thus, values reported as zero may not actually be equal to zero.

[1] Snowfall: Maximum amount of new snow that has fallen since the previous observation.

The entire State, and in particular Southern California has recently experienced a severe multi-year drought, so for comparison the recorded average rainfall and snowfall amounts from the Western Regional Climate Center (WRCC) are also provided in **Table 3C,** below. These recorded average values represent averages from 1941 through 2011 at Lake Arrowhead, which is located nearly five miles to the east but maintains approximately the same elevation and geographic position on the mountain ridge (data from 2012-2020 is not available from this station).

Table 3C: Recorded Monthly Rain and Snowfall Data for the District Service Area, 1941-2011

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Recorded Average Total Precipitation (inches)	8.6	7.9	6.5	2.9	1.1	0.2	0.1	0.4	0.8	1.6	4.2	5.7	**40**
Recorded Average Total Snowfall (inches)	10.8	11.4	11.7	5.1	0.8	0.0	0.0	0.0	0.0	0.2	2.1	5.6	**47.7**

Source: WRCC Station 044671, Lake Arrowhead, CA. (http://www.wrcc.dri.edu.)
(This station's period of record only contains the years 1941 through 2011.)

Indeed, the average rainfall and snowfall from the past 15 years compared to recorded averages illustrate the recent drought conditions, with less than half the rain and snow received. The annual rainfall and, in particular, the snowfall has a great influence on well production in a fractured bedrock aquifer.

3.3.1 Summary of Climate Change Considerations

Since the 2015 CVWD Plan was developed the Water Code was revised to include several sections relevant to UWMPs referring to climate change. Water suppliers must now account for how climate change will impact water supplies and reliability of those supplies. Although the Water Code does not require specific methods for considering climate change in the 2020 Plan, climate change will be addressed in several appropriate sections, including this section, where we describe potential climate change effects in the District service area. The other sections in which the effects of climate change will be addressed include Chapter 4 (Water Use Characterization), Chapter 6 (Water Supply Characterization), and Chapter 7 (Water Service Reliability and Drought Risk Assessment).

The District has taken several measures to improve resilience and reduce vulnerabilities to potential effects of climate change, including increasing storage capacity, implementing conservation programs, taking steps to prevent fire damage to facilities, and ensuring backup energy supply and onsite energy generation. The District also has ongoing processes for enhancing its water quality monitoring program, and drilling new wells and modifying existing wells to enhance local water supply.

This analysis is guided in part by the "Urban Water Management Plan Guidebook 2020" and relies, in part, on the tools and resources available on the Cal-Adapt Website (https://cal-adapt.org/), which synthesizes volumes of downscaled climate change projections and climate impact research from California's scientific community.

The data in the Cal-Adapt models should not be considered as predictions of how the weather will behave on a certain future date, or when heavy snowfall, heat waves, low rainfall, or other events will occur. They can tell us what we could expect in the future as to how much more often or less often these events may occur.

The Cal-Adapt models presented below include predictions for the period of 2006 to 2100 and provide modeled recorded values from 1950 through 2005. Projections are based on two climate change scenarios—medium and high greenhouse gas emissions. They are called Representative Concentration Pathways (RCPs) and each represents standard assumptions for the medium and high greenhouse gas aerosol emissions scenarios. In RCP 4.5 (the medium-emissions scenario) global carbon dioxide (CO_2) emissions peak by 2040 and then start to decline. In this scenario, statewide average temperature is expected to increase 2-4 Celsius (°C) by the year 2100. In RCP 8.5 (the high-emissions scenario) global carbon dioxide (CO_2) emissions continue to rise through this entire century. In this scenario, statewide average temperature expected to increase 4-7°C for this scenario by the year 2100. Cal-Adapt does not provide a low emissions scenario.

Cal-Adapt's "Local Climate Change Snapshot" tool provides the following climate projections for temperature, precipitation, and wildfire for the District's service area. A location on Zurich Drive in Crestline was selected as the representative location of the District's service area. Cal-Adapt data suggests the main concerns related to climate change for supply and demand in the District are drought, groundwater depletion, reliance on water diverted from the San Joaquin Delta, peak demand volume surges from extreme heat or temperature trends, and increased risk of fire.

Pursuant to Water Code, the District's level of analysis of the potential effects of climate change on its supplies and demands has been done at a level commensurate with the size of the distribution system. The District looked to a large neighboring water supplier with the ability to thoroughly analyze DWR's climate change data. Western Municipal Water District (WMWD or Western) is a large wholesale and retail water supplier in adjacent Western Riverside County with a service area of 527 square miles. Western conducted a comprehensive analysis of a large array of climate change models as part of Western's 2020 UWMP (WMWD(a)). A copy of Western's analysis is provided in **Appendix F.** Their source data were climate models gathered by DWR for water resources planning. Although Western's service area does not include the San Bernardino Mountains, the trends they identified in future effects to water supply and demand from climate change are commensurate with the summary of anticipated climate changes from Cal-Adapt for the Crestline area provided below. Said trends from Cal-Adapt of increasing temperatures and decreasing rainfall do not conflict with Western's analysis. Therefore, the climate change factors from Western's analysis are used here in Chapter 4 and Chapter 6 to account for climate change effects to CVWD's water supply and demand projections.

Cal-Adapt Temperature Projections

Overall temperatures are projected to rise in California during the 21st century. While the entire state will experience temperature increases, the local impacts will vary greatly. Four separate climate indicators are reported by Cal-Adapt for temperature changes: Annual Average Maximum Temperature, Annual Average Minimum Temperature, Extreme Heat Days, and Warm Nights.

Annual Average Maximum Temperature reports the average of all the hottest daily temperatures in a year. Shown on **Chart 3-1** is the most likely outcome and range of future projections of Annual Average Maximum Temperature in the Crestline area.

Chart 3-1 – Cal-Adapt Projections for Annual Average Maximum Temperature (°F)
(Source: Cal-Adapt, Local Climate Snapshot for Crestline)

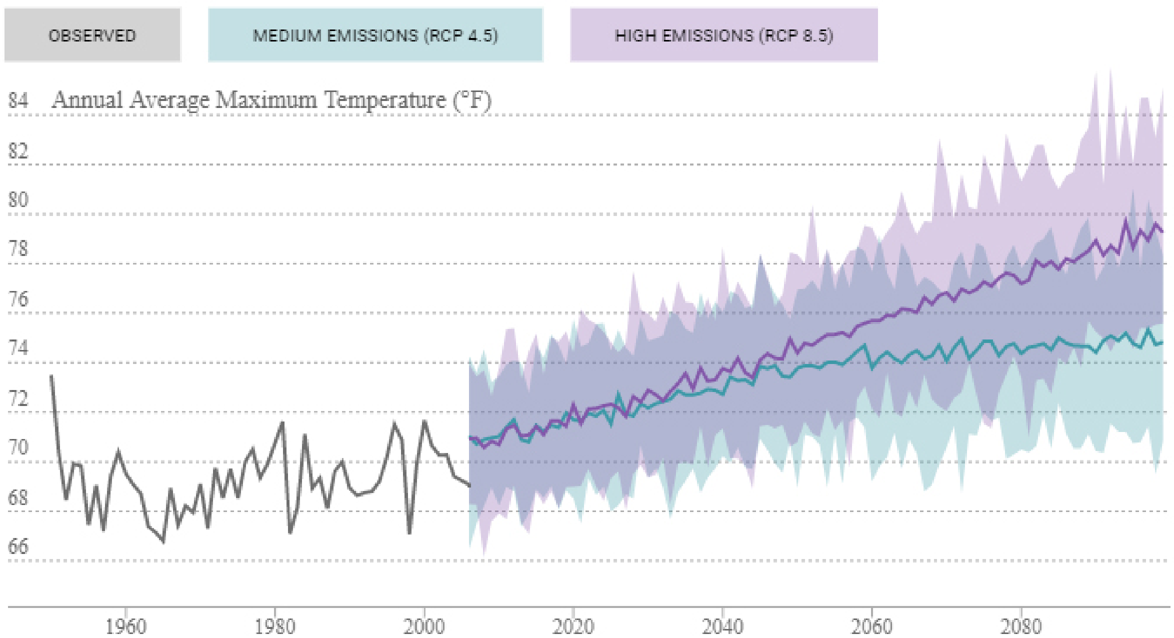


Table 3D below summarizes Cal-Adapt baseline and mid-century projections for Annual Average Maximum Temperature, which is the average of all of the hottest daily high temperatures in a year.

Table 3D: Annual Average Maximum Temperature (Cal-Adapt Projections)

Time Period	Change from Baseline	30-Year Average	30-Year Range
Baseline (1961-1990)	--	69.0 °F	68.7 – 69.5 °F
Mid-century (2035-2064)			
RCP 4.5	+4.6 °F	73.6 °F	71.3 – 76.1 °F
RCP 8.5	+5.6 °F	74.6 °F	72.0 – 76.8 °F

Source: Cal-Adapt, Local Climate Snapshot for Crestline.
RCP: representative concentration pathway; 4.5: medium emissions scenario; 8.5: high emissions scenario.

Annual Average Minimum Temperature reports the average of all the coldest daily temperatures in a year, shown on **Chart 3-2** is the most likely outcome and range of future projections of Annual Average Minimum Temperature in the Crestline area.

Chart 3-2– Cal-Adapt Projections for Annual Average Minimum Temperature (°F)
(Source: Cal-Adapt, Local Climate Snapshot for Crestline)

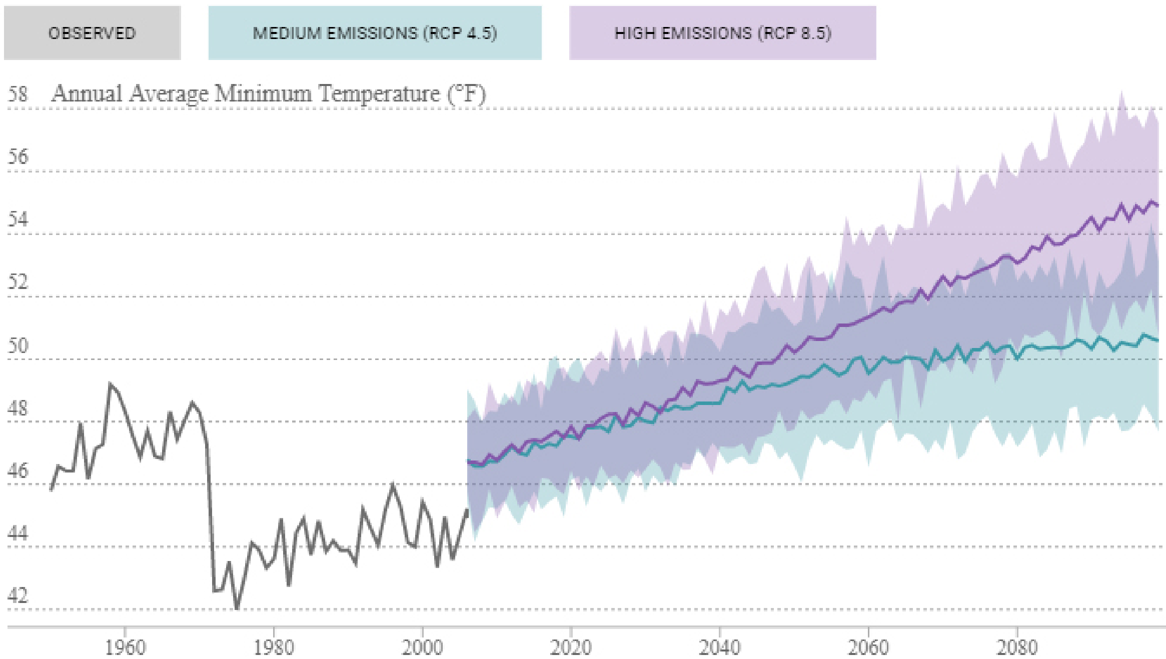


Table 3E below summarizes Cal-Adapt baseline (1961-1990) and mid-century projections (2035-2064) for Annual Average Minimum Temperature in the Crestline area.

Table 3E: Annual Average Minimum Temperature (Cal-Adapt Projections)

Time Period	Change from Baseline	30-Year Average	30-year Range
Baseline (1961-1990)	--	45.2 °F	45.1 – 45.4 °F
Mid-century (2035-2064)			
RCP 4.5	+4.1 °F	49.3 °F	47.7 – 50.6 °F
RCP 8.5	+5.1 °F	50.3 °F	48.4 – 51.7 °F

Source: Cal-Adapt, Local Climate Snapshot for Crestline.
RCP: representative concentration pathway; 4.5: medium emissions scenario; 8.5: high emissions scenario.

Extreme Heat Days reports the number of days in a year when daily maximum temperature is above a threshold temperature of 95.1 °F shown on **Chart 3-3** is the most likely outcome and range of future projections of Extreme Heat Days in the Crestline area.[2]

[2] Note the threshold temperature used in Cal-Adapt is location specific. It is defined as the 98th percentile value of historical daily maximum/minimum temperatures (from 1961–1990, between April and October) observed at a location.

Chart 3-3 – Cal-Adapt Projections for Number of Extreme Heat Days
(Source: Cal-Adapt, Local Climate Snapshot for Crestline)

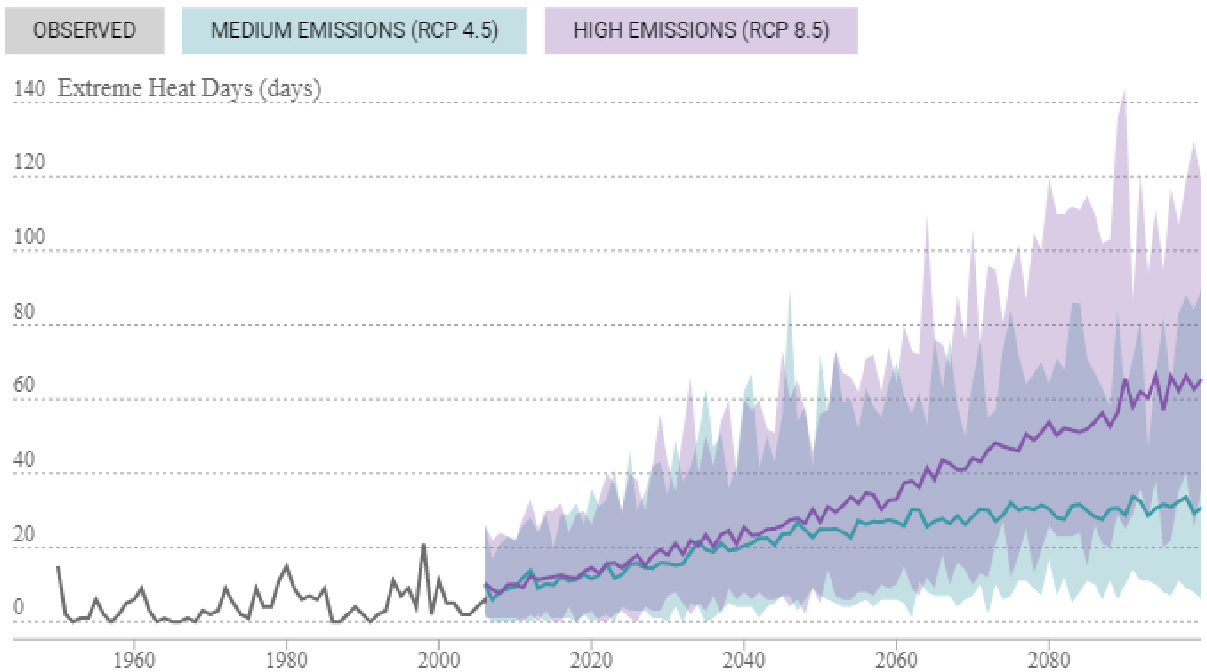


Table 3F below summarizes Cal-Adapt baseline and mid-century projections for Extreme Heat days for baseline (1961-1990) and mid-century (2035-2064) time periods in the Crestline area.

Table 3F: Extreme Heat Days (Cal-Adapt Projections)

Time Period	Change from Baseline	30-Year Average	30-year Range
Baseline (1961-1990)	--	4 days	3 – 5 days
Mid-century (2035-2064)			
RCP 4.5	+20 days	24 days	13 – 54 days
RCP 8.5	+25 days	29 days	16 – 58 days

Source: Cal-Adapt, Local Climate Snapshot for Crestline.
RCP: representative concentration pathway; 4.5: medium emissions scenario; 8.5: high emissions scenario.

Warm Nights reports the number of days in a year when daily minimum temperature is above a threshold temperature of 68.5 °F[3] shown on **Chart 3-4** is the most likely outcome and range of future projections of Warm Nights in the Crestline area.

[3] Note the threshold temperature used in Cal-Adapt is location specific. It is defined as the 98th percentile value of recorded daily maximum/minimum temperatures (from 1961–1990, between April and October) observed at a location.

Chart 3-4 – Cal-Adapt Projections for Number of Warm Nights
(Source: Cal-Adapt, Local Climate Snapshot for Crestline)

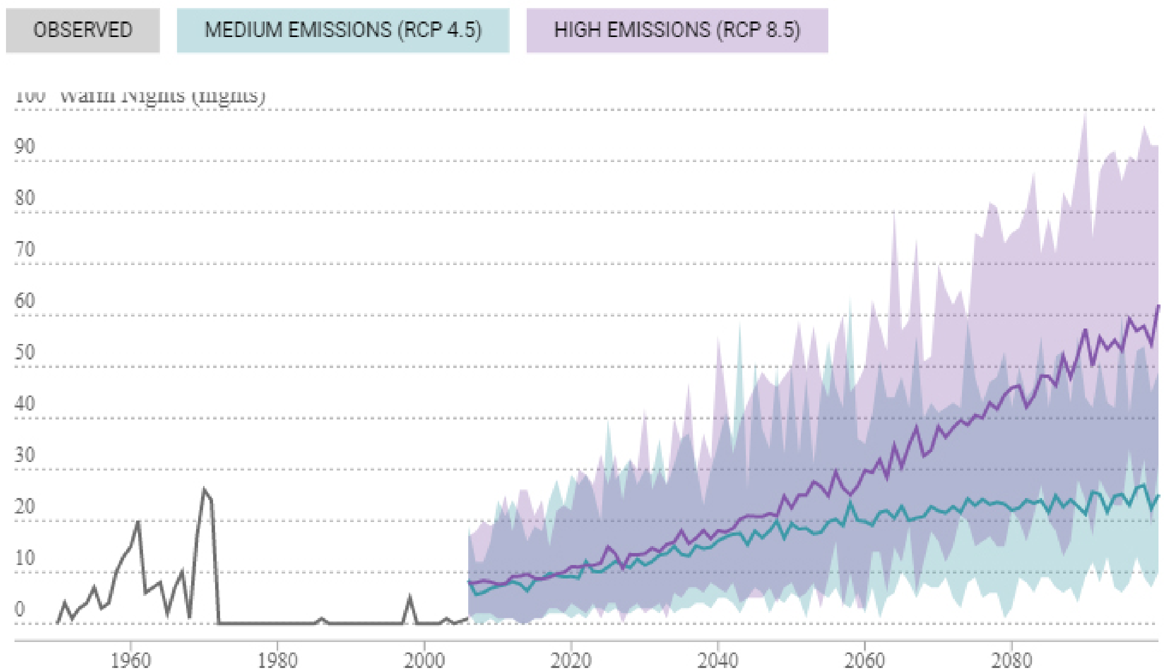


Table 3G below summarizes Cal-Adapt baseline and mid-century projections for Warm Nights, for baseline (1961-1990) and mid-century (2035-2064) time periods in the Crestline area.

Table 3G: Warm Nights (Cal-Adapt Projections)

Time Period	Change from Baseline	30-Year Average	30-year Range
Baseline (1961-1990)	--	3 nights	3 – 5 nights
Mid-century (2035-2064)			
RCP 4.5	+15 nights	18 nights	9 – 33 nights
RCP 8.5	+20 nights	23 nights	13 – 40 nights

Source: Cal-Adapt, Local Climate Snapshot for Crestline.
RCP: representative concentration pathway; 4.5: medium emissions scenario; 8.5: high emissions scenario.

Cal-Adapt Precipitation Projections

According to Cal-Adapt, for much of California going forward, wet years will become wetter, and the dry years will become drier. Drought risk will increase because dry years are likely to be followed by dry years, increasing the risk of drought. The amount of average annual precipitation is not projected to change significantly through the end of this century, but precipitation will likely come in more intense storms within a shorter wet season. Three separate climate indicators are reported for precipitation changes: Maximum 1-day Precipitation, Maximum Length of Dry Spell, and Annual Precipitation.

The Maximum 1-Day Precipitation amount for each year is the greatest amount of daily rain or snow (over a 24-hour period) for each year. **Chart 3-5** shows the most likely outcome and range of future projections of Maximum 1-Day Precipitation in the Crestline area.

Chart 3-5– Cal-Adapt Projections for Maximum 1-day Precipitation
(Source: Cal-Adapt, Local Climate Snapshot for Crestline)

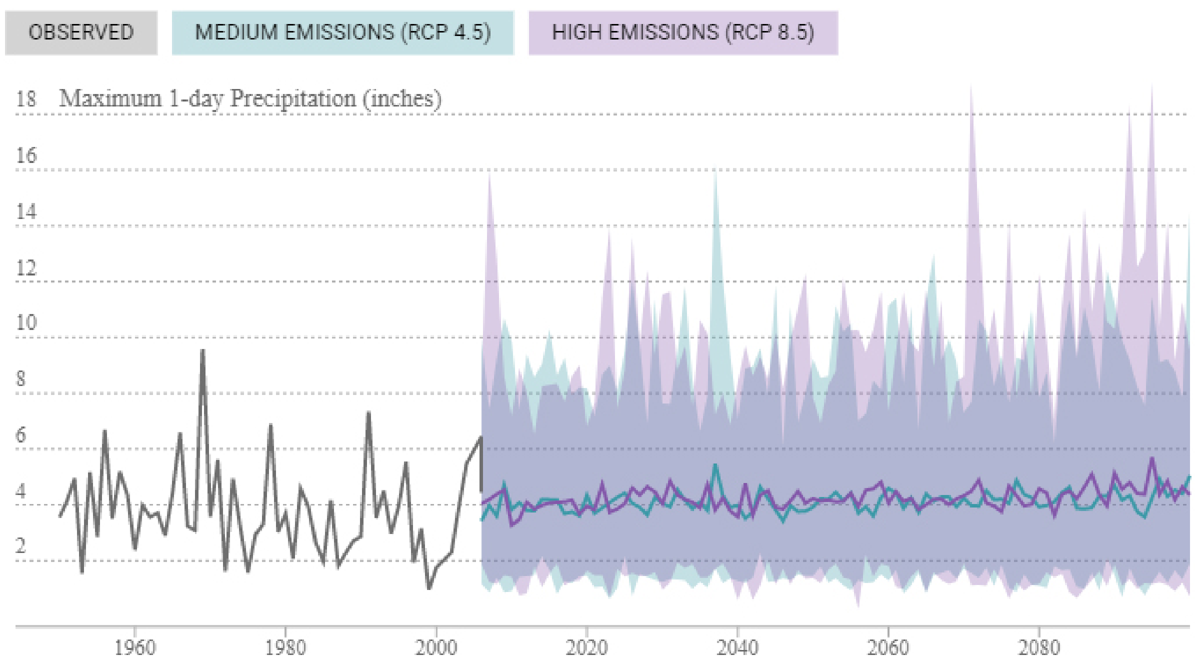


Table 3H below summarizes Cal-Adapt baseline and mid-century projections for Maximum 1-day Precipitation, which is the maximum daily amount of rain or snow over a 24-hour period.

Table 3H: Maximum 1-day Precipitation (Cal-Adapt Projections)

Time Period	Change from Baseline	30-Year Average	30-year Range
Baseline (1961-1990)	--	3.892 inches	3.399 – 4.338 inches
Mid-century (2035-2064)			
RCP 4.5	+0.181 inches	4.073 inches	3.337 – 4.819 inches
RCP 8.5	+0.293 inches	4.185 inches	3.445 – 5.107 inches

Source: Cal-Adapt, Local Climate Snapshot for Crestline.
RCP: representative concentration pathway; 4.5: medium emissions scenario; 8.5: high emissions scenario.

Maximum Length of Dry Spell is the maximum length of dry spell for each year. In other words, the maximum number of consecutive days with precipitation less than one millimeter for each year. **Chart 3-6** shows the most likely outcome and range of future projections of Maximum Length of Dry Spell in the Crestline area.

Chart 3-6 – Cal-Adapt Projections for Maximum Length of Dry Spell
(Source: Cal-Adapt, Local Climate Snapshot for Crestline)

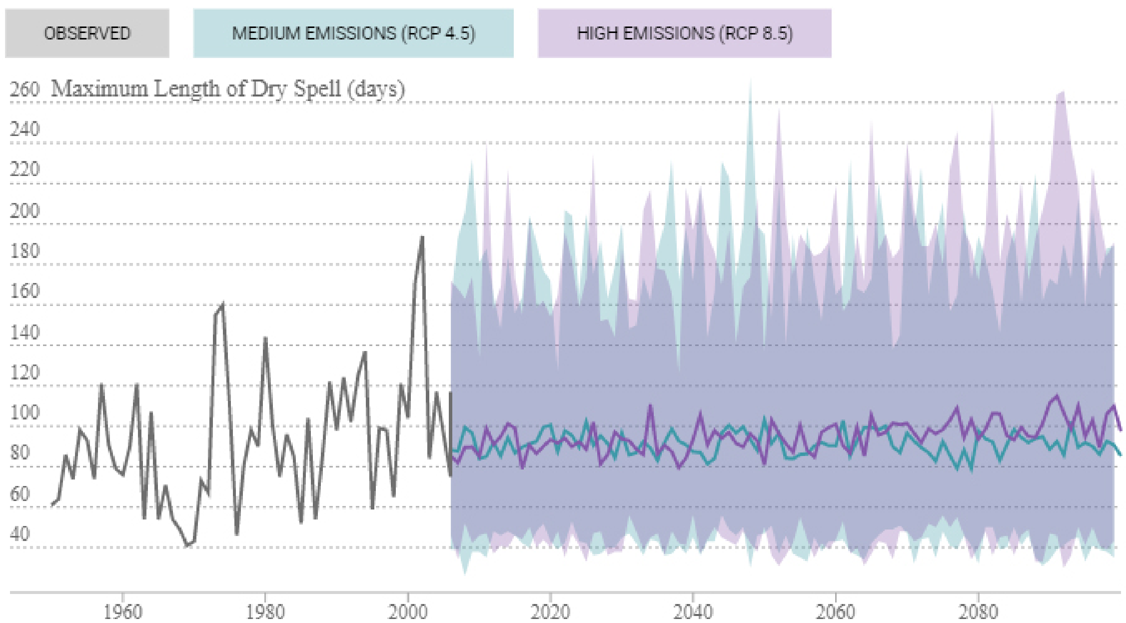


Table 3I below summarizes Cal-Adapt baseline and mid-century projections for Maximum Length of Dry Spell, which is maximum number of consecutive days with precipitation less than 1 millimeter for each year.

Table 3I: Maximum Length of Dry Spell (Cal-Adapt Projections)

Time Period	Change from Baseline	30-Year Average	30-year Range
Baseline (1961-1990)	--	84 days	74 – 96 days
Mid-century (2035-2064)			
RCP 4.5	+ 8 days	92 days	71 – 121 days
RCP 8.5	+ 8 days	92 days	65 – 122 days

Source: Cal-Adapt, Local Climate Snapshot for Crestline.
RCP: representative concentration pathway; 4.5: medium emissions scenario; 8.5: high emissions scenario.

Annual Precipitation is the total precipitation projected for a year. **Chart 3-7** shows the most likely outcome and range of future projections of Annual Precipitation in the Crestline area.

Chart 3-7 – Cal-Adapt Projections for Annual Precipitation
(Source: Cal-Adapt, Local Climate Snapshot for Crestline)

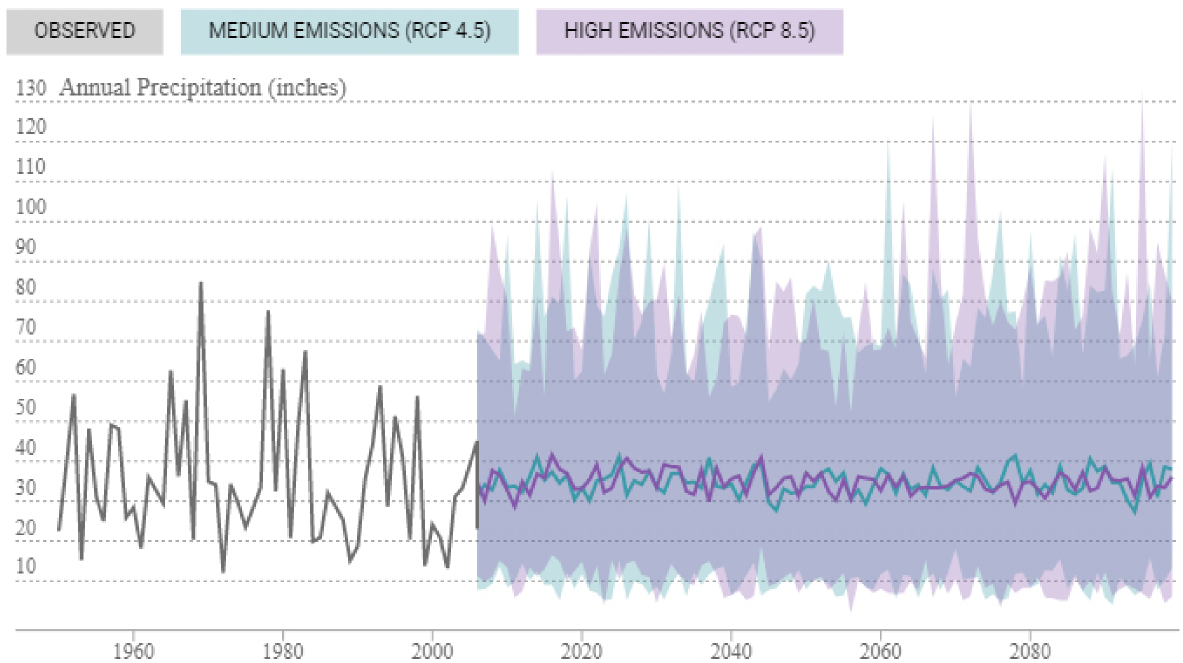


Table 3J below summarizes Cal-Adapt baseline and mid-century projections for Annual Precipitation in the Crestline area, which is the total precipitation in a year.

Table 3J: Annual Precipitation (Cal-Adapt Projections)

Time Period	Change from Baseline	30-Year Average	30-year Range
Baseline (1961-1990)	--	35.5 inches	31.1 – 38.5 inches
Mid-century (2035-2064)			
RCP 4.5	-1.3 inches	34.2 inches	26.3 – 44.4 inches
RCP 8.5	-1.0 inches	34.5 inches	26.6 – 44.9 inches

Source: Cal-Adapt, Local Climate Snapshot for Crestline.
RCP: representative concentration pathway; 4.5: medium emissions scenario; 8.5: high emissions scenario.

Uncertainty Inherent in Climate Projections

Climate projections, including those provided herein from Cal-Adapt, are meant to be approximations of future climate, and as with any projections of the future, they carry a degree inherent uncertainty. "Uncertainty" is used in the scientific sense, meaning that there is a range in possible future outcomes, as one can see graphically illustrated in the charts above. Sources of uncertainty in these projections include the degree of greenhouse gas emissions on which the models are based, how various models and tools around the world represent different aspects of climate systems, and how well those aspects of the climate systems are understood.

Climate scientists are constantly improving climate theory and tools that are used to represent projections for future climate. Looking at projections from as many different models as possible is one way to get a range of possible outcomes that averages into a more likely outcome as opposed to simply looking at one model. The concept that climate change is occurring and is caused by human activity is the consensus of the overwhelming majority of climate scientists throughout the world. The uncertainty lies within how much climate will change in the future what its impact will be on humans, nature, and water systems.

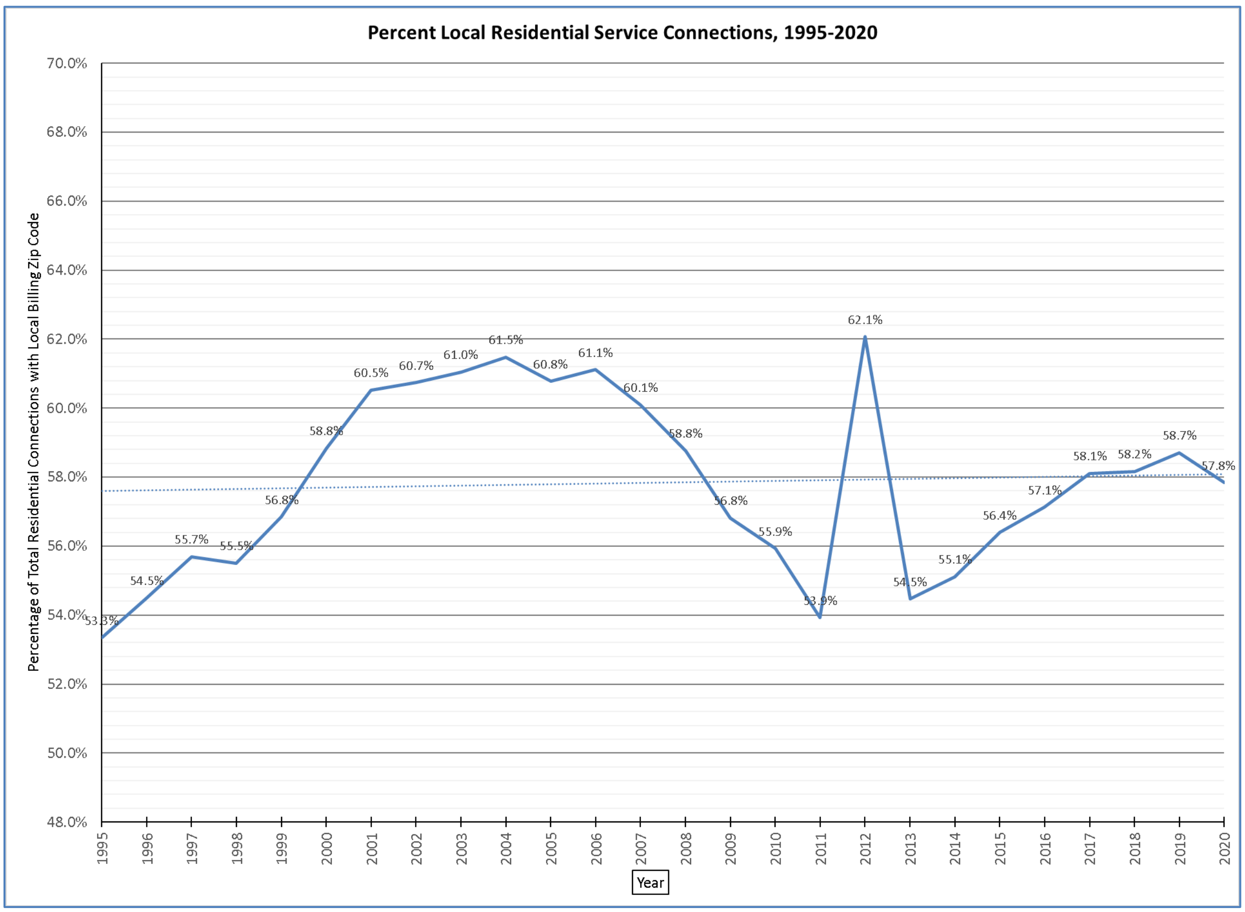
3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS

3.4.1 Service Area Population

The unincorporated community of Crestline including the community of Lake Gregory makes up a majority of the District's service area. A portion of the Valley of Enchantment and a portion of the Twin Peaks communities are also in the service area. Crestline and neighboring communities are part of a mountain resort area that experiences significant tourism. There is a large seasonal population component as well as a substantial influx of visitors, which can quickly double the population. The seasonal population is not reflected in available demographic statistics that count only year-round residents. Seasonal changes in water demand in the mountain area are different from the normal seasonal variation in water use by customers in non-mountain areas, which reflect spikes in water demand for landscape irrigation, swimming pools, car washing, space cooling, etc. By contrast, Crestline and neighboring mountain resort areas experience significant seasonal swings in the number of people served, with peaks in both summer and winter due to the abundance of recreational activities within the mountain communities.

According to District records, the percentage of full-time customers currently constitute 58 percent of total connections, which is coincidentally the average percentage over the past 25 years, but as shown in **Chart 3-8**, this is known to fluctuate in response to economic up/downturns. Over the past 25 years, the proportion of full-time residents has been as high as 61.5 percent in 2004, and as low as 53.3 percent in 1995.

Chart 3-8 – Percent Local Residential Service Connections from 1995-2020
(Source: CVWD Records)



The District calculates an estimate of the "full-time" population as the number of residential meters with a local billing zip code (92325) multiplied by the number of persons per meter (from U.S. Census data every 10 years). Using this method for example, the District calculated a full-time population of 8,198 people in 2015 compared to the 2015 U.S. Census that gave a population of 8,211; a difference of only 13 people. Using the District's methodology, the population within the District boundary from 2015 through 2020 is provided in **Table 3K.**

Table 3K: Full-Time Resident Population Calculated by District, 2015-2020

	2015	2016	2017	2018	2019	2020
Full-Time Service Area Population (calculated)	8,198	8,311	8,445	8,463	8,583	7,935

Source: CVWD Data, 2020.

The DWR Population Tool estimates a District population of 8,215 persons, as shown in **Submittal Table 3-1.** The DWR Population Tool output results are included in **Appendix G.**

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	8,215	8,397	8,584	8,774	8,969	9,168
NOTES: 2020 population from DWR population tool. 2025-2045 population assumes a 0.44% annual growth rate per SCAG (2020) estimate for unincorporated San Bernardino County.						

The DWR Population Tool is particularly useful for agencies whose boundaries do not follow City or census boundaries. It uses U.S. Census year data from 1990, 2000, and 2010 with the number of residential meters from the CVWD Annual Reports to the SWRCB to calculate a Persons-Per-Connection ratio. The 2020 U.S. Census data was not incorporated into the Population Tool; therefore the 2020 population is an extrapolation from prior census years. To calculate the 2020 population for CVWD, the total number of residential connections for 2020 is entered and the Tool multiplies that by a person-per-connection ratio of 2.92. The 2020 population estimate generated by the Population Tool is considered a reasonable estimate and commensurate with the results from the District's methodology in Table 3K.

The Water Code does not require a specific method for projecting future population in the UWMP, but it does require that the estimates of future population be based upon data from state, regional, or local service agency population projections. The Southern California

Association of Governments (SCAG) *2020 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) Demographics and Growth Forecast Technical Report* was adopted on September 3, 2020, which provides the 2016 population and the estimated 2045 projection by jurisdiction for each city in San Bernardino County and unincorporated San Bernardino County. It also provides the following input on population projections for mountain communities that illuminates the challenges associated with it (SCAG, p. 28):

> *Reporting of socioeconomic data and analysis of transportation needs for the mountain areas of San Bernardino County are a challenge given significant seasonal variation due to recreation activities and tourism. SCAG's forecast of future employment, population, and households for purposes of economic, infrastructure and transportation planning are built primarily from U.S. Census and state employment data for a "typical" time of the year. In the San Bernardino Mountain communities such as the City of Big Bear Lake or areas like Lake Arrowhead, Crestline, Wrightwood and Running Springs, the full-year population and employment of these areas are relatively low, but significant increases are experienced during the peak winter and summer seasons due to the added seasonal residents and tourists. As a result, standard socioeconomic growth forecasts for these areas tend not to reflect the significant seasonal variations experienced due to visitors/recreational activities. Seasonal characteristics in these mountain areas (as well as some desert resort communities) are not captured by conventional methods that are utilized to forecast growth and analyze transportation needs.*

The 2020 SCAG Demographics and Growth Forecast Technical Report estimates an annual population growth rate for unincorporated San Bernardino County of 0.44 percent from 2016 to 2045. Because the estimates of future population in the UWMP must come from state, regional, or local service agency population projections, this annual growth rate was applied to the DWR Population Tool 2020 estimate for CVWD of 8,215 persons to generate the projected populations in Submittal Table 3-1.

The CVWD service area includes residential, commercial, and institutional customers. The existing commercial businesses are oriented to tourists, seasonal, and permanent residents. The development pattern in the CVWD service area is primarily detached single-family residential, which is expected to continue for the duration of the planning period. Spikes in population, and therefore water use, occur seasonally and during times of economic growth. As the local economic patterns rebound from the coronavirus pandemic, it can be expected to see part-time and full-time population growth, and therefore increased water use, in mountain communities. If that growth coincides with a drought period, dependence on imported supplies from CLAWA is anticipated to increase.

3.4.2 Accessory Dwelling Units

Accessory dwelling units (ADUs) are also known as “granny flats,” second units, or in-law units. They can be for one or more people and can be detached, attached, existing space converted into an independent living unit, or a Junior ADU contained entirely within an existing or proposed single-family residence. ADUs are being encouraged by the State to increase residential infill and help meet the increasing statewide demand for affordable housing. Because the ADU laws (Gov. Code 65852.2) change each year, readers should refer to the California Department of Housing and Community Development (www.hcd.ca.gov) for the latest changes to the law.

An increase in ADUs in existing residential areas may densify them more than what had been planned for previously by CVWD. Particularly in areas that are considered currently “built-out” with infrastructure that is already sized at “ultimate” design capacity, an increase in ADUs may trigger capital projects to upsize existing pipes or replace degrading infrastructure earlier than expected.

As discussed below in Section 3.5, WEBB requested land use data for this UWMP from the San Bernardino County Land Use Services Department. According to County Land Use Services staff, the San Bernardino County Municipal Code did not formally recognize ADUs until late 2017 and the County did not start tracking ADUs separately from single-family residences until 2020. In order to identify ADU permits, Land Use Services staff reviewed all of the housing permits issued from 2016 through April 2021. Based on that review, County records indicate six (6) permit requests for ADUs were submitted during calendar years 2016 through 2020 that are within the District’s service area boundary (April 16, 2021 email from Jessie Bruckhart).

3.4.3 Other Social, Economic, and Demographic Factors

The CVWD service area is within the San Bernardino County the Crest Forest Communities, which encompasses Crestline, Cerdarpines Park, Lake Gregory, and Valley of Enchantment.

In the 1840s, the mountains became popular for timber harvesting and as a summer vacation spot, and by 1906 Henry Guernsey had developed what is now Crestline as a second home community. Completion of the 101-mile Rim of the World Highway in 1915 improved access to the mountains, and in 1923 summer and winter resorts were opened in Skyland. During the 1920s, the Valley of Enchantment, Crestline, Skyland, and Cedarpines Park were further developed with residential uses, serving primarily as vacation homes. From 1936 to 1938, the Works Progress Administration constructed the dam that created Lake Gregory, and in 1977 Lake Gregory was deeded to the County as a regional park.

Over the years, the Crest Forest area has gradually developed into less of a resort or second-home community and more of a bedroom community, composed of predominantly low-density, single-family residential areas. The area is oriented toward family recreation, with Lake Gregory serving as the main tourist attraction (Crest Forest Communities “Community Profile” Working Draft).

Disadvantaged Communities

U.S. Census data is gathered at three levels of precision: at the broadest level for unincorporated areas is the Census Designated Place (CDP), followed by Census Tracts that are made up of Block Groups. California Code of Regulations Section 596.1(b)(2) defines a “disadvantaged community (DAC)” as, “A community with an annual median household income (MHI) that is less than 80 percent of the statewide annual MHI.” The statewide MHI according to the Census American Community Survey (ACS) 2014-2018 dataset is $71,228; thus, 80 percent and 60 percent of that value represents the DAC and Severely DAC (SDAC) thresholds, respectively. Therefore, a community where the MHI is less than $56,982 meets the DAC threshold and a MHI less than $42,737 meets the SDAC threshold (ACS). According to the U.S. Census Bureau “QuickFacts,” the Crestline Census Designated Place as a whole has a medium household income from 2015-2019 of $61,953 (in 2019 dollars) (USCB).

The Census Block Groups that qualify as “disadvantaged” and “severely disadvantaged” are shown in **Figure 3-2 – Disadvantaged Communities**. The information contained in Figure 3-2 is taken directly from the DWR Web site feature called, “Disadvantaged Communities (DAC) Mapping Tool.” The mapping tool is a reference to assist local agencies to evaluate DAC status, using the definition provided in Proposition 84 Guidelines. Having areas that qualify as a DAC opens the District to the possibility of applying for State grant funding to assist with the implementation, planning, and disadvantaged community involvement efforts through Proposition 1 (Water Quality, Supply, and Infrastructure Improvement Act of 2014), and potentially grant funding through Proposition 84, Chapter 2 (Integrated Regional Water Management). In the event CVWD proceeds with either grant opportunity, additional research per the grant application requirements may be necessary.

3.5 SERVICE AREA LAND USE

Development in the San Bernardino Mountains is naturally constrained by the terrain, limited access, and lack of support infrastructure, as well as policies that place much of the area off-limits to significant development. Most of the mountain area, including the majority of CVWD’s service area, is surrounded by or within the San Bernardino National Forest (Figure 3-2). Forest lands are devoted primarily to resource protection and recreational use; however, they do become available for development from time to time, but it is extremely rare.

CVWD does not have land use authority within its service area. Because the CVWD service area is located within the unincorporated territory of San Bernardino County, land use authority rests with San Bernardino County.

WEBB contacted the San Bernardino County Land Use Services Department specifically for the purpose of coordinating for this UWMP on March 9, 2021 to request current land use information. A copy of the meeting request letter is included in **Appendix C**. Said letter requested data from the County on the following:

- any large-scale projects proposed within the CVWD service area;
- recent or pending permits for accessory dwelling units;
- descriptions of current and future demographics, population, socioeconomics, and housing stock; and

- current land use designations and associated shapefiles.

The San Bernardino County Land Use Services Department responded on March 18, 2021 that the District would be required to complete a Professional Consultation Application in the County's permit system and pay a fee of $825 for research and compilation of data by County staff. CVWD subsequently completed the application and paid the fee. On April 16, 2021, the requested information was provided to CVWD from the Land Use Services Department.

According to data provided by the County Land Use Services Department, since 2016 there have been 11 residential projects, six (6) ADUs, and five (5) commercial projects within the CVWD service area. The 11 residential projects consisted of variance requests and other minor modifications. Since 2016 there has not been a tract map, parcel map, or planned development permit filed within the CVWD service area. Regarding non-residential development, as shown on **Figure 3-4 – Land Use Designations** and **Figure 3-5 – Zoning Designations,** there is limited commercial or industrial zoning within the CVWD service area. The five (5) commercial applications are for revisions to existing businesses (April 6, 2021 email from Jessie Bruckhart).

3.5.1 Community of Crestline

Crestline is an unincorporated census-designated community within the San Bernardino Mountains. According to the U.S. Census Bureau “Quickfacts” Web site, as of January 2019 (the latest date for which Census data is available), the majority of the residents are white, not Hispanic or Latino (approximately 78%) and between the ages of 18 and 64 (approximately 61%). The majority of housing units are owner occupied (approximately 71%) and the average household size in Crestline is 2.45 persons. The median value of owner-occupied housing units is approximately $258,100 and the median gross rent is approximately $1,000. Median household income (in 2019 dollars) is approximately $62,000 and median income per capita (also in 2019 dollars) is approximately $31,500.

In November 2020, San Bernardino County adopted a new General Plan called the Countywide Plan. Adoption of the Countywide Plan took the County from a one-map system, under which zoning and general plan land use designations are the same, to a two-map system, under which there is a separate General Plan land use map and a zoning map. The new General Plan land use map was adopted in November 2020. The new County zoning map and related development code chapters are in process and have not been adopted. Because the current zoning map and development standards are still applicable, the Land Use Services Development Staff recommend existing zoning and development standards be used for the 2020 UWMP. Countywide Plan land use designations within Crestline include residential, commercial, industrial, public facility, open space, and resource land management uses. As shown in **Table 3L** and Figure 3-4,[4] the predominant land use in Crestline is residential. Based on maximum and mid-range projected number of dwelling units and 2.45 persons per dwelling unit, the maximum and mid-range population projections for the water service area are 19,100 and 13,400, respectively. Note that these projections are significantly higher than the population projections through 2045 shown in Submittal Table 3-1.

Table 3L: Summary of Maximum and Mid-Point Projected Buildouts Based on Countywide Plan Land Use Designations

Countywide Plan Land Use Designation	Acres in CVWD Service Area	Maximum Projected DUs or SF of Non-Residential Uses	Mid-Point Projected DUs	Maximum Projected Population(1)	Mid-Range Projected Population(1)
Residential	1,958	7,774 DUs	5,469 DUs	19,100	13,400
Commercial)	94	3,067,713 SF	N/A	N/A	N/A
Industrial	5	103,019 SF	N/A	N/A	N/A
Open Space	596	N/A	N/A	N/A	N/A
Public Facility	181	N/A	N/A	N/A	N/A
Totals	2,834	N/A	5,469	19,100	13,400

Notes: DU = dwelling unit, SF = square feet.
(1) U.S. Census Bureau Quickfacts for Crestline from 2015-2019 estimates persons per dwelling unit of 2.45.

County Zoning or Land Use Districts within Crestline include residential, agricultural and resource management (i.e., floodway, open space, and resource conservation), commercial, industrial, and special purpose (i.e., specific development and institutional). As shown in **Table**

[4] Refer to Appendix G for the detailed calculations used to produce this summary table.

3M and Figure 3-5,[5] the predominant zoning in Crestline is residential. Based on maximum and mid-range projected number of dwelling units and 2.45 persons per dwelling unit, the maximum and mid-range population projections for the water service area are 17,225 and 10,925, respectively. Note that these projections are somewhat lower than the projections based on Countywide land use designations (shown in Table 3L) and are significantly higher than the population projections through 2045 shown in Submittal Table 3-1.

Table 3M: Summary of Maximum and Mid-Point Projected Buildouts Based on Land Use Districts per County Development Code

Zoning (Land Use) District Per County Development Code (Title 8)	Acres within District Service Area	Maximum Projected DUs or SF of Non-Residential Uses	Mid-Point Projected DUs(1)	Maximum Projected Population(4)	Mid-Range Projected Population(4)
Residential	1,883	7,018 DUs	5,469 DUs	17,200	10,900
Commercial)	83	1,766,576 SF	N/A	N/A	N/A
Industrial	5	82,416 SF	N/A	N/A	N/A
Agricultural and Resource Management(2)	499	10	10	25	25
Special Purpose(3)	364	1,328,580 SF	N/A	N/A	N/A
Totals	2,834	N/A	5,469	17,225	10,925

Notes: DU = dwelling unit, SF = square feet.

(1) The County Development Code does not identify density ranges. The calculated mid-range density used for Single Residential and Multiple Residential is 2 DU/ac and 12.5 DU/ac, respectively.

(2) The Agricultural and Resource Management category includes Floodway, Open Space, and Resource Conservation. The Resource Conservation Land Use District allows 1 DU per 40 acres. Of the 499 acres in the Agricultural and Resource Management category, 361 acres are designated Resource Conservation.

(3) The Special Purpose category includes Specific Development and Institutional. The Institutional Land Use District allows a maximum FAR of 0.5. Of the 364 acres In the Special Purpose Category, 81 acres are designated Institutional.

(4) U.S. Census Bureau *Quickfacts* for Crestline from 2015-2019 estimates persons per dwelling unit of 2.45.

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[5] Refer to Appendix G for the detailed calculations used to produce this summary table.

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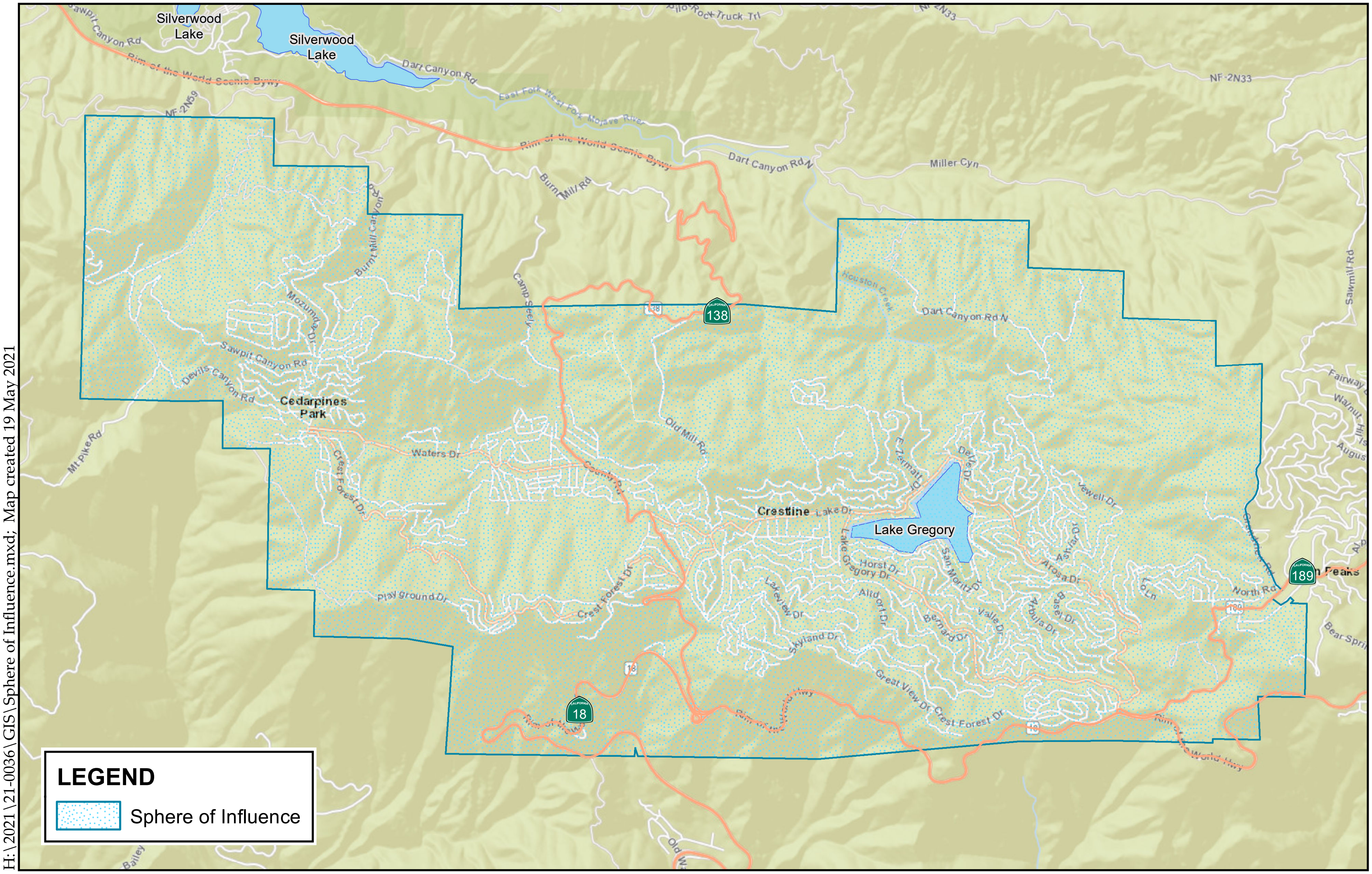
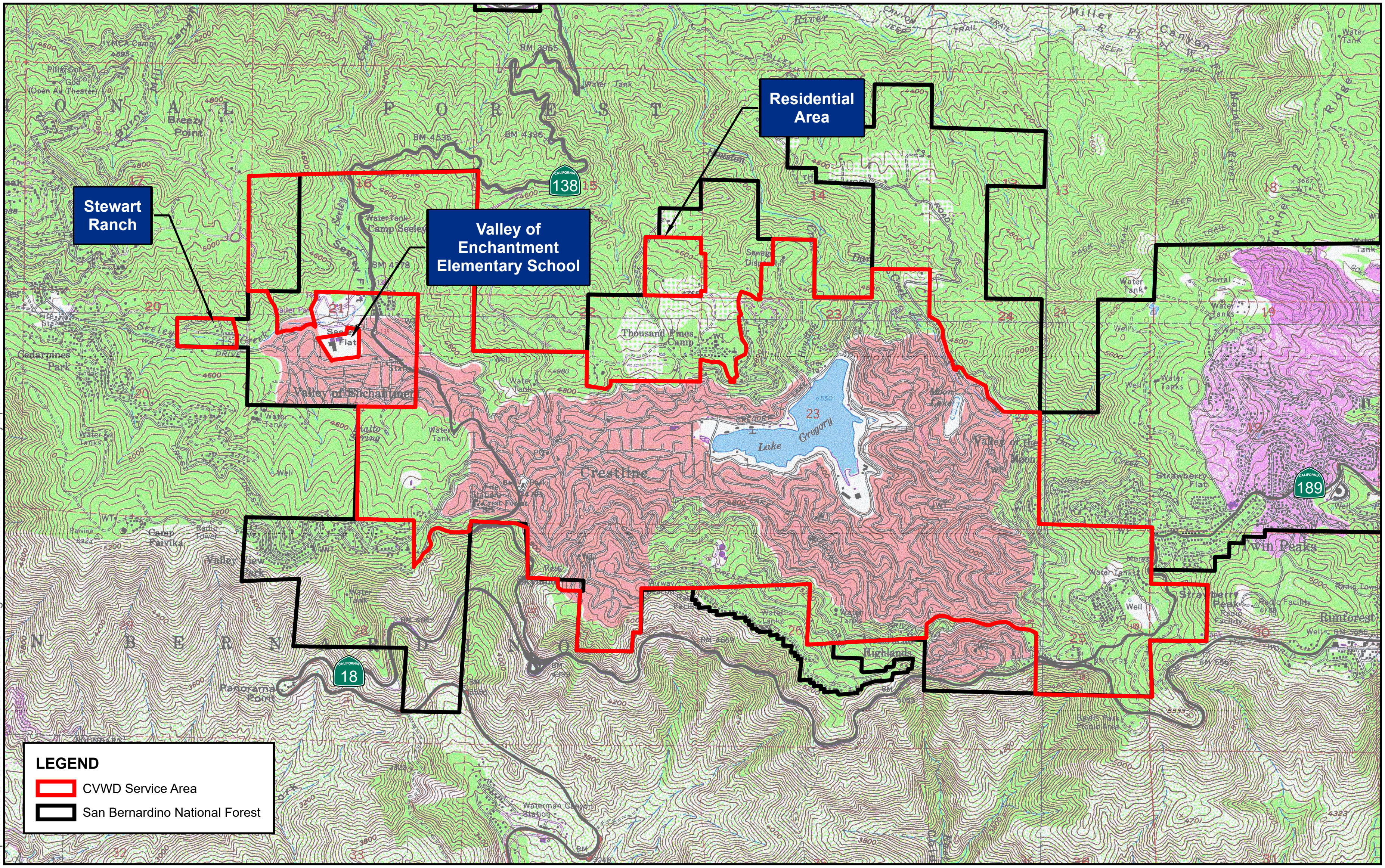


Sources: CVWD AGOL, 2016.

Figure 3-1 Sphere of Influence

CVWD Urban Water Management Plan 2020

0 0.5 1 Miles



Map created 5/19/2021 H:\2021\21-0036\GIS\Figure 3-1 National Forest Boundary.aprx

Sources: ESRI / USGS 7.5min Quad

Figure 3-2 San Bernardino National Forest

CVWD Urban Water Management Plan 2020

0 2,000 4,000 6,000 Feet

crestline village WATER DISTRICT

ALBERT A. WEBB ASSOCIATES

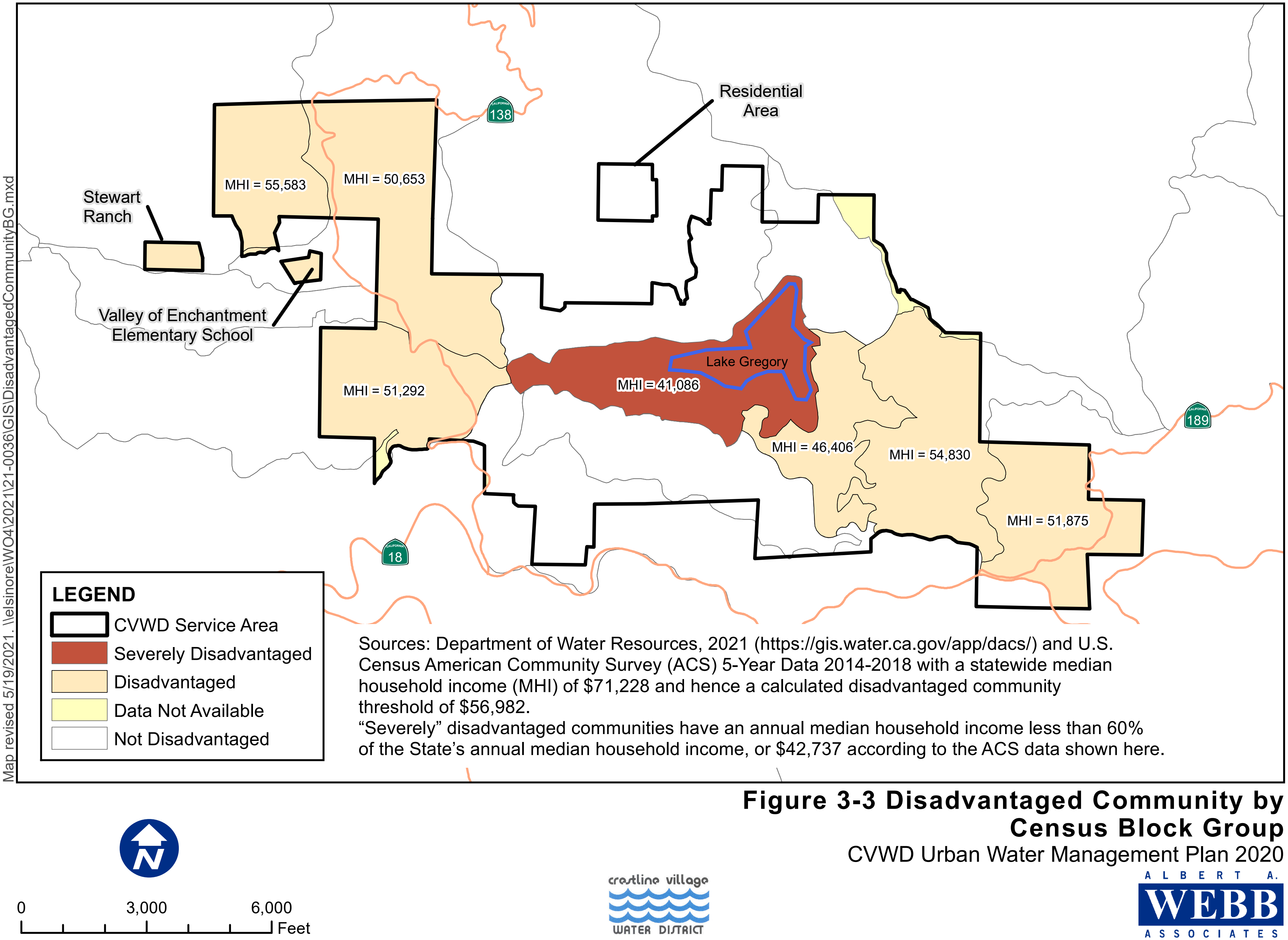


Figure 3-3 Disadvantaged Community by Census Block Group

CVWD Urban Water Management Plan 2020

crestline village WATER DISTRICT

ALBERT A. WEBB ASSOCIATES

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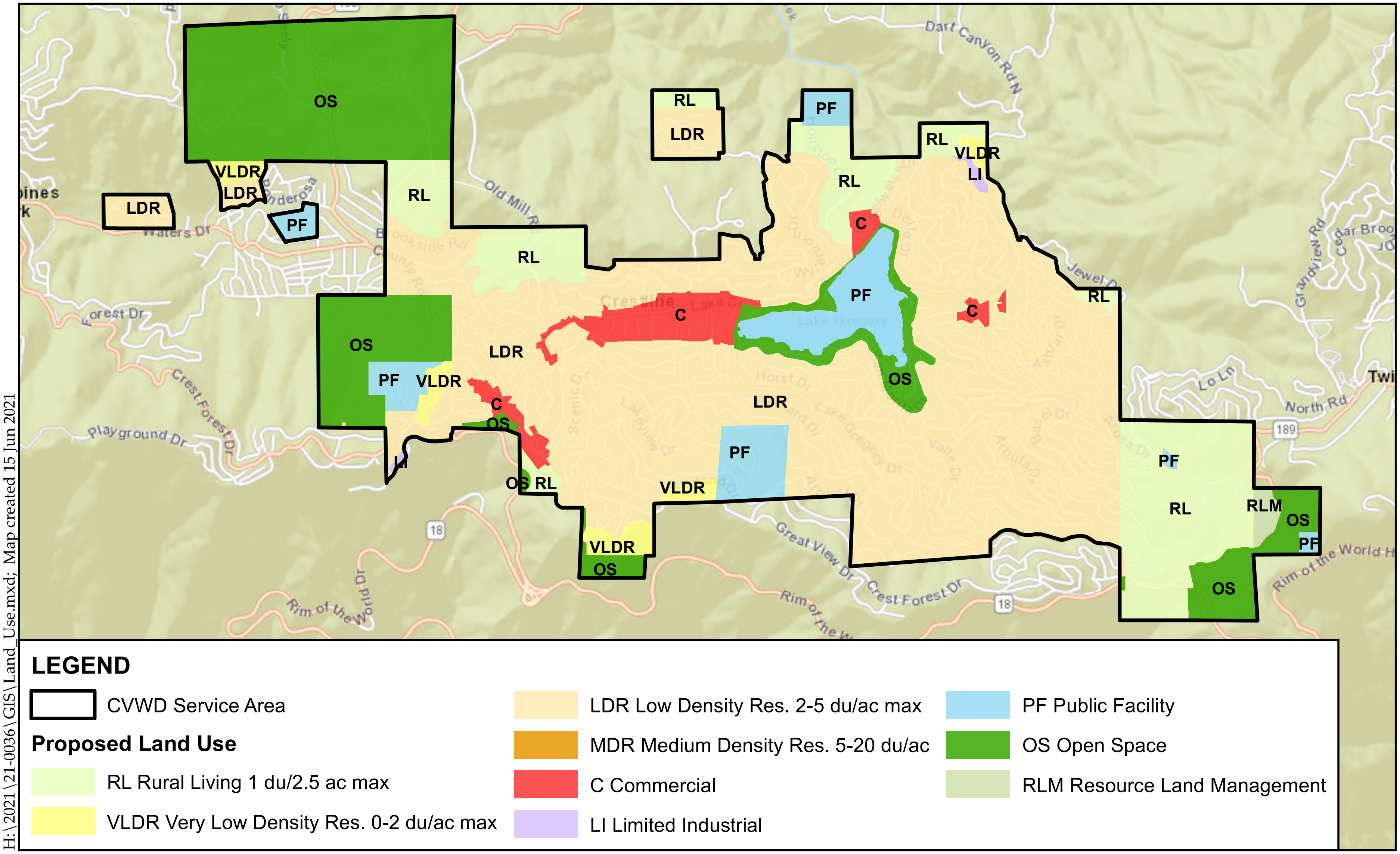
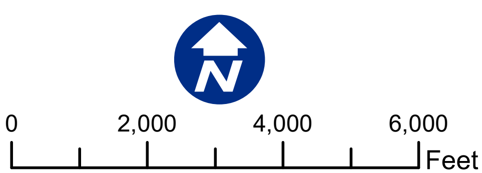


Sources: San Bernardino Co. Land Use Services, 2021; ESRI.

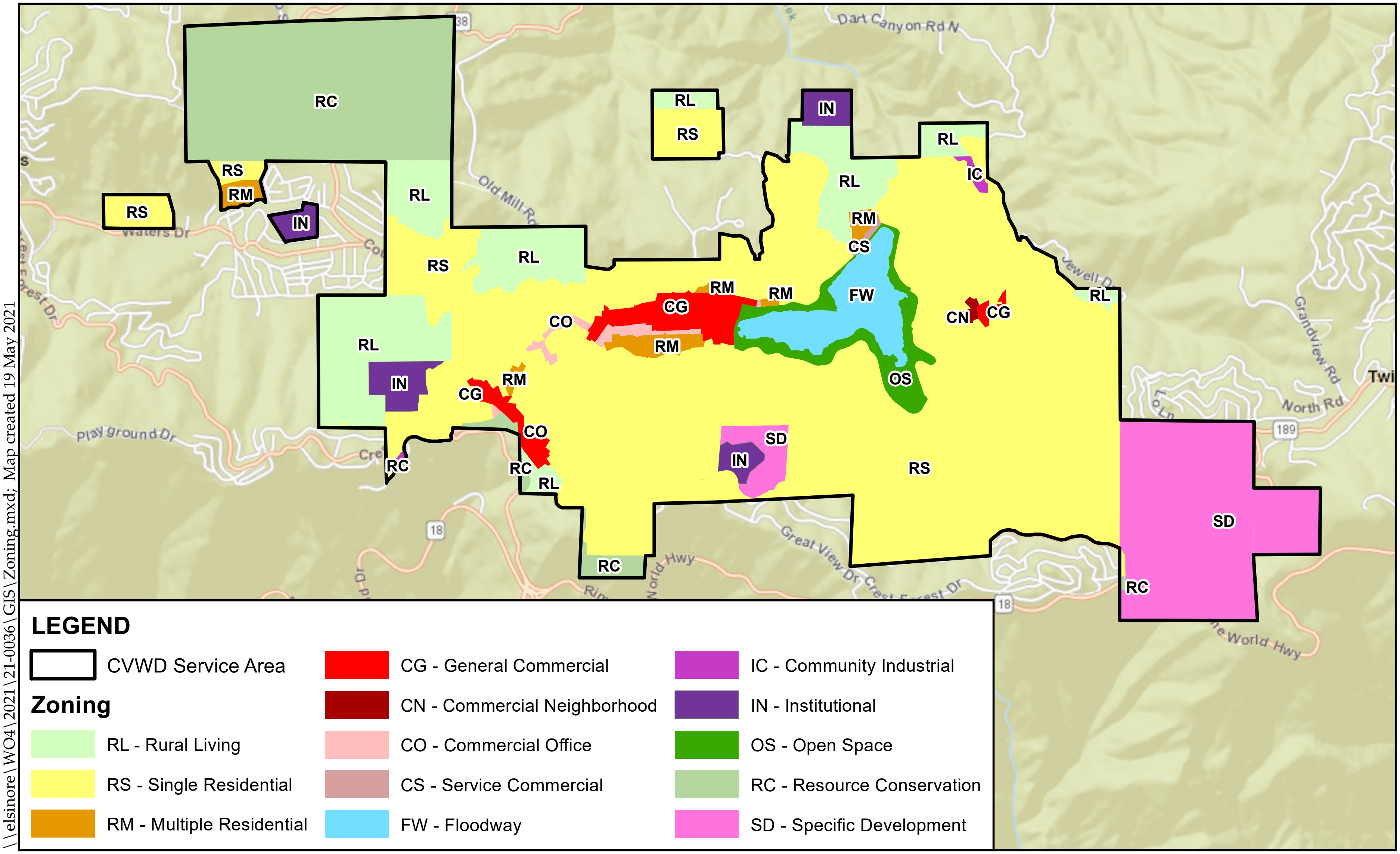
Figure 3-4 San Bernardino County Land Use Designations

CVWD Urban Water Management Plan 2020



crestline village WATER DISTRICT

ALBERT A. WEBB ASSOCIATES



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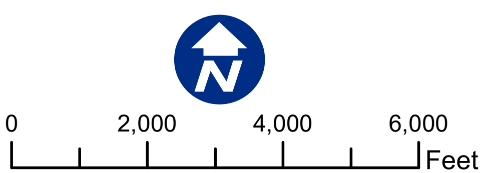
Sources: San Bernardino Co. Land Use Services, 2021; ESRI.

Figure 3-5 San Bernardino County Zoning Categories

CVWD Urban Water Management Plan 2020



crestline village WATER DISTRICT

ALBERT A. WEBB ASSOCIATES

CHAPTER 4 WATER USE CHARACTERIZATION

This chapter describes and quantifies CVWD's current potable water use and water use projections through the year 2040, to the extent information is available.[1] Recycled water is discussed separately in Chapter 6.

4.1 PAST WATER USE

The CVWD service area, at approximately 4,600 feet elevation, has distinct characteristics compared to other water suppliers within Southern California. Encompassing the unincorporated communities of Crestline and Lake Gregory within the San Bernardino National Forest, "mountain living" and "mountain communities" inherently use water differently from communities in the valley. Water-intensive landscaping such as lawns or large manicured frontage features are rare. It is crucial to understand that conservation of water is standard practice in this mountain community.

The number of metered connections by sector from 2016 to 2020 is shown in **Table 4A.**

Table 4A: Metered Connections by Sector, 2016-2020

	2016	2017	2018	2019	2020	Average Percent of Total	Average Annual Growth Rate (%)
Single-Family Residential	4,770	4,765	4,770	4,719	4,659	95.2%	-0.6%
Multifamily Residential	57	57	58	57	58	1.2%	0.4%
Commercial/ Institutional	184	184	182	174	175	3.6%	-1.3%
Total	5,011	5,006	5,010	4,950	4,892	--	-0.6%

Source: CVWD Electronic Annual Report to the Drinking Water Program (SWRCB) (2016-2020).

The District's water usage by sector from 2016 to 2020 is shown in **Table 4B**.

[1] The terms "water use" and "water demand" are used interchangeably in the UWMP per DWR guidelines.

Table 4B: Recorded Water Use by Sector (CCF), 2016-2020

	2016	2017	2018	2019	2020
Single-Family Residential	222,356	225,179	229,973	231,162	241,608
Multifamily Residential	7,283	7,355	7,265	5,838	7,431
Commercial/Institutional	33,150	33,380	35,793	40,720	41,833
Other (Hydrant Water)	-	-	-	4,481	88
Total Losses	18,824	13,756	21,013	30,952	18,967
Total (CCF)	**281,613**	**279,670**	**294,044**	**313,153**	**309,927**

Units in hundred cubic feet (CCF)
Source: CVWD Annual Report to the Drinking Water Program (SWRCB) and AWWA Water Audits.
Losses in 2020 are estimated as the difference between supply and demand.

As illustrated in Table 4B, water demand has been rising gradually during the past five years, most notably in the Single-Family Residential and Commercial/Institutional sectors. Total water usage in 2020 is 9 percent higher than total use in 2016. The average annual rate of increase in total water use from 2016 to 2020 is 2.3 percent. This pattern, coupled with the State's water conservation mandates that have been heeded by the community, has provided a new paradigm for the District to project future water demands.

4.2 CURRENT WATER USE

As of December 31, 2020, CVWD delivered 309,927 CCF (579 AF) of potable water and CY 2020 system losses are estimated at 18,967 CCF. The 2015 UWMP projected a demand volume of 278,735 CCF for 2020, which means demand was 11 percent higher than projected for 2020. However, the District met (and considerably surpassed) its 2020 Water Use Target goal for use reduction pursuant to the Water Conservation Act of 2009 (SB X7-7). See Chapter 5 for detailed information. As shown in **Submittal Table 4-1**, the actual metered water use for CVWD in CY 2020 is divided into five sectors: single-family residential, multifamily residential, commercial/institutional/governmental other potable (hydrant water) and losses. The majority of customer accounts are single-family residential.

Landscape irrigation is not separately metered at any locations. The District does not sell or purchase non-potable or recycled water. System losses from 2016-2019 are reported separately from this discussion in Section 4.4.

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable[1] Water - Actual			
Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume[2]
Add additional rows as needed			
Single Family		Drinking Water	241,608
Multi-Family		Drinking Water	7,431
Commercial		Drinking Water	41,833
Other Potable	Hydrants	Drinking Water	88
Losses	Estimated as total production (Table 6-8) minus consumption (290,960 CCF)	Drinking Water	18,967
		TOTAL	309,927
[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3*			
NOTES: Volume in hundred cubic feet (CCF). Other Potable is all hydrant water, whether for hydrant meter rental or fire operations. Losses in CY 2020 may be unusually high (see Section 4.3 below).			

4.3 PROJECTED USE

Estimating future water demand as accurately as possible allows water agencies to manage their water supply and appropriately plan their infrastructure investments. Factors to consider are current and future land uses, number of occupants or dwelling units, potential effects of climate change, and typical water demand-generation factors.

As previously mentioned, the mountainous Crestline community has different water use characteristics than those exhibited by typical urban areas. Large lots with expansive landscaped areas are nonexistent and the cost of water due to its local scarcity and higher pricing of imported water typically provide for much lower per capita use. The population served by CVWD has done an excellent job of conserving water, both historically and recently. Many of the conservation measures discussed in this plan are already in effect, following public input and with public support. In other words, much of the water management planning process for CVWD has already taken place through past District actions, with full public involvement and review.

CVWD analyzed its recorded full-time population data and calculated an average annual growth rate of 0.8 percent; however, to estimate conservatively, the District will use an annual growth rate of 1 percent, which has been applied to the District's water consumption projections shown below in **Submittal Table 4-2**. Please refer to Submittal Table 3-1 in Chapter 3 for population projections.

Submittal Table 4-2 Retail: Use for Potable and Non-Potable[1] Water - Projected						
Use Type	Additional Description (as needed)	Projected Water Use[2] *Report To the Extent that Records are Available*				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Single Family		253,932	266,886	280,499	294,808	
Multi-Family		7,810	8,208	8,627	9,067	
Commercial		43,967	46,210	48,567	51,044	
Other Potable	Hydrants	92	97	102	107	
Losses		18,967	18,967	18,967	18,967	
	TOTAL	324,768	340,368	356,762	373,993	0
[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Other Potable is all hydrant water, whether for hydrant meter rental or fire operations. Assumes 1% growth rate per year. Losses remain constant.						

Water consumption is expected to increase from 309,927 CCF in 2020 to 373,993 CCF in 2040, an increase of 64,066 CCF or roughly 17 percent. Over the next 20 years, this is an annual increase of 5,339 CCF. Water losses are held constant in light of the District's advanced metering system, which allows daily monitoring and response to leaks within 24 hours. The starting point for this projection for demand is what is considered a "normal" year, rather than a single dry year or one in a succession of multiple dry years. However, as noted before, the Crestline community historically exhibits relatively low per capita water use in comparison with water users in neighboring non-mountain communities. This is not intended to downplay future water demands and subsequent need for more local wells and increased dependency on CLAWA supplies when local well production is limited. Rather, it is intended to only be an accurate reflection of current conditions and for planning purposes. The District expects the "drought condition" to become more common.

The District's current and projected total water demands are summarized in **Submittal Table 4-3**; note that the District does not purchase or supply raw water and recycled water services are not feasible due to regulatory limitations, as detailed in Chapter 6.

Submittal Table 4-3 Retail: Total Water Use (Potable and Non-Potable)

	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable *From Tables 4-1R and 4-2 R*	309,927	324,768	340,368	356,762	373,993	0
Recycled Water Demand[1] *From Table 6-4*	0	0	0	0	0	0
Optional Deduction of Recycled Water Put Into Long-Term Storage[2]						
TOTAL WATER USE	309,927	324,768	340,368	356,762	373,993	0

[1] Recycled water demand fields will be blank until Table 6-4 is complete
*[2] Long term storage means water placed into groundwater or surface storage that is not removed from storage in the same year. Supplier **may** deduct recycled water placed in long-term storage from their reported demand. This value is manually entered into Table 4-3.*

Future water savings (or "passive savings") from codes, standards, ordinances, or transportation and land use plans are not included in the District's demand projections.

4.3.1 Climate Change Considerations

Beginning in the 2020 UWMP, the Water Code requires the District to consider the impacts of climate change in its water use projections, which are shown in **Submittal Table 4-2**.

Considerations for climate change impacts began with using the *Climate Change Vulnerability Screening Form for Urban Water Management Planning* located in the DWR Guidebook for 2020 UWMPs. A copy of the Screening Form, completed by CVWD staff, is located in **Appendix F**. Pursuant to Water Code, the District's planning for climate change impacts was commensurate with the number of customers served and the volume of water supplied. The type and degree to which climate change impacts were considered in the District's water use projections, and the basis for those assumptions are described below.

As described in Chapter 3, Western Municipal Water District (Western) prepared a Technical Memorandum dated April 22, 2021 describing an analysis performed as part of its Drought Contingency Plan and Climate Change Vulnerability Assessment (WMWD(a)). A copy of the memo is located in **Appendix F**. The results of the analysis included factors that reflect the trends in rainfall and temperature expected from an average of many climate change models. The trends are commensurate with the Cal-Adapt projections for Crestline. If applied to water supply and demand projections, the factors can illustrate the projected effects of climate change to supply and demand within Western's service area. Although Western's service area does not include CVWD, it does include much of the neighboring Inland Empire valley region. Because CVWD is located at a much higher elevation than Western's service area, it receives more precipitation and has less outdoor water use then what would be expected in the valley; therefore, the factors reflect conservative assumptions for the CVWD service area. CVWD has used these factors herein where noted (see **Table 4C**). The results of the analysis that pertain to water demands are provided below:

> *The impacts of climate change on outdoor water demand are projected to be similar during normal and drought years over the next two decades. This is because climate change datasets show that temperatures are projected to increase over time, regardless of hydrologic conditions. These projected increases in temperature are estimated to increase ET rates for landscaping, irrigated agriculture, and native vegetation. For all year types, outdoor water use is projected to increase by about 3 percent during the next two decades. The water demand change factors are applied to outdoor water uses, which have been adjusted for future population growth and conservation measures. Indoor water uses are assumed to respond to future population growth and conservation as well but are not sensitive to climate change.* (WMWD(a), p. 13)

Therefore, because of the relatively low water demand for landscaping, the absence of irrigated agriculture and prevalent use of native vegetation, climate change effects on water demand are not expected to be significant in the CVWD service area.

Table 4C: Water Demand Change Factors for Outdoor Water Uses(1)

Beginning Year	Normal Year	Single-Dry Year	Five-Year Dry Period
2020	100.0%	100.0%	100.0%
2025	100.6%	100.6%	99.8%
2030	101.2%	101.3%	101.2%
2035	101.8%	101.9%	101.8%
2040	102.4%	102.5%	102.4%
2045	103.1%	103.2%	103.0%

Source: Western Municipal Water District, *Technical Memorandum: Western Drought Contingency Plan – Climate Change Vulnerability Assessment*, April 22, 2021 (WMWD(a), p. 13).
(1) 2020 is baseline year. The factors have been applied to all demands.

To account for the potential effects of climate change to water demands, and the uncertainty therein, CVWD has conservatively applied the normal year factors from Western's analysis in Table 4C to the demand projections of Submittal Table 4-2 beginning in 2025 through 2040, even though some of that demand is indoor use that is not sensitive to climate change. The results are shown below in **Table 4D**.

Table 4D: Potential Effect of Climate Change to Projected Demands

	2025	2030	2035	2040
Total Demands (CCF)(1)	324,768	340,368	356,762	373,993
Water Demand Climate Change Factor(2)	100.6%	101.2%	101.8%	102.4%
Total Demands with Climate Change Factor (CCF)	326,717	347,175	363,183	382,969
Potential Increase in Water Demand from Climate Change (CCF)	+1,949	+6,807	+6,421	+8,976

Notes: Units in hundred cubic feet (CCF).
(1) From Submittal Table 4-2.

(2) Climate change factors from TableC (WMWD(a)).

According to Cal-Adapt and Western's technical memorandum and climate change analysis, higher temperatures and less rainfall are anticipated to occur as a result of climate change, and these are the factors that may affect water demand the most. Customer demands increase in summer; therefore, an increase in average annual temperatures and the frequency and duration of heat waves as the result of climate change is expected to increase existing customer demands for water, particularly outdoor use.

As of 2020, the District does not serve any industrial or agricultural end users, whose water use might be significantly affected by higher temperature, nor does it sell water to other agencies, which might experience increases in demand. The mountainous Crestline community has different water use characteristics than those exhibited by typical urban areas in that outdoor water usage is minimal. For example, large lots with expansive landscaped areas are nonexistent, so significant increases in landscape irrigation in response to extended drought conditions caused by climate change are not anticipated. Further, the District does not supply water for saline water intrusion barriers, groundwater recharge, conjunctive use, exchanges, surface water augmentation, transfers, or wetlands/wildlife habitat, which are all uses that could be affected by higher temperatures and drought as a result of climate change.

CVWD water demand projections are conservative in that they continue to increase across all land use types and they do not include future reductions in water use from passive savings (e.g., codes, ordinances, etc.). Ongoing conservation efforts will be necessary, however, because the District water supplies from low-production fractured bedrock aquifers are contingent on precipitation (climate change impacts to supplies are discussed in Chapter 6).

4.4 DISTRIBUTION SYSTEM WATER LOSSES

Distribution system water losses include "apparent" and "real" losses. Apparent water loss includes water theft, metering inaccuracies, and data handling errors. Real losses are the physical water losses from the water distribution system and the supplier's storage facilities, up to the point of customer consumption. Real losses can occur because of leaking or broken pipes, leaks or overflows at storage tanks, or leaks at service connections.

California Senate Bill No. 1420 (SB 1420) requires water utilities that submit UWMPs to calculate annual system water losses using the water audit methodology developed by the American Water Works Association (AWWA). SB 1420 also requires that utilities submit these audits every five years as part of their respective UWMP. To facilitate user-friendly and consistent water auditing practices, AWWA has developed the AWWA Free Water Audit Software, which is based on the principles of the AWWA M36 Water Audit methodology. Per DWR guidelines, utilities must use this software to complete their audit. The annual water loss volumes for CY 2016 through CY 2020 are summarized in **Submittal Table 4-4** in units of hundred cubic feet (CCF). Losses from CY 2020 are estimated as the difference between total production and consumption because the 2020 AWWA Water Audit was not due until after this report was completed. The losses from CY 2016 through 2019 are from the District's validated water loss audits. Those complete audits may be found in **Appendix H**.

Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss [1,2]
01/2016	18,824
01/2017	13,756
01/2018	21,013
01/2019	30,952
01/2020	18,967

[1] *Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*

[2] ***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES: Water losses from 2020 are estimated as the difference between total production and total consumption. All other years are reported from validated water loss audits.

The water audits performed on the CVWD data CY 2016 through 2019 considered the water supplied, the water consumed, pipeline system details, and cost data to arrive at a "Water Audit Data Validity Score" on a 100-point scale. For all four years, the average score was 58 out of 100 (ranging from 55 to 60). Those scores put CVWD's water audit data within "Level III" on a five-level rating scale.[2] DWR provided suggestions for data improvement for each Level to control water loss in five focus areas, as shown below in **Table 4E**.

Table 4E: DWR Water Loss Control Recommendations

	Audit Data Collection	Short-Term Loss Control	Long-Term Loss Control	Target-Setting	Benchmarking
Level III (score 51-70)	Establish/revise policies and procedures for data collection	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process	Establish long-term apparent and real loss reduction goals (+10-year horizon)	Preliminary Comparisons—can begin to rely upon the Infrastructure Leakage Index (ILI) for performance comparisons for real losses

According to District records, the system loss for the past 33 years of data has been less than 9 percent, on average. For the past 24 years, system loss has been kept at an average of 6 percent of total supply (CVWD Annual Sources of Supply/System Loss/Rainfall spreadsheet). In the early 1990s, the District significantly reduced water loss by conducting annual pipeline replacement projects. With incorporation of the District's advanced metering infrastructure (AMI) system beginning in 2011 (detailed in Chapter 8), CVWD can quickly (within 24 hours of a consistently running meter) identify customers that may have leaks, breaks, or other irregular water use situations.

Losses jumped up dramatically in 2019 and then began to recede in 2020 and are continuing to recede as this UMWP is being prepared. Starting in late 2019, the District transitioned between its former customer management software and server to a new Tyler system and server. This transition was particularly difficult, damaging the reports utilized to preemptively handle leaks. Typically, a daily report is run to check for both stopped meters and potential leaks, so these reports are significant in handling leaks in the District. Those reports were unable to run for more than six months. This led to a number of unbilled accounts stretching into 2021, and some billed at the wrong rates. Field crews worked through spring 2021 re-

[2] The AWWA Water Audit provides another performance indicator in addition to the Data Validity Score called the Infrastructure Leakage Index (ILI). However, the ILI is not discussed here since the Water Audit manual located in the DWR Guidebook, Appendix L, advises not to use the ILI for small systems or those that operate at low pressure.

certifying the programming on every District meter currently installed and updating the software. This system transition was also complicated by the interaction between both the AMI and Tyler software, which was being finalized in spring 2021.

Widespread failure of District meter transmission units (MTUs) occurred in 2020, due to battery life failing on older units. Since units were installed in a single phase, they all began to fail in order. This resulted in meters not reading, some for months on end. Because of this, the amount of meter maintenance and repair in the District was unusually high through all of 2020 and into 2021. The final MTU replacements were completed in April 2021.

4.4.1 Future Water Loss Performance Standard

Water Code Section 10608.34, subdivision (i) (Senate Bill 555, 2015) requires the State Water Resources Control Board to adopt volumetric performance standards for water loss for urban retail water suppliers. Pursuant to this law, urban retail water suppliers have been annually submitting water loss audits to DWR since October 2017. Copies of CVWD validated water audits are located in **Appendix H**.

Additionally, urban retail water suppliers are required to calculate an urban water use objective that includes indoor, outdoor, commercial, industrial, and institutional irrigation uses and allowed water loss by 2024 (AB 1668 and SB 606, 2018). These standards are still in the pre-rulemaking process and have not been adopted to date. However, the Water Code requires data to be included in this 2020 UWMP that demonstrates whether the District will meet its water loss performance standard, even though it has yet to be determined. Therefore, to demonstrate that CVWD is expected to meet its forthcoming water loss performance standard, refer to **Submittal Table 4-4** and the 2016-2019 audits located in **Appendix H**.

Submittal Table 4-4, above, shows that CVWD losses have remained relatively low over the past five years, even though 2019 losses were higher relative to the other four years for the reasons stated above in Section 4.4. However, even in that extraordinary year of losses, CVWD's CY 2019 water loss audit shows a "real" loss of 9.41 gallons per connection per day, which is considered a "low" level of real loss.

According to the proposed regulation, suppliers that have already achieved low levels of real loss (i.e., under 16 gallons per connection per day) would not be required to submit responses to the state questionnaires on water loss-specific information or further reduce water loss. These suppliers would be required to maintain losses at or below 16 gallons per connection per day (State Water Resources Control Board, Fact Sheet: Water Loss Performance Standards, Nov. 18, 2020, pp. 1-2).

4.5 WATER USE FOR LOWER INCOME HOUSEHOLDS

California Senate Bill No. 1087 (SB 1087) requires the water use projections of an UWMP to include the water demands for affordable housing as identified in the housing element of any city, county, or city and county in the service area of the supplier. SB 1087 builds on an existing statutory priority for providing water and sewer services to affordable housing developments.

The San Bernardino County General Plan includes four residential land use districts for the unincorporated areas of the County (Rural Living [RL], Single Residential [RS], Multiple Residential [RM], and Special Development [SD]). The County also currently employs a single-map system, meaning that County General Plan land use districts also serve as the County's zoning districts. Two other districts—Resource Conservation and Agricultural—allow residential development, but at very low densities. In addition, the Office Commercial, General Commercial, and Service Commercial Districts allow residential in conjunction with a commercial use with a planned development review, and the Rural Commercial allows various low residential densities with a land use review or conditional use permit. (HE, p. 5B-71)

San Bernardino County allows for different types of residential uses in three major regions. The District is located in the Mountain Region, which is a very large area dominated by federally managed public lands, including the San Bernardino National Forest, Angeles National Forest, and Sand to Snow National Monument (PEIR, p. 5.10-7). The allowed uses for residential properties are generally the same regardless of whether the region is in the Valley, Mountain, or Desert region. The development code also contains provisions for second units, dependent housing units, and accessory dwellings. (HE, pp. 5B-72, 5B-73)

The current San Bernardino County Housing Element does not identify where in the County's vast Mountain Region low-income housing units are projected; however, land uses that allow for low-income single-family and multi-family housing units are located in the District's service area (see Figure 3-4 – San Bernardino County Land Use Designations and Figure 3-5 – San

Bernardino County Zoning Categories in Chapter 3). And due to lower land costs in the mountains, housing there will continue to be more affordable than in the Valley Region. From 2006-2012 for example, the Mountain and Desert Regions facilitated a large number of units affordable to lower income households on RL, RS, and RM-designated properties (470 units and 2,169, respectively) (HE, p. 5E-122).

CVWD will not deny nor condition approval of water services, nor reduce the amount of services applied for by a proposed development that includes housing units affordable to lower income households. Although the District's water demand projections included herein are not derived from a parcel-by-parcel land use-based approach, they are based on the community as known to the District, including units for all types of income levels. Because Crestline is within unincorporated San Bernardino County, it is not assigned a specific regional housing needs allocation. The allocation for all of unincorporated San Bernardino County applies to all of the unincorporated communities and how the allocation is addressed is up to the County to determine. The projections herein include an expectation that the character of the community will stay relatively consistent and continue to include water demands from all income levels. Therefore, the District's projections include future water demands from lower income households (**Submittal Table 4-5**).

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) *Drop down list (y/n)*	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes

Further, as discussed previously in Chapter 3, several areas of the District meet the criteria for "disadvantaged community" or DAC, according to the 2014-2018 American Community Survey (see Figure 3-3 – Disadvantaged Community by Census Block Group in Chapter 3). A DAC meets the same criteria as the definition for "low-income," which is an annual median household income (MHI) that is less than 80 percent of the statewide annual MHI (CCR Section 596.1). Therefore, the District's projections for water use are essentially that of a community with areas of low-income households.

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CHAPTER 5 BASELINES AND TARGETS

With the adoption of the Water Conservation Act of 2009, also known as the Senate Bill (SB) X7-7, the State of California set a goal of reducing per capita urban water use by 20 percent by the year 2020. Each retail urban water supplier was required to determine baseline water use during their baseline period and also target water use for the years 2015 and 2020 in order to help the State achieve the 20-percent reduction. In the 2015 UWMP, CVWD demonstrated compliance with its Interim Water Use Target for the year 2015 and that the District was on track to achieve the 2020 Water Use Target.

In this UWMP, CVWD must demonstrate that it met its 2020 Water Use Target by completing the SB X7-7 2020 Compliance Forms, which are provided in **Appendix I** for verification by DWR. The SB X7-7 2020 Compliance Forms were prepared pursuant to the DWR UWMP Guidebook and Appendices (March 2021). Tables from the SB X7-7 Forms that are shown in Chapter 5 differ from the UWMP tables in the rest of this UWMP as they are colored green and brown and begin with the title "SB X7-7 Table …"

5.1 RECALCULATION OF SB X7-7 BASELINES AND TARGETS

In the 2010 UWMP, the District calculated its 2020 Urban Water Use Target with "Target Method 3," which is "95 percent of Hydrologic Regional Target from the 20 x 2020 Water Conservation Plan (draft, April 30, 2009)." The District's reported Target for 2020 was 162 gallons per capita per day (GPCD); [1] however, the baselines were updated for the 2015 UWMP using the DWR Population Tool. Therefore, as allowed by DWR guidelines, CVWD revised its water use baselines and targets for 2015 and 2020 in the previous Plan.

The 2015 Interim Water Use Target for CVWD was calculated at 131 gallons per capita per day (GPCD) and the 2020 target was set at 161 GPCD. In 2015, water use in the District was 72 GPCD, which was 45 percent less than the 2015 target and 55 percent less than the 2020 target. Compliance in 2015 was verified by DWR reviewing the SB X7-7 Verification Forms

[1] GPCD Terminology: Two terms are often used interchangeably; Daily per Capita Water Use and Gallons per Capita per Day (GPCD). Daily per Capita Water Use is the amount of water used per person per day. In the UWMP, this is total water use within a service area, divided by population and is measured in gallons. GPCD is Daily per Capita Water Use measured in gallons. These are different from R-GPCD, which is solely the residential water use divided by population and is used in drought reporting to the State Water Resources Control Board.

submitted with the 2015 UWMP. The complete set of SB X7-7 Verification Forms from 2015 is provided in **Appendix I**.

There are some situations where the baselines and targets must, or may be, recalculated including availability of better data, certain service area expansions, contractions, or annexations of already developed areas. Since none of the above applied to the District in the period between the 2015 and 2020 UWMPs, consistent with *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (Feb. 2016) (Methodologies), no revisions to the District's Water Use Baseline, Interim Water Use Target, and 2020 Water Use Target from the 2015 UWMP were made in this Plan.

5.2 BASELINE AND TARGETS

According to the Water Code, water suppliers who used less than 10 percent recycled water in 2008 must use a 10-year baseline period for water use and calculate the average water use, in GPCD, over that length of time. CVWD has never used recycled water and will therefore continue using a 10-year baseline period beginning in 2001 and ending in 2010, as identified in the 2010 UWMP.

Water suppliers must also calculate water use, in GPCD, for a 5-year baseline period, which is used to confirm that the selected 2020 target meets the minimum water use reduction requirements. In other words, the 10-year baseline can be considered the "Baseline GPCD" and the 5-year baseline as the "Target Confirmation." The District selected in their 2010 Plan a 5-year base period beginning in 2006 and ending in 2010 as shown in **SB X7-7 Table 1** (from the 2015 Plan).

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	328,442	Hundred Cubic Feet
	2008 total volume of delivered recycled water	-	Hundred Cubic Feet
	2008 recycled water as a percent of total deliverie	0.00%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range[3]	2010	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range[4]	2010	
[1] *If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-*			
2 The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.			
[3] *The ending year must be between December 31, 2004 and December 31, 2010.*			
[4] *The ending year must be between December 31, 2007 and December 31, 2010.*			

Once the baseline periods are set, the baseline GPCD is calculated by dividing the volume of water into the system for each baseline year by the service area population in that year (population as calculated by the DWR Population Tool). The baseline and targets summary for 2020 is shown below in **Submittal Table 5-1**, showing that CVWD's target for 2020 Compliance is 161 GPCD.

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	*2001*	*2010*	*101*	*161*
5 Year	*2006*	*2010*	*95*	
**All cells in this table should be populated manually from the supplier's SBX7-7 Verification Form and reported in Gallons per Capita per Day (GPCD)*				

5.3 SERVICE AREA POPULATION

In order to correctly calculate annual GPCD, water suppliers must determine the population that they served for each baseline year in both of the baseline periods and for the 2020 compliance year. The DWR Population Tool (**Appendix G**) generated population numbers that are close to the District's internal method described in Chapter 3 and are therefore used for measuring SB X7-7 compliance.

The Population Tool developed by DWR is particularly useful for agencies like CVWD whose service area boundaries do not match significantly to a city or census-designated place (CDP) and cannot use Department of Finance population data. The Tool utilizes U.S. Census year (i.e., 1990, 2000, and 2010) data and electronic maps of the CVWD service area to obtain population numbers for census years. Using the number of residential meters (single-family and multifamily residential combined) from the District's annual reports to the SWRCB, the estimated 2020 District population is shown in **SB X7-7 Table 3**.

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	8,215

5.4 GROSS WATER USE

To estimate GPCD, the water used is measured as gross water use. Gross water use is a measure of water that enters the distribution system of the supplier over a 12-month period (calendar year) with certain allowable exclusions. These exclusions are (1) recycled water delivered within the service area, (2) indirect recycled water, (3) water placed into long term storage (surface or groundwater), (4) water conveyed to another urban supplier, (5) water delivered for agricultural use; or (6) process water.

None of the water brought into CVWD's system is used for any of the purposes listed above, and therefore does not qualify for any exclusions to its gross water use.

Gross water use is reported for each year in the baseline periods as well as 2020, the compliance year. Two versions of **SB X7-7 Table 4-A** are shown below for the District's water sources: one for CVWD's own wells (i.e., "The supplier's own water source"), and the other for water purchased from CLAWA (i.e., "A purchased or imported source"). This data is kept by CVWD in order to track historical well production and CLAWA purchases.

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	Crestline Village Water District Wells		
This water source is *(check one)* **:**			
☑	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	209,837		209,837

[1] ***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.*
[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

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	Crestline Lake Arrowhead Water Agency		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☑	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	100,090	-	100,090

[1] ***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.*
[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

Annual gross water use is then the sum of the two water sources (SB X7-7 Table 4-A on the left and SB X7-7 Table 4-A on the right) for Compliance Year 2020. As shown in **SB X7-7 Table 4** below, the gross water use for Compliance Year 2020 is 309,927 CCF. This includes both sources of water to the District: pumping from its own wells and purchases from CLAWA.

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	2020 Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	2020 Deductions					2020 Gross Water Use
		Exported Water *	Change in Dist. System Storage* (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use*	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	309,927			-		-	**309,927**
*** 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.							

(Units in CCF. To convert to AF, divide by 435.6.)

5.5 2020 COMPLIANCE DAILY PER CAPITA WATER USE

To obtain the GPCD, the yearly gross water use is simply divided by the service area population. As shown on **SB X7-7 Table 5** below, CVWD's 2020 daily per capita use is calculated as 77 GPCD.

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
309,927	8,215	**77**

Because the 2020 Water Use Target was 161 GPCD, and the actual water use for CY 2020 is 77 GPCD, the District did achieve its 2020 Water Conservation Target and is compliant with SB X7-7, as shown in **Submittal Table 5-2** below. Pursuant to Water Code Section 10608.24, the District may adjust the actual 2020 GPCD if factors outside the Supplier's control or if special situations occurred. CVWD has determined that no adjustments due to extraordinary events, weather normalization, or economics were warranted.

Submittal Table 5-2: 2020 Compliance
From SB X7-7 2020 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* *(Adjusted if applicable)*		
77	0	77	161	Yes

**All cells in this table should be populated manually from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)*

The complete calculations for the 2020 Water Use Target are completed in the SB X7-7 2020 Compliance Forms located in **Appendix I**.

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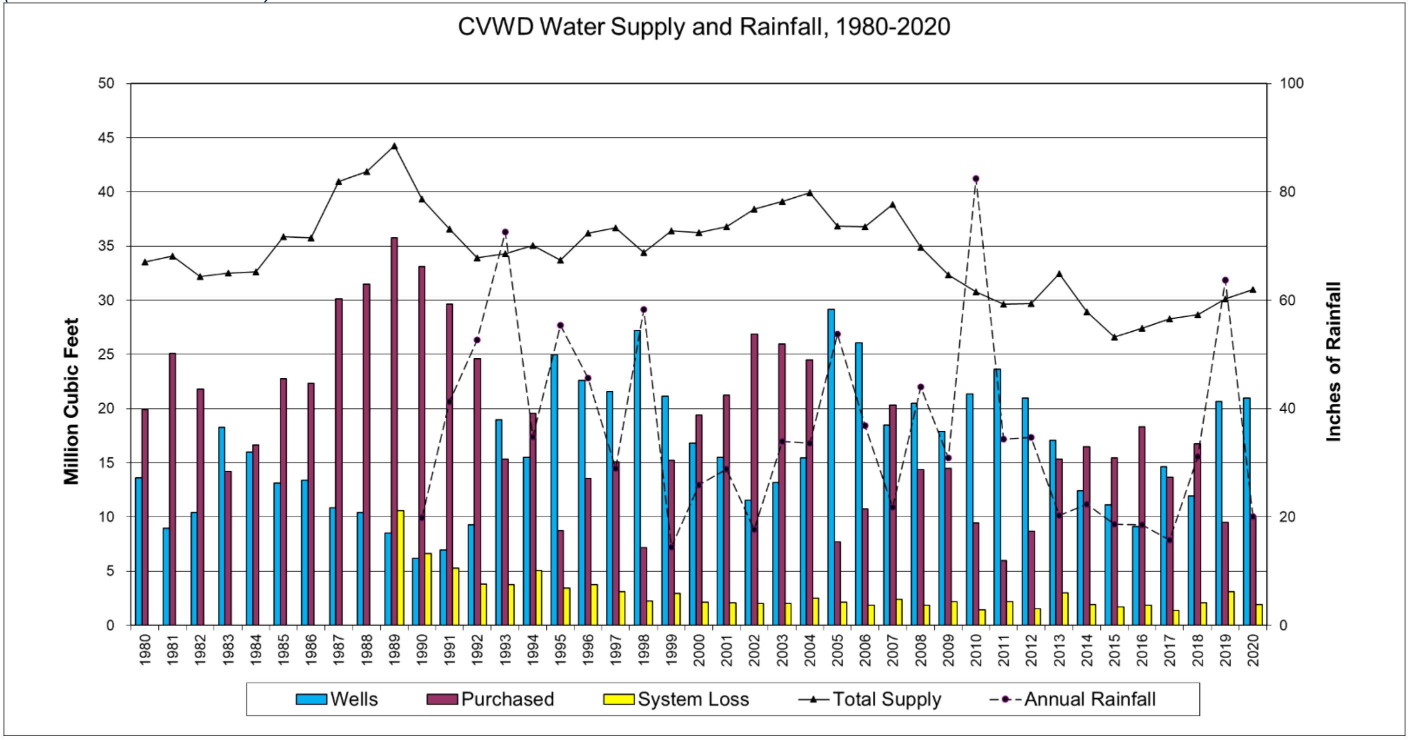
CHAPTER 6 WATER SUPPLY CHARACTERIZATION

This chapter describes and quantifies the sources of water available to CVWD, including its own wells and purchased imported water supplies from the local wholesaler (CLAWA). The District's supply portfolio does not currently include surface water, recycled water, desalinated water, transfers and exchanges, or conjunctive use. Each water source is described below including future actions or projects anticipated to meet future water demands. The water volumes presented in this chapter reflect expectations for "average year" conditions. Single- and multiple-dry year conditions and catastrophic interruptions are considered in the supply reliability discussion in Chapter 7 and the Water Shortage Contingency Plan in Chapter 8.

6.1 PURCHASED OR IMPORTED WATER

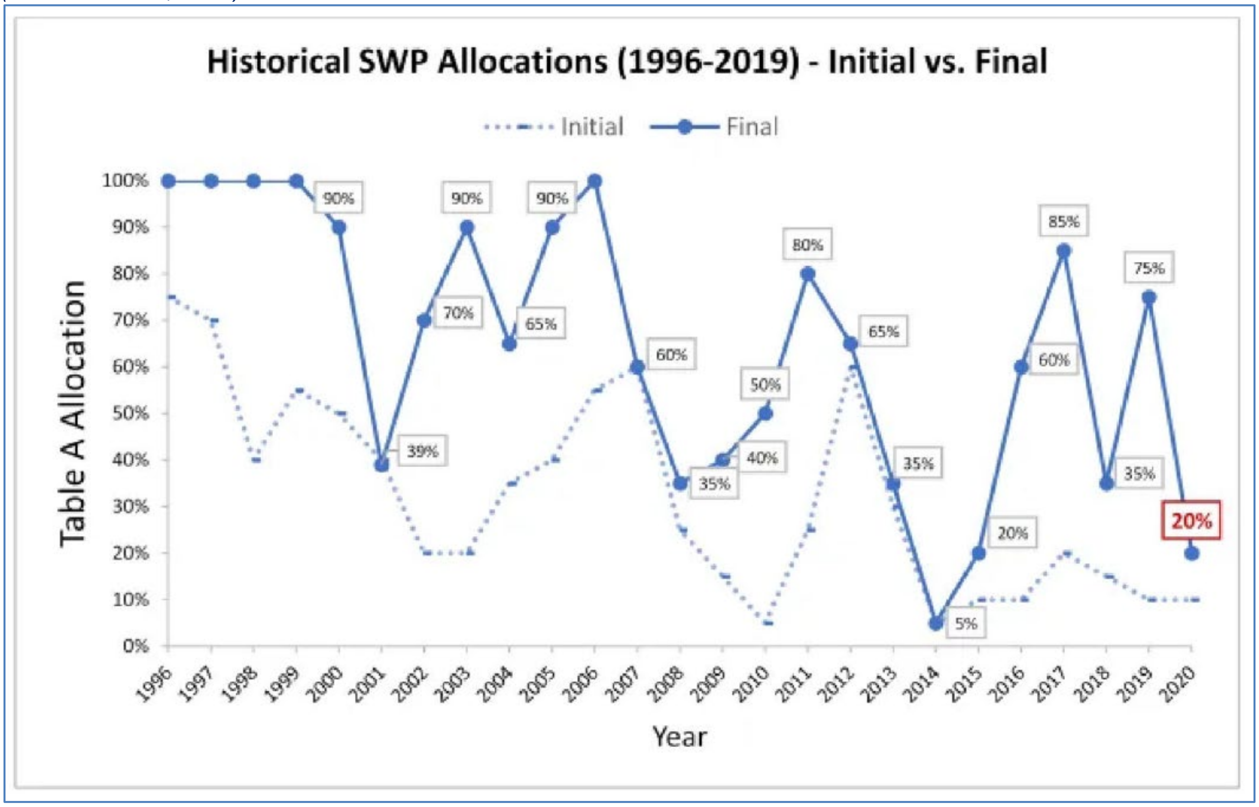
When production from CVWD wells is insufficient to meet demands, the District purchases supplemental water supplies from CLAWA, which is a State Water Project (SWP) contractor and the local wholesale supplier of imported water to the San Bernardino Mountains area. CLAWA began delivering imported water to CVWD in 1972. **Chart 6-1** illustrates the relationships between well production, purchased water and annual rainfall from 1980 to 2020.

Chart 6-1 - CVWD Water Supply and Rainfall (1980-2020)
(Source: CVWD Records)



CLAWA's primary source of supply is surface water from Silverwood Lake, which is part of the East Branch of the SWP. CLAWA is one of 29 agencies authorized to receive direct water deliveries from the SWP pursuant to a contract with DWR. Under that contract, CLAWA's SWP "Table A" allocation is 5,800 acre-feet (AF) per year, which is just 0.1 percent of the current total maximum Table A (4,133,000 AF). "Table A" allocations represent "a portion or all of the annual Table A amount requested by SWP water contractors and proved for delivery by DWR" (DWR, 2019). It is the maximum amount of water that each contractor is entitled to receive on an annual basis from the SWP and that amount is set forth in "Table A" of each contract with DWR. It is an uncommon event that DWR will raise SWP Table A allocations to 100 percent of deliveries; for example, 2006 was the last 100 percent allocation year (Osorio, 2020). Although it was a 100-percent allocation year in 2006, CLAWA's deliveries were just 11.1 percent of its Table A allocation (Osorio, 2020). Furthermore, while Table A identifies the maximum amount of SWP supplies that the contractors may receive in a year, the actual amount available depends on a variety of hydrologic, operational, environmental, regulatory, legal, and other factors. **Chart 6-2** illustrates how different the initial statewide allocation to all SWP Contractors can be from the final SWP allocation, from 1996 to 2020 (Osorio, 2020).

Chart 6-2 - Recorded SWP Allocations for all Contractors (1996-2019) – Initial vs. Final
(Source: Osorio, 2020)



On a bi-annual basis, DWR prepares a SWP Delivery Capability Report, which accounts for the many factors affecting the SWP. The report forecasts the long-term annual availability of SWP supplies during normal, single-dry, and multiple-dry year periods over the next 20-year forecast. The latest SWP report was considered in this chapter and in the supply reliability discussion in Chapter 7 and the Water Shortage Contingency Plan in Chapter 8 (SWP DCR 2019, August 2020).

CLAWA also indirectly obtains some of its supply from Houston Creek,[1] which flows into Silverwood Lake when seasonal weather permits. Actual diversions vary depending on annual precipitation and are limited to the amount of return flow to the Mojave watershed each year. Houston Creek diversions from water year 1989 through 2015 averaged 173,804 CCF (399 AF) per year. From 2011 through 2015, diversions averaged 82,328 CCF (189 AF).[2] From 2016

[1] Sometimes spelled "Huston."
[2] Source: Email from Elizabeth Martinez, DWR, Nov. 13, 2015, Updated Monthly Breakdown for Houston Creek flow and CLAWA deliveries at Silverwood.

through 2019 the diversions averaged 28,750 CCF (66 AF).[3] Diversion of water from Houston Creek is subject to two diversion permits, which combined authorize the appropriation of up to 566,280 CCF (1,300 AF) per year to CLAWA.[4] CLAWA's permits for appropriative rights to Houston Creek together with SWP deliveries creates a more reliable water supply in that Houston Creek is able to supplement CLAWA's total water supply. As an example, in 1992-93 an extended drought in Northern California forced the DWR to reduce its SWP deliveries to CLAWA, who in turn was able to use water from Houston Creek to supplement its supply. However, due to the unpredictable nature of local hydrology, CLAWA's appropriated water from Houston Creek is not as reliable as SWP deliveries (CLAWA 2010 UWMP, August 2011).

CLAWA's supply portfolio includes a 2005 agreement with Lake Arrowhead Community Services District (LACSD) and San Bernardino Valley Municipal Water District (SBVMWD). During normal years, this arrangement mainly affects LACSD however, during years of low SWP allocation (i.e., drought years) CLAWA has the right to utilize a portion of the water purchased from SBVMWD to satisfy any demands anywhere in CLAWA's service area. The amount purchased from SBVMWD in any year is limited to 15 percent of SBVMWD's SWP allocation (CLAWA 2010 UWMP, August 2011).

In addition, CLAWA entered into an amendment to a 2008 exchange agreement with SBVMWD which provides that SBVMWD shall deliver to CLAWA, at Silverwood Lake, up to a total of 718,740 CCF (1,650 AF) of water when requested by CLAWA, between the years 2009 and 2018, subject to the conditions of their 2008 and 2009 agreements.

Similarly in 2010, CLAWA entered into an exchange agreement with San Gorgonio Pass Water Agency (SGPWA) which stipulates that SGPWA shall deliver to CLAWA up to a total of 435,600 CCF (1,000 AF) of water when requested by CLAWA, between the years 2012 and 2020, subject to the conditions of their 2010 agreement.

CLAWA intends to continue to negotiate further exchange agreements with other contractors as opportunities arise and also continue to "carry over" water in the SWP that was allocated in

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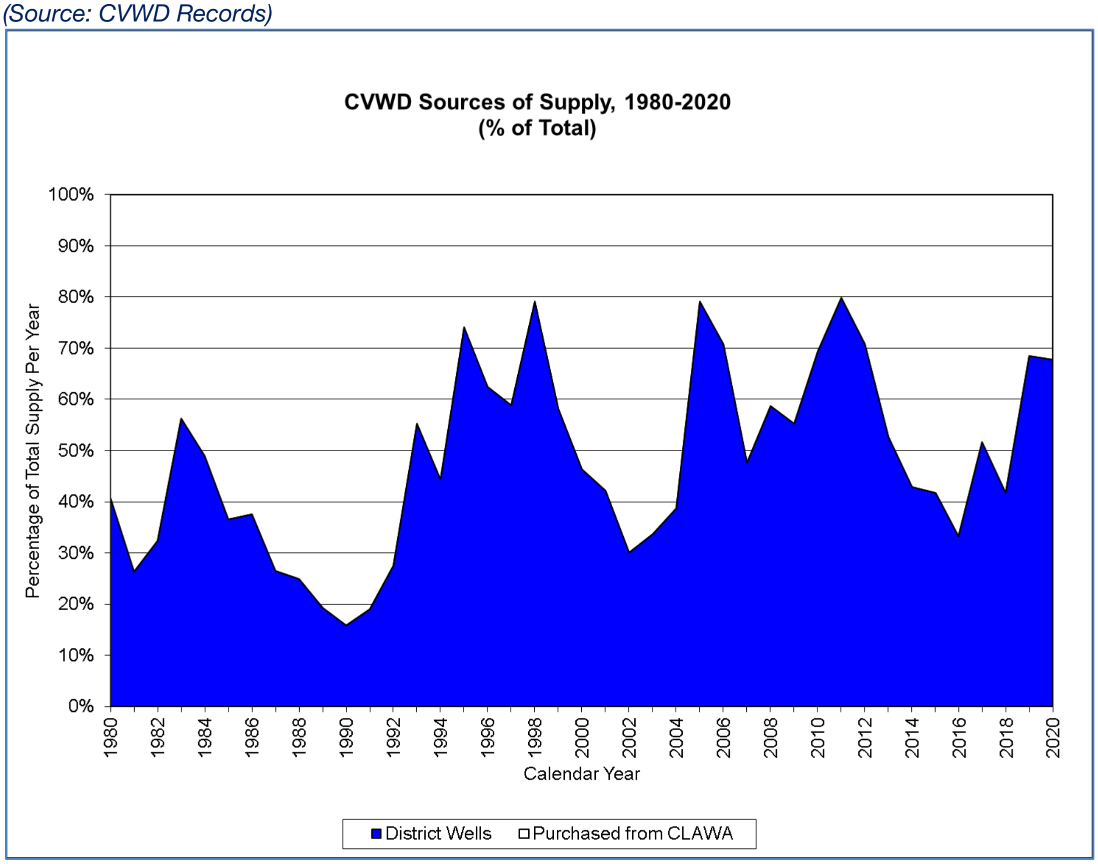
[3] Source CLAWA Water Delivery Report from the California DWR (2015-2016, 2016-2017, 2016-2017, 2017-2018, 2018-2019, and 2019-2020.
[4] Permits issued by SWRCB in 1991. One permit authorizes the diversion of up to 1,000 AF per year, the other up to 300 AF per year. Prior to issuance of these permits, this water was un-appropriated.

a given year to CLAWA but not used. (CLAWA UWMP Response Letter, April 12, 2021, Appendix C). Carryover water is a portion of Table A water that contractors may save for next year's delivery. When carryover is requested for next year's delivery, that water is stored in the SWP's share of San Luis reservoir in Merced County. However, SWP contractors can lose this stored carryover water when San Luis Reservoir fills. For example, in 2017, a wet year, three contractors including CLAWA needed to transfer their carryover water from San Luis to another non-SWP facility to prevent losing their carryover storage. (Osorio, 2020)

A representation of the District's recorded fluctuating dependence on imported supplies from CLAWA beginning in 1980 is provided in **Chart 6-3.** As shown, during years of drought, purchased water from CLAWA makes up a considerable difference between District wells and 100 percent of supply (i.e., the area in white). For example, in 1990 more than 84 percent of CVWD supplies came from imported water purchased from CLAWA. On the other hand, local CVWD wells have been able to meet nearly 80 percent of customer demand several times over the past 25 years.

Chart 6-3 – Recorded CVWD Sources of Supply, 1980-2020
(Source: CVWD Records)



6.1.1 Purchased Water Quality

SWP water is considered high-quality water and is used statewide to serve 25 million residents as a supplemental water source. Chemical, physical, and biological parameters are routinely monitored throughout the SWP from the Feather River drainage in the north to Lake Perris in the south including more than 40 sites and over 200 individual chemicals (MWA, 2016). CLAWA's water supplies are treated at the Lake Silverwood Water Treatment Plant near the South Shore. After treatment, the water is then pumped uphill to CLAWA's storage and pipeline distribution system, which extends from Job's Peak (near Cedarpines Park) eastward to Green Valley Lake. CLAWA maintains consistent compliance with all water quality standards and regulations. The results of each year's water quality sampling are reported in CLAWA's annual Consumer Confidence Report, the most recent of which is provided in **Appendix J**.

6.2 GROUNDWATER

Currently, CVWD produces water locally from 39 groundwater wells in a fractured rock aquifer system (2020 CVWD Annual Report to the SWRCB). In the past, the District has had as many as 50 wells (CVWD staff). DWR classifies this portion of the San Bernardino Mountains as 'non-water-bearing' and therefore it is not included on the California Statewide Groundwater Elevation Monitoring (CASGEM) priority list, or subject to the basin management requirements of the 2014 Sustainable Groundwater Management Act (SGMA). The area is also not included in DWR's "Bulletin 118" list of groundwater basin data.

The San Bernardino Mountains consist of a complex of crystalline granitic rocks that have intruded metaplutonic and metasedimentary rocks (IGC, 1997). Thus, there are no unconsolidated sediments or traditional groundwater basins in this mountainous area. Instead, groundwater is confined to open fractures in the hard metamorphic and granitic mountain rocks underlying CVWD's service area. Groundwater is fed by rainfall and snow seeping into fractures along drainage courses, and may discharge down-gradient as a spring, enter the bottom of a drainage feeding a flow, or continue to move down-gradient beneath the surface (USGS, 2002).

The fractured rock aquifers are very different from traditional alluvial groundwater basins in that they yield far smaller volumes, are tightly correlated with precipitation, and there is no “basin” of water to measure in order to calculate metrics such as “safe yield” or “overdraft.” Water is transmitted only through cracks and fractures from the folding and faulting of the rock over time; thus, explaining the difficulty in their ability to collect and store water (Banks & Robins, 2002).

Wells are often placed where groundwater accumulates behind a fault or fracture. Barriers to groundwater flow consist primarily of westerly and northwesterly-trending faults that represent many of the contacts between the different igneous and metamorphic rocks in the San Bernardino Mountains (IGC, 1997). When the flow-path of groundwater is interrupted, for example, due to the presence of a fault, the downslope-moving groundwater accumulates behind the barrier. This causes the water table to rise until it reaches the surface, where it can resume its downslope path as surface water (USGS, 2002). Evidence of groundwater can generally be seen in numerous streams and seeps throughout the area.

6.2.1 Groundwater Quality

The water from CVWD’s wells is of high quality and requires little treatment. CVWD wells are sampled as required by the State Water Board on a weekly, monthly, and annual basis. The District maintains consistent compliance with all water quality standards and regulations. The District publishes the results of annual water quality sampling in Annual Consumer Confidence Reports, the most recent of which are located in **Appendix J**. The District has four chlorination locations for disinfection and five locations where phosphate is injected for corrosive control purposes. One well, Chamois, has higher levels of uranium; however, it is treated by blending with other water sources at the Chamois tank. Water from the future Electra well shows elevated levels of Gross Alpha radiation, which is a treatable type of energy released when radioactive elements from uranium in the rocks decay or break down. The District will be adding an ion-exchange uranium removal system for this well and is currently surveying the site for adding a building.

6.2.2 Groundwater Management

Approximately 94 percent of the CVWD service area is within the South Lahontan Hydrologic Region and therefore within the local jurisdiction of the California Regional Water Quality Control Board - Lahontan Region (RWQCB). The remainder of the District is within the South Coast Hydrologic Region under the local jurisdiction of the RWQCB – Santa Ana Region.

CVWD is not located within an adjudicated groundwater basin, nor does CVWD have an adopted groundwater management plan. However, groundwater management actions are ongoing; for example, at the vertical wells the District regularly monitors static water levels and pumping water levels. In CY 2020, levels were reported in the Annual Report as steady over the course of the year with some change according to the season. Horizontal wells are not monitored for static water levels or pumping levels. Well production rates and water quality are also monitored regularly. Likewise, water conservation is encouraged as standard practice year-round.

6.2.3 Overdraft Conditions

Because CVWD obtains its local water supply from fractured rock aquifers and not a groundwater basin, overdraft conditions do not apply in this circumstance. However, unlike traditional groundwater basins, fractured bedrock does not typically convey or store large quantities of water. This means that fractured bedrock groundwater supplies are more reliant on local precipitation for recharge. Therefore, CVWD's local water supply will be diminished if drought conditions continue.

6.2.4 Recorded Groundwater Pumping

The well production from 1980 to 2020 is shown previously in **Chart 6-1**. The groundwater volumes pumped in the past five years (2016-2020) are shown in **Submittal Table 6-1**, below.

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
☐	All or part of the groundwater described below is desalinated.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
Fractured Rock	Crestline/San Bernardino Mountains	91,167	146,217	119,550	206,443	209,837
	TOTAL	91,167	146,217	119,550	206,443	209,837
**** Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Volumes in hundred cubic feet (CCF). From CVWD Annual Reports, 2016-2020.						

6.3 SURFACE WATER

The District currently does not have direct access to nor plans to use self-supplied surface water as part of its water supply portfolio. Lake Gregory is located within the District and is a predominant feature of the Crestline community. CVWD does not have rights to use the lake water, which is fed by Houston Creek and managed by San Bernardino County Special Districts. Lake Gregory is a man-made lake and recreation area created with the construction of Lake Gregory dam in 1936. The dam recently underwent a nearly $25 million seismic retrofit that added an average 40 feet of thickness to the earthen dam. The project was completed in summer 2019.

6.4 STORMWATER

Currently, the District does not have plans to use or divert stormwater for beneficial use as part of its water supply portfolio.

6.5 WASTEWATER AND RECYCLED WATER

All wastewater generated within CVWD's service area is collected, treated, and discharged by the Crestline Sanitation District (CSD). CVWD does not operate any wastewater or recycled water facilities. CSD's service area covers nearly all of CVWD's service area, as shown in **Figure 6-1 – Crestline Sanitation District.** As explained below, recycled water is not distributed in the Crestline area.

6.5.1 Recycled Water Coordination

The areas served by CSD and CVWD are subject to several prohibitions against recycled water use. The Lahontan RWQCB prohibits the discharge of waste to land or water within the Silverwood Lake watershed (Basin Plan, Ch.4). In addition, discharge of waste to land or water is prohibited above 3,200 feet elevation (approximate elevation of Mojave Forks Dam) in the Deep Creek and Grass Valley Creek watersheds, or discharge of waste to surface water above 3,200 feet in areas tributary to the West Fork Mojave River or Deep Creek. "The discharge of waste from new leaching or percolation systems is also prohibited in the Silverwood Lake watershed, Deep Creek and Grass Valley Creek watersheds above elevation 3,200 feet (for this prohibition, "new" systems are any installed after May 15, 1975)" (Basin Plan, p. 4.1-21). The RWQCB may grant exemptions in situations when the discharge of waste will not individually or collectively, directly or indirectly, result in exceeding the water quality objectives or unreasonably affect the water for its beneficial uses.

Further, CSD and CVWD service areas are tributary to Lake Silverwood, which is a source of public drinking water supply. It is not known whether the RWQCB would grant an exemption for discharge of reclaimed wastewater under these circumstances. In the absence of an exemption, no reuse of recycled water is possible at this time.

There are no other potential sources of reclaimed water in the District's service area. Although LACSD adjoins CVWD to the east and produces tertiary-treated wastewater effluent, transporting it from the LACSD treatment facility to CVWD's service area would require extensive pumping and very lengthy pipelines, along with regulatory approvals. Therefore, for the purposes of this plan, it has been assumed that no reclaimed water supply will be available for use within CVWD.

6.6 WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL

CSD is the wastewater collection and treatment agency in the District's service area. CSD does not contract operation of its plants to a third party. CSD operates three small wastewater treatment plants with a combined capacity of 1.4 million gallons per day (MGD) in the San Bernardino National Forest (see **Figure 6-2 – Wastewater Treatment and Discharge**). The Houston Creek wastewater treatment plant is located within CVWD's service area north of Lake Gregory and has a treatment capacity of 0.7 MGD. The Seeley Creek treatment plant is also within the CVWD service area located north of Valley of Enchantment and has a capacity of 0.5 MGD. The Cleghorn Treatment Plant is outside of CVWD's service area located southwest of Silverwood Lake with a capacity of 0.4 MGD. CSD also disposes of effluent from the Pilot Rock Treatment Plant, located in Miller Canyon north of Crestline and outside of CVWD's service area, which is owned by the California Department of Forestry and has a treatment capacity of 0.01 MGD.

All treated effluent from CSD's four treatment plants is conveyed through a single 14-mile outfall pipeline, which flows from the Houston Creek Treatment Plant, down Miller Canyon, to a junction point with the Seeley Creek outfall pipeline. The outfall passes around the south and west boundaries of Silverwood Lake, through Cleghorn Creek, into Summit Valley. The effluent is discharged just below Cedar Springs Dam, near Las Flores Ranch in the high-desert city of Hesperia and used for irrigation of a nearby pasture area. Treated wastewater from CVWD's service area flows into the Upper Mojave River Valley Basin (Basin No. 6-42).

The Las Flores Ranch has been CSD's effluent disposal site for over 50 years and is proposed for development within the City of Hesperia. The developers of Las Flores Ranch are negotiating to obtain approval for reuse of tertiary-treated effluent. The Las Flores Ranch development at the magnitude proposed, is dependent upon the use of effluent flows from CSD. CSD is also interested in capturing economic value for its effluent through negotiated sales. Therefore, CSD currently has no interest in pursuing tertiary treatment or reuse in the mountain area. Wastewater generated in the mountain area can be put to use; however, due to the order issued by the Lahontan RWQCB prohibiting the use of reclaimed water in the Silverwood Lake watershed and above 3,200 feet in the Mojave Hydrologic Unit, wastewater generated in Crestline must be used elsewhere.

The wastewater collected by CSD within CVWD's service area in CY 2020 is provided in **Submittal Table 6-2**.

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2020 service area covered by wastewater collection system *(optional)*					
	Percentage of 2020 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected from UWMP Service Area 2020 *	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
Crestline Sanitation District	Metered	210,922	Crestline Sanitation District	Huston Creek	Yes	No
Crestline Sanitation District	Metered	97,199	Crestline Sanitation District	Seeley Creek	No	No
Total Wastewater Collected from Service Area in 2020:		308,121				
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3* **.**						
NOTES: Volumes in hundred cubic feet (CCF). From Crestline Sanitation District CY2020 Annual Report of Treatment Facility Total Volume Flows.						

The Houston Creek and Seeley Creek plants provide primary treatment, fixed-film (i.e. trickling filter), secondary treatment, and chlorine disinfection.[5] The Cleghorn plant provides primary treatment, activated sludge secondary treatment using an extended aeration process (i.e. oxidation ditch), and chlorine disinfection. Sludge thickening and dewatering of solids from all three plants is performed at the Houston Creek facility. The Houston Creek plant also accepts septic tank discharge, treating approximately 160,000 gallons of septage per year. CSD's treated effluent meets the discharge monitoring requirements issued by the Lahontan RWQCB.

[5] Houston and Seeley Creek plants treatment level is "Secondary, Disinfected – 23" (CCR §60301.225).

Although CSD currently has no plans to upgrade its facilities to provide tertiary treatment, its 2018 Wastewater Management Plan states that the District will be required in the future to update its Title 22 Engineering Report to include new use areas if recycled water opportunities become available (DUDEK, 2018). The 2018 Wastewater Management Plan further refers to the CSD 2016 Integrated Water Reuse Plan, in which alternatives for pursuing future recycled water projects are outlined (CSD IWRP, 2018).

The area served by CSD's sewer system, as shown in Figure 6-2, corresponds to the developed core of CVWD's service area. The Houston Creek plant treats the wastewater from approximately 50 percent of the sewered area, and the Seeley Creek plant serves the other 50 percent. The Cleghorn and Pilot Rock treatment plants provide treatment service to areas outside of the CVWD service area. The wastewater volume treated within the CVWD service area in 2020 by CSD facilities is provided in **Submittal Table 6-3**.

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

☐ **No wastewater is treated or disposed of within the UWMP service area.** The supplier will not complete the table below.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)* [2]	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area? *Drop down list*	Treatment Level *Drop down list*	2020 volumes [1]				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
Huston Creek	Las Flores Ranch	Discharge for Irrigation	68361018001	Land disposal	No	Secondary, Disinfected - 23	210,922	210,922	0	0	0
						Total	210,922	210,922	0	0	0

[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.
[2] If the **Wastewater Discharge ID Number** is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility

NOTES: Volumes in hundred cubic feet (CCF). From "Crestline Sanitation District Wastewater Master Plan, 2018" and Crestline Sanitation District CY2020 Annual Report of Treatment Facility Total Volume Flows.

6.6.1 Recycled Water Systems

In addition to the aforementioned regulatory limitations and lack of financial incentive for CSD, there is relatively low potential for recycled water use in the future on the basis of the topography of CVWD's service area and development patterns. The terrain is steep, winters are severe, and preservation of natural forest conditions is preferred, which means that there are few irrigated areas within the service area. In addition, there are no industrial uses within the service area and commercial uses are fairly small; therefore, the dearth of potential major users of recycled water makes use of recycled water not economically feasible at this time. Because CSD is the only wastewater treatment provider within CVWD's service area, there will be no current or planned discharge of treated effluent within CVWD's service area.

6.6.2 Recycled Water Beneficial Uses

Although there are abstractly several beneficial uses of recycled water within the service area, the regulatory and financial constraints create a low potential for actual implementation. As indicated in **Submittal Table 6-4,** recycled water is not used, and is not planned for use in CVWD's service area.

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area										
☑	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.									
Name of Supplier Producing (Treating) the Recycled Water:										
Name of Supplier Operating the Recycled Water Distribution System:										
Supplemental Water Added in 2020 (volume) *Include units*										
Source of 2020 Supplemental Water										
Beneficial Use Type *Insert additional rows if needed.*	**Potential** Beneficial Uses of Recycled Water (Describe)	Amount of **Potential** Uses of Recycled Water (Quantity) *Include volume units* [1]	General Description of 2020 Uses	Level of Treatment *Drop down list*	2020 [1]	2025 [1]	2030[1]	2035[1]	2040[1]	2045[1] (opt)
Agricultural irrigation										
Landscape irrigation (exc golf courses)										
Golf course irrigation										
Commercial use										
Industrial use										
Geothermal and other energy production										
Seawater intrusion barrier										
Recreational impoundment										
Wetlands or wildlife habitat										
Groundwater recharge (IPR)										
Reservoir water augmentation (IPR)										
Direct potable reuse										
Other (Description Required)										
				Total:	0	0	0	0	0	0
				2020 Internal Reuse						
[1] ***Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*										

There is also little to no agriculture, irrigation, or industrial uses within CVWD's service area. Thus, the economic feasibility is low. It could be possible to apply for exceptions to the RWQCB restrictions on recycled water use; however, as there is no market for recycled water within the service area, this option will not be pursued at this time.

The 2015 UWMP for CVWD also indicated that recycled water is not expected for use in the future, as shown in **Submittal Table 6-5.**

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
☑	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below. If recycled water was not used in 2020, and was not predicted to be in 2015, then check the box and do not complete the table.	
Beneficial Use Type	**2015 Projection for 2020** [1]	**2020 Actual Use**[1]
Insert additional rows as needed.		
Agricultural irrigation		
Landscape irrigation (exc golf courses)		
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)		
Total	0	0

[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.

6.6.3 Actions to Encourage and Optimize Future Recycled Water Use

In consultations related to this plan, CSD has indicated that it intends to use the reclaimed water from its system in locations outside of CVWD's service area. If CSD's effluent is not used at the Las Flores Ranch, CSD intends to market its reclaimed water elsewhere. Therefore, CVWD assumes herein that no supply of recycled water will be available from CSD.

As shown in **Submittal Table 6-6**, there is no current or planned use of recycled water within CVWD's service area.

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use *
Add additional rows as needed			
		Total	0

***Units of measure (AF, CCF, MG)** *must remain consistent throughout the UWMP as reported in Table 2-3.*

6.7 DESALINATED WATER OPPORTUNITIES

The District's service area is remote from any desalinated water supply sources such as the ocean, brackish surface water, and brackish groundwater. As such, there is no need or opportunity to implement desalinization as a water supply source.

6.8 WATER EXCHANGES OR TRANSFERS

Due to the geographically disseminated locations of local area water purveyors, coupled with the limited availability of local water supply sources, exchanges and/or transfers are not very feasible. Imported water purchased from the local wholesaler, CLAWA, is the most reliable source of supply for many local water purveyors to fill the gap between the difference in local supplies and peak water demands. CLAWA does participate in exchange agreements and water banking and will continue to do so as described previously.

6.9 FUTURE WATER PROJECTS

In 1997, the District commissioned a study titled "Initial Study Water Resources Evaluation" by Independent Geo-Environmental Consultants (IGC) that identified candidate sites for wells based upon geologic interpretations and geo-hydrologic characterizations of the area within District boundaries. Fifteen candidate sites were identified (IGC, 1997). Subsequently, various other studies have been conducted to further identify locations for local groundwater supply.

Based upon these studies, it is the District's plan to develop two well sites by 2025 and then one well site every five years to increase its local water supply component over the next 20 years. Due to inherently low production yields of fractured rock wells in the San Bernardino Mountains, a sustainable yield of approximately 25 gallons per minute (gpm, or 40 AF/yr) is the targeted value for each new well based upon previous hydrogeologic studies conducted for the local area (IGC, 1997). Should these targeted yields come to fruition, the increase in supply would easily outpace the estimated growth in water demands shown on **Submittal Table 4-3**. However, even with the most hydrogeologic investigative information, the nature of fractured hard rock wells along with their reliance upon annual precipitation makes it very difficult to predict a constant dependable well flow 24 hours a day, 365 days per year.

Two wells were slated for implementation in 2016: Valle II and Electra. The Valle II Well was subsequently determined to not be a viable well and plans for it were abandoned. Work continues on the replacement vertical Electra water well. Similar to the District's existing Chamois Well, water from the Electra Well shows elevated levels of gross alpha radiation, which is a treatable type of energy released when radioactive elements from uranium in the rocks decay or break down. The District is adding an ion-exchange uranium removal system for this well and is currently surveying the site for adding a building.

The average fractured rock production rates in the South Lahontan Hydrologic Region have been estimated at approximately 10 gpm (CWP, 2013). However, the District expects new wells in its region in an average rainfall year to produce between 8,500 CCF to 11,550 CCF per year (i.e., 12 to 16 gpm, or 19.5 to 26.5 AF per year). The District has two wells planned for coming online by 2025 and one additional well coming online about every five years thereafter, as shown in **Submittal Table 6-7**.

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List*	Expected Increase in Water Supply to Supplier* *This may be a range*
	Drop Down List (y/n)	*If Yes, Supplier Name*				
Add additional rows as needed						
Electra Well	No			2021	All Year Types	8,500 - 11,550
New Well #1	No		Potential site if access increased	2024	All Year Types	8,500 - 11,550
New Well #2	No			2030	All Year Types	8,500 - 11,550
New Well #3	No			2035	All Year Types	8,500 - 11,550
New Well #4	No			2040	All Year Types	8,500 - 11,550
***Units of measure (AF, CCF, MG)** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Volumes in hundred cubic feet (CCF). The District plans to drill and equip one well every five years. Expected increase in supply per well: 8,500 to 11,550 CCF/Year.						

6.10 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

A summary of the actual sources and volumes of water produced from CVWD wells and purchases of imported water from CLAWA for CY 2020 is provided in **Submittal Table 6-8**.

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Groundwater (not desalinated)	District wells	209,837	Drinking Water	
Purchased or Imported Water	Imported water purchased from CLAWA	100,090	Drinking Water	
	Total	309,927		0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES: Volume in hundred cubic feet (CCF). From "Draft 2020 Annual Report to the Division of Drinking Water for Year Ending Dec. 31, 2020."				

Future water supplies are projected in **Submittal Table 6-9,** which take into account future supply projects from Submittal Table 6-7 beginning with actual CY 2020 supplies from Submittal Table 6-8, all of which assumes a normal rainfall year.

Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	**Projected Water Supply *** Report To the Extent Practicable									
		2025		**2030**		**2035**		**2040**		**2045** (opt)	
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		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)	District wells	232,937		244,487		256,037		267,587			
Purchased or Imported Water	Imported water purchased from CLAWA	439,607		439,607		439,607		439,607			
	Total	672,544	0	684,094	0	695,644	0	707,194	0	0	0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*											
NOTES: Units in hundred cubic feet (CCF). Assumes CY 2020 supply per Table 6-8 plus two new District wells coming online by 2025 and then one new well coming online every five years thereafter, per Table 6-7. The amount of new well production per year is calculated at 11,550 CCF per new well per year in Table 6-7. Imported water supply is 30% of normal year SWP delivery allocation (58% of 5,800 AF).											

The calculation of District well production supply projections in Table 6-9 begin with the CY 2020 actual production volume of 309,927 CCF (711 AF) plus the addition of two wells by 2025 each adding 11,550 CCF. One additional well providing 11,550 CCF is then added in 2030, 2035, and 2040. Assuming the top-range of production, these wells could produce up to an additional 57,750 CCF (133 AF) by 2040.

Imported water projections in Table 6-9 are based on DWR's projected SWP percentage of Table A in a normal year under current conditions (58% of 5,800 AF) but just 30 percent of that is considered reasonably available supply to CVWD. Although DWR predicts a reduction from 58 to 52 percent in the 2019 SWP Delivery Capability Report, the report does not specify when that reduction might occur, therefore these projections assume 58 percent through 2040. Regardless of DWR's projections, the amount of water shown in Table 6-9 from this source is not an amount the District is committed to using. The future amounts purchased from CLAWA will be that which is required to meet demand after local wells are fully utilized.

In order to continue meeting customer demand for water including during shortages so that the District can ensure at a bare minimum an amount of water to meet the basic health and safety needs of its customers, at least some portion of the District's future supplies will come from imported water purchased from CLAWA. That amount varies from year to year based on the factors described herein. Over the past 40 years, the balance of supply is on average 50/50. Over the past 21 years (2000-2020), due to the District's expansion of local groundwater sources, local supplies have averaged approximately 54 percent of total supply. However, the percentage of CVWD supply could reasonably increase to as much as 70 percent depending on climatic conditions. CVWD's supply projections are predicated on CLAWA's ability to supply, no matter how the District's wells are producing. The reliability of both CVWD local supplies and purchased imported water supplies is discussed further in Chapter 7 - Water Service Reliability and Drought Risk Assessment.

6.11 SPECIAL CONDITIONS

6.11.1 Climate Change Effects

Beginning in the 2020 UWMP, the Water Code requires the District to consider the impacts of climate change in its water supply projections, which are shown in Submittal Table 6-9. The

District's considerations for climate change impacts began with using the *Climate Change Vulnerability Screening Form for Urban Water Management Planning* located in Appendix I to the DWR Guidebook for 2020 UWMPs. A copy of the Screening Form, completed by CVWD staff, is located in **Appendix F**. Pursuant to Water Code, the District's planning for climate change impacts is commensurate with the size of the system and its anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five consecutive years, as described below.

As described in Chapters 3 and 4, an analysis of DWR climate data was performed by a large water district located nearby with the ample resources to investigate and analyze climatological models and summarize the potential effects of changes in precipitation and outdoor water use. Western prepared said analysis in a Technical Memorandum dated April 22, 2021 which included the development of water supply change factors (**Appendix F**).

The water supply factors developed by Western and used herein are provided in **Table 6A** below. As shown in the factors, the analysis of climate change models found that:

> For normal years, precipitation and natural recharge are initially projected to decrease during the first decade before stabilizing during the second decade. The maximum projected range of decrease for normal year values is 1.7 percent. However, the projections show that droughts will initially be less severe from the perspective of local rainfall and recharge for the single dry year with increases of up to 1 percent. Recharge during 5-year droughts is projected to decrease by up to 2.3 percent by 2045. (WMWD(a), p. 11)

Indeed, Western was focusing on its service area in the Inland Empire valley located about 2,000 feet below the elevation of Crestline, therefore, the factors may be conservative in their effect of reducing precipitation given that the mountains receive more rain and far more snow than the valley, are almost always cooler in temperature, and have significantly less outdoor water use.

Table 6A: Water Supply Climate Change Factors for Precipitation and Natural Recharge

Beginning Year	Normal Year	Single-Dry Year	Five-Year Dry Period
2020(1)	100.0%	100.0%	100.0%
2025	99.1%	100.5%	99.5%
2030	98.3%	101.0%	98.9%
2035	98.5%	100.8%	98.5%
2040	98.7%	100.7%	98.1%
2045	98.9%	100.5%	97.7%

Source: Western Municipal Water District, *Technical Memorandum: Western Drought Contingency Plan – Climate Change Vulnerability Assessment*, April 22, 2021 (WMWD(a), p. 11).

(1) 2020 is baseline year.

To account for the potential effects of climate change to water supplies, and the uncertainty therein, CVWD has conservatively applied the normal year factors from Western's analysis in Table 6A to the groundwater supply projections of Submittal Table 6-9 beginning in 2025 through 2040. The results are shown below in **Table 6B.**

Table 6B: Potential Effect of Climate Change to Normal Year Projected Supplies

	2025	2030	2035	2040
TOTAL SUPPLY (CCF)(1)	672,544	684,094	695,644	707,194
Supply from Groundwater (CCF)(1)	232,937	244,487	256,037	267,587
Water Supply Climate Change Factor (Groundwater) (2)	99.1%	98.3%	98.5%	98.7%
Groundwater Supply with Climate Change Factor (CCF)	230,841	240,331	252,196	264,108
Potential Change in Total Supply from Climate Change Effects (CCF)	-2,096	-4,156	-3,841	-3,479
Total Supply with Climate Change Factor (CCF)	670,448	679,938	691,803	703,715

Notes: Units in hundred cubic feet (CCF).
(1) From Table 6-9.
(2) Climate change factors from Table 6A (WMWD(a)).

6.11.2 Wildfire and Climate Change

Wildfires are always a threat to the mountainous region of Crestline, particularly in times of extended drought exacerbated by climate change. The mountain vegetation may be drier and more vulnerable to become fuel if a spark occurs as temperatures increase. The primary concern from fires on CVWD's local water supply is disruption of power, thereby requiring the use of standby generators. CVWD maintains a system of water tanks throughout its service area that have storage volumes sized for providing adequate fire flows. To protect this equipment, the District maintains a regular schedule of clearing vegetation around its above-ground structures. CVWD also relies on purchases of imported SWP water from Silverwood Lake. When large areas of the forest surrounding the lake burned in 2003, mulch was laid down to limit erosion (CLAWA 2010 UWMP).

Although the District does not experience an exaggerated risk of flooding resulting from the after-effects of wildfires, some flooding is anticipated in certain canyons during rain events. As growth continues, the District will evaluate each pressure zone and the fire flow requirements to determine if and when additional tanks are necessary and locating them in places where flooding is not anticipated.

6.11.3 Regulatory Conditions and Project Development

Constraints to the District's water supplies are discussed in Chapter 7. In summary, wells in fractured bedrock are constrained by limited production rates compared to wells in alluvial soils, and they are constrained by responsiveness to rainfall. Constraints to imported water supplies include reductions made by DWR in annual allocations as a result of varying hydrological, regulatory, and environmental factors. Further, all supplies are constrained by infrastructure limitations such as insufficient conveyance capacity or failures of pipelines or pumps. All supplies can also be constrained due to water quality issues. Regulations for yet-to-be determined emerging contaminants in water may influence existing and future water supplies to some degree. Said effects could include how future well sites are located and what wellhead treatment(s) and/or blending are needed and subsequent costs to do so.

6.11.4 Other Locally Applicable Criteria

There are no other locally applicable criteria that would affect characterization and availability of the District's existing or future water supply.

6.12 ENERGY USE

Energy is required to operate a water supply system, including the energy needed to pump, treat, store, and deliver water to the end consumer. Beginning in 2020, UWMPs must report estimates of the energy used for the water distribution system that is within the District's operational control (Water Code Section 10631.2(a)).

CVWD obtained electricity usage data from its electricity supplier, Southern California Edison for CY 2020 for each electrical meter located at each of the District's facilities. This includes CVWD water wells, booster stations, tanks, and pressure reducing stations. Total electricity used for the water distribution system in CY 2020 was 480,996 kilowatt hours (kWh), as shown in **Table 6-O1B**.[6] Energy intensity based on water supplied in CY 2020 was calculated to be 1.6 kWh per CCF supplied. The District does not use solar power or other self-generated renewable energy, nor hydropower.

[6] A kilowatt-hour (kWh) equals the amount of energy used by keeping a 1,000-watt appliance running for one hour.

Urban Water Supplier: *Crestline Village Water District*

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	12/30/2020			
☐ Is upstream embedded in the values reported?		**Sum of All Water Management Processes**	**Non-Consequential Hydropower**	
Water Volume Units Used	*CCF*	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (volume unit)		309,927	0	309927
Energy Consumed (kWh)		480,996	0	480996
Energy Intensity (kWh/volume)		1.6	0.0	1.6

Quantity of Self-Generated Renewable Energy

0 kWh

Data Quality *(Estimate, Metered Data, Combination of Estimates and Metered Data)*

Metered Data

Data Quality Narrative:

Source of data from meter records for CY 2020 from Southern California Edison. Sum of kWh usage.

Narrative:

Data includes pressure-reducing stations, wells, and booster stations.

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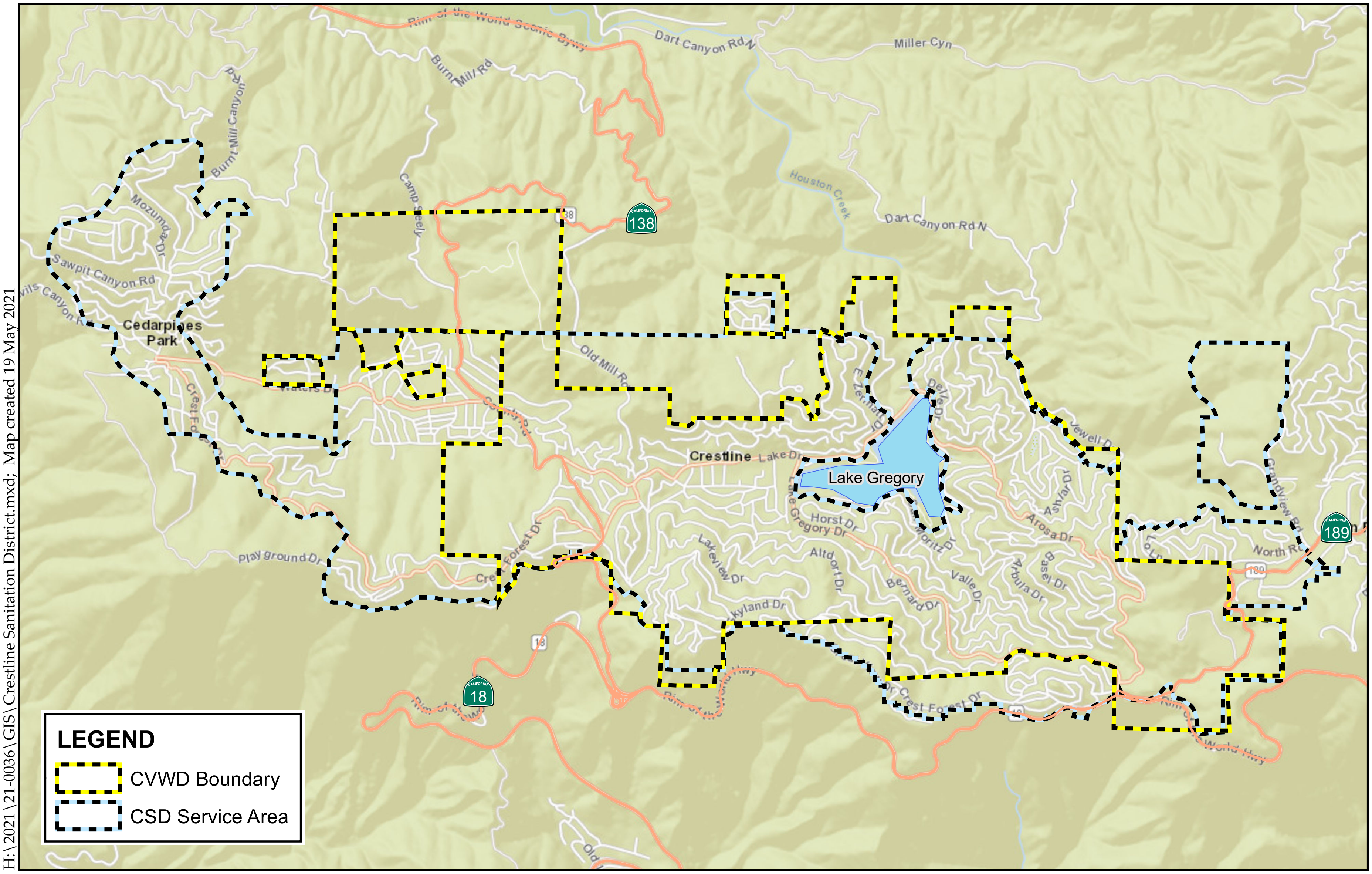
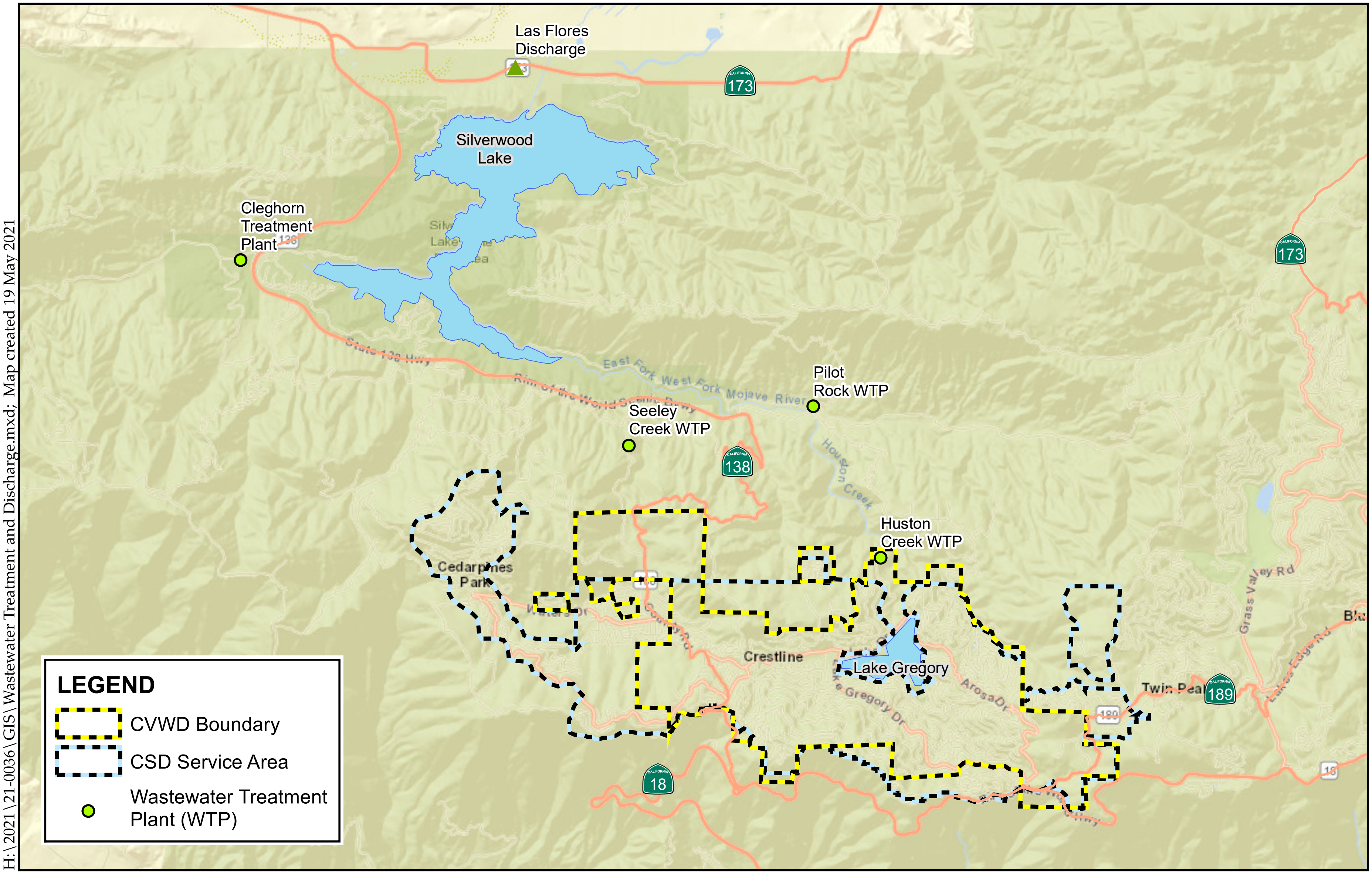


Sources: San Bernardino Co. ISD, 2015

Figure 6-1 Crestline Sanitation District

CVWD Urban Water Management Plan 2020

0 0.5 1 Miles



Sources: San Bernardino Co. ISD, 2015

Figure 6-2 Wastewater Treatment and Discharge

CVWD Urban Water Management Plan 2020

crestline village WATER DISTRICT

ALBERT A. WEBB ASSOCIATES

CHAPTER 7 WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

Assessment of water supply reliability is complex and dependent upon a number of factors, such as the number of water sources, regulatory and legal constraints, climate change, and expected growth, among others. CVWD provides in this chapter its best determination of the long-term reliability of water supplies available to the District under varying conditions over the next 20 years. This chapter also includes a near-term drought risk assessment (DRA) of a severe drought period lasting for the next five consecutive years (2021-2025).

7.1 WATER SERVICE RELIABILITY ASSESSMENT

Pursuant to Water Code, this reliability assessment will compare the total water supply sources available to the District with the long-term projected water use over the next 20 years, in five-year increments during normal, single-dry, and multiple-dry years. This assessment marries the findings in Chapter 4 – Water Use Characterization and Chapter 6 – Water Supply Characterization to help direct management actions for the future.

7.1.1 Summary of Water Use and Water Supply

As described in Chapter 4, water use for CVWD has been primarily residential customers. In CY 2020, 80 percent of total water consumption in CY 2020 was attributable to single-family and multi-family accounts and 13 percent of total demand was used by Commercial/Institutional accounts (Table 4A). Landscape irrigation is not separately metered at any locations. The District does not sell or purchase non-potable or recycled water. Water losses increased significantly during CY 2019 but are on the decline as the District's new software system is brought online and MTU batteries are replaced. Outdoor water use is minimal in this unincorporated mountain community and water conservation is a longtime standard operating practice for local residents. The water rate structure includes an excess water use surcharge. Water use can spike however, during holidays and weekends because of a significant amount of second homes (cabins) and short-term rentals. Customers with local billing zip codes make up approximately 58 percent of all customers. Refer to Submittal Tables

4-1, 4-2, 4-3, and 4-4 for current (2020) and future (2025-2045) water use, as well as water losses.

As described in Chapter 6, CVWD obtains its water from local wells in a fractured bedrock aquifer. When the well supply cannot meet demands, imported water supplies are purchased from CLAWA, a State Water Project (SWP) Contractor and local retail and wholesale water supplier to the mountain area. All of the water which CLAWA delivers comes from Silverwood Lake, a facility of the SWP. CLAWA has entitlement of up to 5,800 acre-feet (AF) of water annually from the SWP pursuant to its contract with DWR. In addition, CLAWA supplements its SWP supply by receiving permits in 1990 from the State Water Board to divert up to 566, 280 hundred cubic feet (CCF) (or, 1,300 AF) of water annually from Houston Creek, which flows naturally into Silverwood Lake. On average, imported water makes up one-half of the District's annual supply. Neither recycled water nor non-potable water will be a part of the District's supply because these uses are prohibited by the California Regional Water Quality Control Board – Lahontan Region. CVWD plans to bring two new wells online by 2025, with one additional well every five years thereafter. Refer to Submittal Table 6-7 for details on these planned supply projects, Submittal Table 6-8 for current (2020) supplies, and Submittal Table 6-9 for projected supplies through 2045.

7.1.2 Constraints to Water Supply

Three factors can affect the reliability of water supplies: sufficient source capacity (i.e., wells and pumps); sustainability of the resource to meet demand on a renewable basis; and protection of water sources from known contamination, or provisions for treatment in the event of contamination. The constraints to the two water sources available to CVWD are presented below; first, potential constraints to District well production and secondly, constraints to imported water supplies purchased from CLAWA.

District Well Production

CVWD generally pumps its local wells at maximum capacity and then, if the demand is still not met, purchases additional water from CLAWA. From 2000 to 2020, water produced from District wells accounted for approximately 53 percent of total supplies, on average. The amount of well water that can be pumped is limited by well capacity, the amount of precipitation that has infiltrated into the fractured rock zone, and the likely limited amount of water stored within the fractured-rock aquifer. Due to the highly variable nature of the void spaces within fractured-rock aquifers, wells drawing from fractured-rock aquifers tend to have less capacity and less reliability than wells drawing from alluvial aquifers. On average, wells drawing from fractured-rock aquifers yield 10 gallons per minute (gpm) or less (CWP, p. SL-21). Decreased rainfall and snowpack would constrain District well production.

Water quality can be another constraint for District wells. Currently, the District operates no centralized, complete water treatment facilities of its own. Water produced locally from CVWD's wells meets applicable drinking water standards and does not require treatment, other than chlorination of some wells. A copy of the District's Consumer Confidence Reports from 2015 to 2019 are located in **Appendix J**. CVWD chlorinates water from its Pioneer, Horst, Wilson, and Old Mill Springs wells and monitors water quality at all wells. However, the District's existing Chamois well and the new Electra well (slated to come online in 2021) show elevated levels of gross alpha radiation, which is a treatable type of energy released when radioactive elements from naturally occurring uranium in the rocks decay or break down, and they are treated through a separate, onsite ion-exchange process. The supply from these wells is currently constrained while the District installs the treatment system and meets all the requirements for handling and disposing of the treatment by-products.

CVWD intends to develop additional local well sites at a steady rate over the next 20 years and two wells are currently in progress, as described in Submittal Table 6-7. The District does not currently have mutual aid agreements with neighboring water suppliers. The District maintains interconnects with CLAWA at several locations and operates one alternative raw water source that can supply the system in the event of a catastrophic supply interruption (ERP).

Although not currently anticipated, other constraints to District well production could arise from regulatory constraints or environmental regulations that would somehow limit construction of future wells, or require additional treatment, or impose some sort of limit on production volume. None of these constraints are expected at this time.

Purchased Imported Water

During preparation of this UWMP, the District sent a letter to CLAWA requesting general information on any supply and demand projections that may be available (**Appendix C**). A response was received from the General Manager dated April 22, 2021 (Letter) and excerpts are referenced below (**Appendix C**). From 2000 to 2020, approximately 47 percent of the District's water supply on average was purchased water from CLAWA. CLAWA is one of the authorized SWP Contractors to receive direct water deliveries from the SWP pursuant to a contract with DWR. Since CLAWA does not pump from wells and has no other reliable source of water supply, it is assumed that CLAWA's only supply will be the imported water available from the SWP (Letter 04/22/21). CLAWA does not prepare an UWMP because it delivers less than 3,000 acre-feet of water per year and has fewer than 3,000 urban connections. However, if it were to prepare an UWMP, the *2019 State Water Project Delivery Capability Report* (DCR) prepared by DWR would be the source document. The Delivery Capability Report assesses the water supply that can be delivered from the SWP under wet and drought conditions.

CLAWA's contract with DWR states the maximum annual SWP "Table A" water delivery amount to CLAWA is 5,800 AF per year (DCR). "Table A" supplies refer to the maximum amount of water that each contractor is entitled to receive on an annual basis from the SWP and that amount is set forth in "Table A" of each contract with DWR. Table A is used in determining each contractor's proportionate share of the total amount of SWP supplies available in a given year. As originally conceived, the SWP was planned to have a delivery capability of 4,171,000 AF per year of Table A supplies. Although Table A identifies the maximum amount of SWP supplies that the contractors may receive in a given year, the amount actually available depends upon a variety of hydrologic, operational, environmental, regulatory, legal, and other factors that constrain SWP deliveries.

The additional water occasionally appropriated from Houston Creek can be unavailable during periods of local drought. Water from the SWP can be reduced due to drought and other constraints in Northern California. Because SWP water normally comprises CLAWA's entire water supply, such an event would force CLAWA to suspend deliveries to all customers. However, during periods of extreme drought when other SWP Contractors did not receive Table A water, DWR has been able to provide through several different sources an adequate supply to meet minimum health, sanitation, and fire protection levels (CLAWA(a)). CLAWA Ordinance No. 59 describes a water allocation plan for wholesale customers including CVWD to be implemented during a water shortage (a copy of Ord. No. 59 is located in **Appendix K**).

According to the *2019 Delivery Capability Report*, DWR can deliver an average of 58 percent of the total Contract amounts for all Contractors under current conditions. The maximum Table A water available for delivery from the Delta is currently 4,133,000 AF per year (DCR, p. 21). Although DWR proposes to construct the Delta Conveyance (Tunnel) Project, which would help increase that percentage, it cannot be counted on due to ongoing legal challenges and the potential for delays as State policies change (Letter 04/22/21). However, carryover and transfer agreements between SWP Contractors also provides CLAWA supplies when the SWP deliveries are reduced by DWR. The SWP is a massive statewide water and power conveyance system that includes facilities such as pumping and power plants, reservoirs, storage tanks, canals, tunnels, and pipelines that capture, store, and convey water to 29 different water agencies. The failure of any one of these elements could constrain the delivery of SWP water.

As indicated in CLAWA's response letter to CVWD for coordination on this UWMP, "total demand for CLAWA in any year is not expected to exceed 2,400 AF, and a 41-percent SWP allocation should be sufficient to supply customer demand over the next 20 years" (Appendix C). CLAWA's concern is when demand is great from its customers and the SWP Table A allocation is less than 41 percent. In such years, CLAWA is able to "carry over" water in the SWP that CLAWA was allocated in a given year but did not use. CLAWA can also use water from exchange agreements with other contractors wherein CLAWA can take back water in years of lean SWP allocations. The letter cited the example of water year 2021, in which the SWP allocation was only 5 percent (290 AF), but the addition of carryover water and exchange agreement water will be able to cover customer demand. CLAWA intends to continue to carry over water in the SWP when it can, and also negotiate additional exchange agreements with other Contractors as opportunities arise. However, the letter noted that carryover water and exchange agreements may not always be available and that CLAWA's customers, including the District, must assume and plan accordingly that in some years, all of the demand for imported water may not be met. (Letter 04/22/21, Appendix C)

Imported water supplies can be highly variable; for example, in January 2014, allocations of SWP water to all Contractors was reduced to 0 percent due to persistent drought conditions. CLAWA had access to 1,882 AF of 2014 carryover water, according to the *Notice to SWP Contractors* issued by DWR (Notice 14-02). However, the water delivered to CLAWA from SWP in 2014 was 741 AF. CVWD then purchased 51 percent of that volume to meet 57 percent of the demands of CVWD customers. Meanwhile, CVWD wells produced sufficient water for 43 percent of customer demand. By utilizing local wells and significant water conservation in conjunction with purchases from CLAWA and its continued ability to secure water supplies in a severe drought when other SWP Contractors may not receive any water, CVWD had sufficient supplies to meet the demands of its customers during a significant ongoing dry period.

Recorded SWP deliveries to CLAWA, and the amount purchased by CVWD from 2005-2020 are provided in **Table 7A.**

Table 7A: Recorded SWP Deliveries to CLAWA and CVWD Purchases (AF), 2005-2020

Calendar Year	SWP Delivery to CLAWA (AF)(1)	SWP Delivery as Percent of Table A Amount(2)	Volume Purchased by CVWD (AF)	CVWD Purchase as Percent of SWP Delivery(4)
2005	805	14%	177	22%
2006	641	11%	248	39%
2007	1,768	30%	467	26%
2008	1,848	32%	331	18%
2009	1,893	33%	332	18%
2010	1,357	23%	217	16%
2011	474	8%	138	29%
2012	624	11%	199	32%
2013	1,300	22%	353	27%
2014	741	13%	379	51%
2015	1,279	22%	355	28%
2016	1,580	27%	420	27%
2017	1,521	26%	313	21%
2018	1,680	29%	384	23%
2019	1,109	19%	218	20%
2020(3)	958	--	230	--
Average	1,242	21%	302	26%

Source:

(1) For years 2005-2014, *2015 DWR State Water Project Delivery Capacity Report*. For years 2015-2020, *CLAWA Monitoring Report on the Return Flows of Water Diverted from Silverwood Lake for Water Years 14/15-19/20.*

(2) CLAWA "Table A" allocation is 5,800 AF per year.

(3) Data for 2020 deliveries is incomplete. Includes deliveries only from Jan. to Sept. 2020. Oct. through Dec. data will be available when 2020/2021 Monitoring Report is published.

(4) Source: CVWD data.

As shown in Table 7A, SWP deliveries to CLAWA have ranged from 8 to 33 percent of the Table A allocation, and CVWD's annual purchase has ranged from 16 to 51 percent of

CLAWA's annual SWP delivery, with an average of 26 percent. This demonstrates recent variability in imported water from year to year; nonetheless, demand from CVWD was met

As described in Chapter 6, the water purchased from CLAWA is generally of high quality. Water quality is not expected to affect supply reliability for CVWD. The Consumer Confidence Reports prepared by CLAWA from 2015-2019 are provided in **Appendix J.**

CVWD is unable to influence the planned management activities of CLAWA and therefore, will continue to pursue the District's planned management strategy of installing roughly one well every five years. In addition, the District will continue encouraging water conservation measures as described in Chapters 8 (Water Shortage Contingency Plan) and 9 (Demand Management Measures).

7.1.3 Reliability by Type of Year

CVWD has had a reliable water supply to meet demands during normal, single-dry, and multiple-dry years. Notably, the District had sufficient local water supplies during the statewide drought from 2013 to 2017. During wet years, CVWD's local wells have met the majority of water demands. For example, during CY 2010, the District recorded an unusually large annual rainfall depth of 82.45 inches and subsequently, well production met nearly 80 percent of demand during CY 2011.

The Water Code requires each water supplier to determine three types of years and how much supply is expected to be available for each: normal (or average),[1] single-dry,[2] and multiple-dry years for five years.[3] The "Base Years" provided in **Submittal Table 7-1** are based upon recorded local well production data. CVWD calculates its Normal Year as the average of well production from 1994 to 2020. The single-dry year is represented by well production in 2015 which was 60 percent of the 1994-2020 average amount, and the multiple-dry year period is from 2013 to 2017.[4]

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[1] A year, or an averaged range of years, that most closely represents the average water supply available to the agency. The UWMP Act uses the term "normal".
[2] The single-dry year is the year that represents the lowest water supply available to the agency.
[3] The multiple-dry year period that represents the lowest average water supply availability to the agency for a consecutive multiple-dry year period (three years or more).
[4] In the "Volume Available" column, CVWD specifies the volume of water supply expected if there were to be a repeat of the hydrology from that type of year. The "Percent of Average Supply" is the volume that would be available if the dry year hydrology were repeated.

Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)				
Crestline Village Water District Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	Available Supplies if Year Type Repeats		
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location ______________________	
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available *		% of Average Supply
Average Year	1994-2020	185,770		100%
Single-Dry Year	2015	111,151		60%
Consecutive Dry Years 1st Year	2013	170,884		92%
Consecutive Dry Years 2nd Year	2014	124,266		67%
Consecutive Dry Years 3rd Year	2015	111,151		60%
Consecutive Dry Years 4th Year	2016	91,167		49%
Consecutive Dry Years 5th Year	2017	146,218		79%
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.				
Units of measure (AF, CCF, MG *) must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES: Units in hundred cubic feet (CCF). This table represents actual District well production in these years. Two versions of Table 7-1 are used herein; one for District wells and one for purchased imported water supplies.				

The average year period from 1994-2020 is considered representative of the District's current well field because it includes the many vertical wells that were drilled from 1994 through 2004. The additional wells drilled during that 10-year period increased the local water supply source and reduced the volume of imported water from CLAWA significantly. Therefore, well production figures from before 1994 would not be useful in this analysis.

Base years for imported water supplies are shown in **Submittal Table 7-1A,** below. According to the *2019 Delivery Capability Report*, DWR can deliver an average of 58 percent of the total Contract amounts for all Contractors under current conditions, which is based on long-term average deliveries from 1922 to 2019 (DCR, p. 28). The driest single year in terms of SWP deliveries was 1977 and according to the 2019 DCR, an estimated 7 percent of the maximum SWP Table A amount (4,133,000 AF per year) would be delivered under single-dry year conditions (DCR, p. 30). Lastly, because DWR estimates dry period SWP deliveries in two-, four-, and six-year drought periods, we have assumed herein for a five-year drought the percentage of deliveries for a six-year drought (1987-1992), which 26 percent of the maximum SWP Table A amount under 2019 conditions (DCR, p. 30).[5]

Submittal Table 7-1A Retail: Basis of Water Year Data (Reliability Assessment)			
Imported Water Supply Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	Available Supplies if Year Type Repeats	
		☐ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location ______________________	
		☑ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available *	% of Average Supply
Average Year	1922-2004		100%
Single-Dry Year	1977	53,056	7%
Consecutive Dry Years 1st Year	1988	197,065	26%
Consecutive Dry Years 2nd Year	1989	197,065	26%
Consecutive Dry Years 3rd Year	1990	197,065	26%
Consecutive Dry Years 4th Year	1991	197,065	26%
Consecutive Dry Years 5th Year	1992	197,065	26%

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.

***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES: Units in hundred cubic feet (CCF). This version of Table 7-1 represents imported water supply deliveries per DWR's "Final State Water Project Delivery Capability Report" (August 26, 2020). Volumes shown are the volumes that would be available to CVWD assuming 30% of CLAWA's drought year proportion of the Table A amount of 5,800 AF.

While the data in Submittal Table 7-1A shows limited percentages of total average imported SWP supplies under very conservative assumptions, the following must be noted and reiterated: from 1990-2020, the approved SWP allocations have always met or exceeded CLAWA's recorded deliveries.[6] A dry period affecting Northern California and the SWP does not necessarily mean that the same dry conditions are affecting Southern California. CLAWA has been able to divert substantial quantities of water from Houston Creek in years when the SWP is experiencing dry year allocations. This relationship and mix of resources available to

[5] Although the 2019 DCR does not use 5-year droughts and instead uses the 6-year drought from 1987-1992, we have assumed a 5-year drought from 1988-1992.
[6] CLAWA 2010 UWMP Figure 9.

CLAWA, as described in Chapter 6, provides an added element of reliability to the Agency's overall water supply portfolio.

In addition to the factors discussed above which help ensure a sufficient water supply to CLAWA during potential shortage periods, it should be noted that in critical dry years, DWR has organized a program known as the Drought Water Bank or the Dry Year Water Purchase Program. Under the program, DWR purchases water from willing sellers (primarily from water suppliers upstream of the Delta) and makes those supplies available for purchase by water agencies that are at risk of experiencing water shortages and require supplemental water supplies to meet anticipated demands. Although the Drought Water Bank has not been used since 2009, it is available from DWR as needed in the future.

7.2 SUPPLY AND DEMAND ASSESSMENT

Per Water Code Section 10635(a): "Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry years. This water supply and demand assessment shall compare the total water supply sources available to the water suppliers with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years."

7.2.1 Normal Year Reliability

Normal Year. This condition represents the water supplies a supplier considers available during normal conditions.

The projected supply volumes for CVWD in a normal year are discussed in Chapter 6 (Table 6-9) and projected normal year water demands are discussed in Chapter 4 (Table 4-3). The Normal Year supply and demand projections are compared in **Submittal Table 7-2**. A surplus of supply is projected under these conditions for years 2025, 2030, 2035, and 2040.

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals (*autofill from Table 6-9)*	672,544	684,094	695,644	707,194	0
Demand totals *(autofill from Table 4-3)*	324,768	340,368	356,762	373,993	0
Difference	347,776	343,726	338,882	333,201	0
NOTES: CVWD supply assumes 2 new wells by 2025, and 1 new well every five years thereafter. Imported supply is assumed to be 30% of 58% of CLAWA's Table A allocation. Demand based on 1%/year increase in each customer sector (losses held steady at 2020 amount).					

The following assumptions have been made to estimate supply and demand during a Normal Year:

- The amount of water available to CVWD of CLAWA's annual imported water supply in a normal year is 30 percent of DWR's estimated delivery in normal years, which is 58 percent of CLAWA's Table A allocation (5,800 AF).
- The District well supply in a normal year begins with CY 2020 supply plus two new wells by 2025 at the upper range of production (11,550 CCF). One additional well is added every five years thereafter each at the upper range of production (11,550 CCF).
- The District's water demand in a normal year assumes an increase of 1 percent per year for residential, non-residential, and hydrant deliveries beginning from CY 2020 actual consumption. The CY 2020 water loss volume is held constant at 18,967 CCF for the projection.
- The potential effects of climate change to the projected normal year supply and demand are not embedded in Submittal Table 7-2. Instead, **Table 7B** below compares normal year climate change-adjusted water supplies and demands for the 20-year planning horizon to compare with the non-climate adjusted values in Submittal 7-2.

Table 7B: Comparison of Climate Change-Adjusted Normal Year Supply and Demand

	2025	2030	2035	2040
TOTAL SUPPLY with Climate Change Factors for Groundwater Supplies (CCF)(1)	670,448	679,938	691,803	703,715
TOTAL DEMANDS with Climate Change Factor for Outdoor Demands (CCF)(2)	326,717	347,175	363,183	382,969
Difference (CCF)	343,731	332,763	328,620	320,746

Notes: Units in hundred cubic feet (CCF).
(1) From Table 6B.
(2) From Table 4D.

7.2.2 Single-Dry Year

Single-Dry Year. The year that represents the lowest water supply available to the Supplier.

The year 2015 has been chosen to represent the single-dry year for CVWD because of the ongoing drought conditions that were occurring during that time. The year 1977 is the single-dry year for imported water supplies according to DWR's *2019 Delivery Capability Report.* The methodology for calculating the District's Single-Dry Year supply from local wells and imported supplies is shown in **Table 7C.**

Table 7C: Calculation of Single Dry Year Supply Projections for CVWD

	2025	2030	2035	2040
SWP Single-Dry Year Deliveries (% of Table A)[1]	7%	8%	9%	10%
SWP Single-Dry Year Delivery to CLAWA (AF)[2]	406	464	522	580
CLAWA Exchange Agreements in CY 2015 (AF)[3]	900	900	900	900
Average Proportion of CLAWA's SWP Annual Delivery Purchased by CVWD[4]	30%	30%	30%	30%
Subtotal (AF)	392	409	423	444
CVWD SDY Supply from Wells (AF)[5]	255	282	295	308
Additional Planned Wells at 50% Capacity (AF) [6]	26	13	13	13
Subtotal (AF)	282	295	308	321
Total SDY Supply (AF)	674 (293,419 CCF)	704 (306,798 CCF)	731 (320,178 CCF)	765 (333,557 CCF)
SDY Climate Change Factors for Precipitation and Natural Recharge[7]	100.5%	101%	100.8%	100.7%
Total SDY Supply with Climate Change Factors (CCF)	294,886	309,866	322,739	335,892

Notes: DWR: Department of Water Resources; CY: calendar year; AF: acre-feet; CCF: hundred cubic feet.

(1) From *2019 Delivery Capability Report (*DWR). 7% represents SDY deliveries in existing (2019) conditions and 10% represents SDY deliveries in future conditions.

(2) SDY percentage multiplied by CLAWA's Table A allocation of 5,800 AF.

(3) From *CLAWA Water Supply Reliability Certification 2017-2019.* Estimated as 500 AF from San Gorgonio Pass Water Agency and 400 AF from San Bernardino Valley Municipal Water District. From *Crestline-Lake Arrowhead Water Agency Water Supply Reliability Certification 2017-2019.*

(4) From Table 7A.

-(5) 2025 SDY supply begins with 2015 amount shown in Submittal Table 7-1 (111,151 CCF or 255 AF).

(6) Refer to Submittal Table 6-7 for schedule of. additional planned wells (two more by 2025 and one more every five years). Single-dry year production rate for a future well is assumed at 50% or 13 AF (5,800 CCF).

(7) From Table 6A (WMWD(a)).

Based on the Single-Dry Year supply assumptions in Table 7C, the projected supply and demand totals in a Single-Dry Year scenario (without climate change factors) are compared in **Submittal Table 7-3.** The deficit in 2035 during a single-dry year is equivalent to 2 AF (1.24 gpm) and the deficit in 2040 is 7 AF (4.34 gpm). These potential deficits are relatively small and could be met with the addition of just one more well in 2035 (for a total of two new wells in 2035).

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	293,419	306,798	320,178	333,557	
Demand totals*	292,291	306,331	321,086	336,594	
Difference	1,127	467	(908)	(3,037)	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES: CVWD supply begins with 2015 well production (111,151 CCF) plus 2 new wells in 2025, and one every 5 years thereafter but production at 50% (5,800 CCF). Imported supply assumes 7-10% of Table A and CLAWA carryover/exchange agreements as of 2015 (900 AF) and just 30% of that would be available to CVWD (Table 7B). SDY demand assumes 10% reduction from normal (Table 7-2). Does not include climate change factors.					

Submittal Table 7-3 shows surplus water supply if a single-dry year scenario occurred in 2025 and 2030 with small net deficits in 2035 and 2040. Because the demand projections are based on a 1 percent annual growth, the single-dry year demand for water is conservative given that regional population projections estimate a population growth rate of just 0.44 percent (Chapter 3). Further, depending on the hydrology in any given year the proportion of CLAWA's supply that can be purchased by CVWD may be more than 30 percent.

The following assumptions have been made to estimate supply and demand during a Single-Dry Year (drought stages are described in detailed in Chapter 8):

- The provisions of water conservation Phase 2 will be implemented, and customers will achieve a 10 percent reduction in water use (Ord. No. 35).
- 2020 water losses are held constant through 2040 and included in future water demands (Table 4-2).

- Because it would be a drought year, the additional planned wells listed in Submittal Table 6-7 are assumed to produce at one-half of the expected normal production rate (Table 7B).

- SWP deliveries estimated at 7 percent (2025), 8 percent (2030), 9 percent (2035), and 10 percent (2040) of maximum Table A amount (5,800 AF) (Table 7B), consistent with the existing and future conditions for deliveries in single-dry year per the *2019 Delivery Capability Report* (DWR).

- In 2015, approximately 900 AF in exchange agreements and carryover agreements made with neighboring SWP Contractors was available. These agreements can be short-lived and require renewal, the terms of which are subject to change depending on the hydrology and availability of water.

- Table 7D below shows the potential effects of climate change on outdoor water demands and precipitation and natural recharge on the single-dry year estimates in Submittal Table 7-3. With these increases in both supply and demand, a net deficit is shown for a single-dry year in 2030. However, the increase in water demands is likely overstated given that the factor reflects outdoor water use, which is minimal in the service area.

Table 7D: Comparison of Climate Change-Adjusted Single-Dry Year Supply and Demand

	2025	2030	2035	2040
Single-Dry Year Demand from Table 7-3 (CCF)	292,291	306,331	321,086	336,594
Water Demand Climate Change Factors(1)	100.6%	101.3%	101.9%	102.5%
Single-Dry Year Demand with Climate Change Factors (CCF)	294,045	310,313	327,187	345,009
Single-Dry Year Supply with Climate Change Factors (CCF)(2)	294,886	309,866	322,739	335,892
Difference (CCF)	**+841**	**-447**	**-4,448**	**-9,117**

Notes: Units in hundred cubic feet (CCF).
(1) From Table 4C.
(2) From Table 7C.

7.2.3 Multiple-Dry Year

Five-Consecutive-Year Drought. The driest five-year historical sequence for the Supplier.

The five-consecutive year drought period for CVWD is 2013 to 2017. The District's Multiple-Dry Year supply and demand comparisons are provided in **Submittal Table 7-4** (next page).

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025	2030	2035	2040	2045* (Opt)
First year	Supply totals	420,914	428,734	436,554	444,374	
	Demand totals	324,768	340,368	356,762	373,993	
	Difference	96,146	88,366	79,792	70,381	0
Second year	Supply totals	364,205	369,900	375,595	381,290	
	Demand totals	292,291	306,331	321,086	336,594	
	Difference	71,913	63,568	54,509	44,696	0
Third year	Supply totals	348,326	353,426	358,526	363,626	
	Demand totals	259,814	272,294	285,410	299,194	
	Difference	88,512	81,132	73,116	64,432	0
Fourth year	Supply totals	323,374	327,539	332,639	336,804	
	Demand totals	227,338	238,258	249,733	261,795	
	Difference	96,036	89,281	82,906	75,009	0
Fifth year	Supply totals	391,425	398,140	404,855	411,570	
	Demand totals	194,861	204,221	214,057	224,396	
	Difference	196,564	193,919	190,798	187,174	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Supply for Year 1-5 assumes actual CVWD supply including imported water in those years. Includes 2 new wells by 2025 and 1 additional every five years thereafter. Demand assumes 10-40% reduction from normal demand from second to fifth years.						

In the Multiple-Dry Year scenarios from 2025 to 2040, net supply and demand comparisons would yield a surplus of supply in all situations, as shown in Submittal Table 7-4.

The following assumptions are made to estimate supply and demand during a consecutive five-year dry year period (drought stages are detailed in Chapter 8):

- The supply from existing and future CVWD wells is reduced by the percentages in Submittal Table 7-1 for 2013-2017 production (i.e., 92 percent in Year 1, 67 percent in Year 2, 60 percent in Year 3, 49 percent in Year 4, and 79 percent in Year 5).

- Imported water supply is estimated as 28 percent of Table A (5,800 AF) and just 30 percent of that would be available to CVWD.

- Total demand increases annually by 1 percent from 2020 to 2040.

- Beginning in Year 2, demand is assumed to decrease overall by 10 percent (from 2025 Year 1 as baseline) as a result of demand reduction actions. Year 3 assumes a 20-percent demand reduction, Year 4 assumes a 30-percent demand reduction, and Year 5 assumes a 40-percent demand reduction.

- The climate change factors from Tables 4C and 6A are not embedded in the multiple-dry year estimates in Submittal Table 7-4. However, with climate change factors incorporated, the supply surplus shrinks in all years but no net deficits in supply are anticipated. The average decrease in the water supply surplus with the climate change factors incorporated is 1,329 CCF in 2025, 7,399 CCF in 2030, and 10,862 CCF, and 14,544 CCF.

7.2.4 Management Tools and Options for Reliability

As shown in the supply and demand comparisons above, CVWD anticipates having sufficient water supplies to meet future demands over the next 20 years during normal and multiple-dry years. Water supplies are sufficient in a single-dry year condition until 2035 and 2040 when the yield from just one well would meet the small supply deficit. Although CVWD will continue utilizing local water supplies to the maximum extent practicable following the intent of Water Code Section 10620 to minimize the need to import water from other regions, the water demands of the District since 1972 have required supplemental water purchased from the local SWP wholesaler, CLAWA. CVWD will continue to rely on imported water supplies to meet future demands. Annual purchases will continue to vary depending on well production, which is very responsive to rainfall in the prior year(s). As previously discussed, the District intends to drill two wells by 2025 and at least one additional well every five years thereafter to increase its local water supply, which is projected to outpace community growth and therefore reduce dependency on imported water during normal and wet years. This increase in local supply in combination with the District's Advanced Metering Infrastructure (AMI) system to minimize water losses, and the community's significant response to water conservation measures will maximize the use of local water resources. Nonetheless, CVWD remains dependent on CLAWA's assurance of available supply to provide the balance between demand and District well production, regardless of climatic conditions, changes in population, or fluctuations in the economy.

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7.3 DROUGHT RISK ASSESSMENT

The Drought Risk Assessment (DRA) is a new requirement beginning with the 2020 UWMP. This DRA can be updated before the next UWMP cycle (i.e., 2025); however, the notification and approval procedures in Chapter 10 of the UWMP would be required for any interim changes. An update to the DRA may be needed as result of new information becoming available, changes in water supply or water use, or in the event of unforeseen circumstances.

The DRA is based on the five driest consecutive years on record taking into account any extra effects to water supplies from plausible changes in climate, regulations, and other locally applicable criteria. If there is a shortage, the DRA identifies what the effects to the shortage would be from increasing supply and/or reducing demand. Water Code requires that the DRA include a description of the data and methods used, the basis for the supply shortage conditions, determination of the reliability of each source, and comparison of total water supplies and uses during the drought, which are described below.

7.3.1 Data, Methods, and Basis for Water Shortage Conditions

In order to account for the potential effects of climate change in the District's demand and supply projections, the District is using the results of a Technical Memorandum dated April 22, 2021 prepared by Western Municipal Water District. It is a thorough analysis of DWR climate data assembled from 20 global climate models. A copy of said memo is located in **Appendix F**. Pertinent data and findings from this memorandum have been referenced in Chapters 3, 4, and 6. The factors provided in the memorandum can adjust water demand estimates and supply projections up or down to account for the potential effects of climate change to outdoor water use and precipitation/natural recharge (Tables 4C and 6A). Said analysis determined factors that are commensurate with the projected trends in climate provided by Cal-Adapt for the Crestline area (Chapter 3). Said factors reflect the following trends and findings from the Technical Memorandum analysis:

- *Smaller decreases in projected precipitation and natural recharge under normal and multi-year drought years. However, the single dry year was slightly wetter under future conditions compared to the baseline. Precipitation will occur during shorter rainy seasons with higher intensity.*

- *Outdoor water uses are projected to increase under normal, single dry, and multi-year drought conditions, caused by projected temperature increases, which lead to higher evapotranspiration rates for landscaping, irrigated crops, and native vegetation.* (WMWD(a), pp. 1-2)

During the drought period of 2013 to 2017, the proportion of CVWD's supply that came from imported water was 47 percent (2013), 57 percent (2014), 58 percent (2015), 66 percent (2016), and 48 percent (2017) (Submittal Table 7-1). The volumes purchased in these years were 91 percent to 122 percent of average (with average calculated from 1994 to 2020 purchases). As indicated in CLAWA's response letter to CVWD for coordination on this UWMP, total demand for CLAWA in any year is not expected to exceed 2,400 AF, and a 41-percent SWP allocation should be sufficient to supply customer demand over the next 20 years (Appendix C). CLAWA's concern is when demand is great from its customers and the SWP Table A allocation is less than 41 percent. In such years, CLAWA is able to carry over water in the SWP that CLAWA was allocated in a given year but did not use. CLAWA can also use water from exchange agreements with other contractors wherein CLAWA can take back water in years of lean SWP allocations. The letter cited the example of water year 2021, in which the SWP allocation was only 5 percent (290 AF), but the addition of carryover water and exchange agreement water will be able to cover customer demand. CLAWA intends to continue to carry over water in the SWP when it can, and also negotiate additional exchange agreements with other Contractors as opportunities arise. However, it was noted that carryover water and exchange agreements may not always be available and that CLAWA's customers including the District must assume and plan accordingly that in some years, all of the demand for imported water may not be met. (Letter 04/22/21, Appendix C)

A water shortage condition may be declared when the anticipated supply is less than customer demands. This can result from catastrophic events, local drought, and drought affecting the delivery of SWP water to CLAWA. The District will utilize its extensive records on rainfall, well production, CLAWA purchases, and system loss to influence whether a water shortage due to a non-catastrophic event is anticipated and then act according to its Water Shortage Contingency Plan (Chapter 8) and adopted ordinances and resolutions. In the event of a sudden, unexpected event that causes a supply shortage, the District will use its Emergency Response Plan and Hazard Mitigation Plan to respond quickly and efficiently to bring water back online for its customers. When DWR declares a reduction in SWP deliveries to SWP

Contractors, a shortage declaration by the District may be warranted depending on the severity of the reduction.

7.3.2 Individual Water Source Reliability

The following characterizations reflect the expected amount and reliability of the water supply during the first year of a drought beginning in 2021. Based on the climate change factors used herein for demand and groundwater supply in a five-year dry period beginning in 2020, 100 percent—indicating no change as a result of potential climate change—is expected during each year of the five-year drought beginning in 2021 (WMWD(a)).

Drought Year 1: 2021

- Overall water use increases by up to 1 percent.
- District would likely remain in Phase I of water conservation program.
- Total water supply increases from 2020 supply amount with the addition of one new well producing at the anticipated low range of normal production, 8,500 CCF.

Drought Year 2: 2022

- Overall water use increases approximately 1 percent from the prior year due to growth.
- Depending on well production and changes to SWP deliveries, District would likely implement Phase I.a. of water conservation program requiring a 5 percent water use reduction.
- Total water supply does not change from 2021 total supply. District wells may begin to decline but difference is made up by imported water purchases.

Drought Year 3: 2023

- Overall water use increases approximately 1 percent from the prior year due to growth.
- Depending on well production and changes to SWP deliveries, District would likely implement Phase 2 of water conservation program requiring a 10-percent water use reduction.

- Total water supply does not change from 2021 total supply. District wells will begin to decline but difference is made up by imported water purchases.

Drought Year 4: 2024

- Overall water use increases approximately 1 percent from the prior year due to growth.
- Depending on well production and changes to SWP deliveries, District may implement Phase 3 of water conservation program requiring a 20 percent water use reduction.
- A new well is brought online but production is at the anticipated low range of normal production (8,500 CCF) due to drought conditions. Therefore, total water supply increases by 8,500 CCF from the 2021 and 2022 supply volume. District wells will likely be on the decline, but difference is made up by imported water purchases.

Drought Year 5: 2025

- Overall water use increases approximately 1 percent from the prior year due to growth.
- Depending on well production and changes to SWP deliveries, District will likely remain in Phase 3 of water conservation program requiring a 20 percent water use reduction.
- Total water supply does not change from 2024 total supply. District wells will likely decline but difference is made up by imported water purchases.

The uncertainty in the aforementioned assumptions include the water supplied by projects that have not been fully implemented yet. Production rates of new wells are estimated and have some uncertainty because they have not been drilled, equipped, and tested yet. There is also inherent uncertainty in the availability of imported water supplies, even though when other SWP Contractors received no SWP water during severe droughts, CLAWA was provided sufficient supplies for the minimum health, sanitation and fire protection needs of its retail and wholesale customers. Again, CLAWA is in a unique situation compared to other SWP Contractors in that the SWP is their singular supply source and DWR has recognized this and has been able to provide deliveries using various sources.

7.3.3 Total Water Supply and Use Comparison

When a water supplier cannot meet the demands of its customers for whatever reason, this DRA assumes two things can happen: the District can mandate customers to conserve water, thus reducing demand; and/or the District can augment or supplement its normal supplies with an emergency source of water.

CVWD customers have shown themselves to be responsive to water conservation mandates. Between 2013 and 2015, water use in the District reduced by 21.7 percent according to State Water Board records on drought reporting.

Supply augmentation for CVWD comes from the District's ability to purchase imported water supplies from CLAWA. Because wells take several years to design, construct, test, and bring online, drilling new wells is not a supply augmentation herein. The DWR *2019 Delivery Capability Report* estimates that Contractors will receive about 58 percent of the maximum Table A allotment under existing conditions, which may decrease to 52 percent under future conditions.

Assuming the next five years—2021 through 2025—are a five-consecutive year drought, and taking into account the assumptions in Section 7.3.2, the District's potential water supply surplus (or shortage) is provided in **Submittal Table 7-5** (next page). If there is a shortage, then the benefit of a supply augmentation or use reduction action is shown to address the shortage. As shown in Submittal Table 7-5, surplus supply is expected in all five years primarily because of the additional water from planned wells (albeit reduced because of drought) and the reduction in demand as a result of demand management and supply made up of an increasing proportion of imported water as the drought goes on.

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	**Total**
Total Water Use	312,837
Total Supplies	318,427
Surplus/Shortfall w/o WSCP Action	5,590
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	5,590
Resulting % Use Reduction from WSCP action	0%
2022	**Total**
Total Water Use	300,167
Total Supplies	318,427
Surplus/Shortfall w/o WSCP Action	18,260
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	18,260
Resulting % Use Reduction from WSCP action	0%
2023	**Total**
Total Water Use	272,852
Total Supplies	318,427
Surplus/Shortfall w/o WSCP Action	45,575
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	45,575
Resulting % Use Reduction from WSCP action	0%
2024	**Total**
Total Water Use	220,464
Total Supplies	326,927
Surplus/Shortfall w/o WSCP Action	106,463
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	106,463
Resulting % Use Reduction from WSCP action	0%
2025	**Total**
Total Water Use	178,135
Total Supplies	326,927
Surplus/Shortfall w/o WSCP Action	148,792
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	148,792
Resulting % Use Reduction from WSCP action	0%

CHAPTER 8 WATER SHORTAGE CONTINGENCY PLAN

Adoption Date and Resolution: June 15, 2021, CVWD Resolution No. 471, located in Appendix A.

This Water Shortage Contingency Plan (WSCP) details CVWD's actions in the event of an actual water shortage condition. A water shortage means that the water supply available is insufficient to meet the normally expected customer water use at a given point in time. In 2018, the State Legislature modified the UWMP laws to require a WSCP with the specific elements contained herein. The District may modify this WSCP at any time independent of updates to the UWMP; however, the same steps to notify and hold a public hearing are required with each modification as described herein. This chapter is written as a stand-alone document and therefore repeats many elements from the other chapters in the UWMP.

8.1 WATER SUPPLY RELIABILITY ANALYSIS

Pursuant to Water Code Section 10632(a)(1), the following is a summary of the Water Service Reliability Assessment and Drought Risk Assessment located in Chapter 7 of this UWMP.

CVWD has assessed the reliability of its water service during normal, single-dry, and multiple-dry years by comparing total projected water supplies with total projected water demand over the next 20 years, in five-year increments. Future water supplies listed herein for CVWD include all reasonably foreseeable and quantifiable future water supply projects that the District is either currently undertaking or is in the process of implementing. These include two additional wells by 2025, and one additional well every five years thereafter, each expected to produce between 8,500 and 11,550 CCF per year.

Approximately half of CVWD's average annual supply comes from imported water purchased from Crestline-Lake Arrowhead Water Agency (CLAWA), the local water wholesaler. Assumptions for future supplies of imported water are based on DWR's *2019 SWP Delivery Capability Report*; specifically, delivery of SWP water in a normal year is expected to be of 58 percent of CLAWA's Table A allocation, 7-10 percent in a single-dry year, and 28 percent each year in a five-consecutive year drought. It was assumed that 30 percent of those amounts could be supplied to CVWD. Future water demands for CVWD reflect a conservative annual growth rate consistent with the 2015 UWMP of 1 percent per year. Population growth for the service area is based on the Southern California Association of Governments (SCAG) 2020 forecast for unincorporated San Bernardino County at 0.44 percent year (SCAG). According to the DWR Population Tool, the current population of the service area is approximately 8,215 persons (Appendix G). Based on the land use data provided by the County for the UWMP, projected mid-range buildout population for the service area ranges from 10,900 to 13,400 persons. Maximum density buildout population ranges from 17,200 to 19,100 persons (Appendix G).

The potential effects of climate change on water supply and demand projections were incorporated using factors that increase or decrease the volume depending on the expected climate change effect on outdoor water use and precipitation/natural recharge. The factors suggest that reductions in water supplies during normal and five-year dry periods beginning by 2025 and increases in supplies during a single-dry year beginning by 2025. The factors suggest water demand will increase in normal, single-dry, and multiple-dry year periods. Although indoor water use is likely unaffected by climate change, the District is unable to measure it separately from total water use, therefore all demand was conservatively assumed to be increased as a result of climate change. In summary, the District is projected to have sufficient water supplies to meet expected customer demands in normal years, single-dry years (except for 2035 and 2040), and multiple-dry years occurring anytime between 2025 and 2040. The shortfalls suggested for single-dry years in 2035 and 2040 are insignificant and could be overcome with the addition of just one more additional well by 2035.

CVWD has prepared a five-consecutive-year Drought Risk Assessment (DRA) for a drought beginning in 2021 and continuing through 2025. The DRA assumes a sequential reduction in customer water use with each passing year to reflect mandated conservation beginning in drought year 2. These projected reductions in water use are deemed realistic given the observed reductions that CVWD customers made during the five-year drought from 2013 to 2017. Further, the DRA assumes imported water supplies from CLAWA would be available to the District to make up declines in well production beginning in drought year one (2021) through drought year five (2025). Local groundwater supplies from District wells are expected to decline beginning in Year 2 of the DRA, which is consistent with what was observed during the five-year drought from 2013 to 2017.

Groundwater reliability is based on decades of recorded observations made by the District. Because the District obtains groundwater from fractured bedrock, the amount available in storage cannot be quantified, nor can a sustainable yield be determined. Although well yields are responsive to precipitation patterns, the wells continue to produce through multiple-dry year periods. Combined with significant customer conservation efforts and reliance on imported water purchased from CLAWA which has always been able to deliver, customer demands have always been met and service reliability maintained.

Depending on the local and statewide hydrology in any given year, constraints to service reliability for CVWD can include decreased well production and/or reduced imported water supply. The District's facilities are sufficient, but it is plausible that system failures and catastrophic interruptions can occur. Water quality limitations that take supply offline and require additional treatment are ongoing for at least one proposed well. There is also the possibility of future yet-to-be determined testing requirements for emerging contaminants the District is not aware of yet that could affect supplies. Because of said reliability of the imported water supplies and District wells providing a proportion of supply through a previous five consecutive year drought, coupled with the District's intentions to develop more wells and demonstrated customer conservation efforts, the DRA shows that in the event of a five-consecutive year drought beginning in 2021 expected water demands would be met with expected supply.

8.2 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

Beginning in 2022, CVWD will prepare an annual water supply and demand assessment (or, Annual Assessment) and submit an Annual Water Shortage Assessment Report to DWR. The Annual Assessment is a determination of the near-term outlook for supplies and demands and how a perceived shortage may relate to WSCP shortage stage response actions in the next 12-month period; this determination is based on known circumstances and information available to CVWD at the time of analysis.

The Annual Water Shortage Assessment will be due by July 1 of each year pursuant to Water Code Section 10632.1. DWR is currently developing a stand-alone guidance document to help suppliers develop their own procedures, but it will not be available before the deadline for this document, which is July 1, 2021. Therefore, the decision-making process and key data inputs for the Annual Assessment shown below are interim and subject to change when the DWR guidance document becomes available.

8.2.1 Decision-Making Process for Annual Assessment

The Annual Assessment and related reporting are to be conducted based on the District's procedures described in the WSCP. At this time, the Annual Assessment is anticipated to be primarily based on the District's ongoing water supply and water demand tracking and monitoring process performed by staff; the results and analysis of which is presented monthly to the Board of Directors. The Annual Assessment will involve examination of developing demand and supply conditions for the next 12 months, as well as considerations for potential actions consistent with the WSCP. In June when an Annual Assessment is presented to the Board of Directors, it may include a request to trigger specific shortage response actions. Upon approval, CVWD staff will then submit the Annual Assessment to DWR by July 1.

8.2.2 Data and Methodologies for Annual Assessment

The Annual Assessment determination will be based on considerations of available water supplies, unconstrained demand, and infrastructure considerations.[1] Because the WSCP shortage stages are defined in terms of shortage percentages, shortage percentages for current year and one dry year conditions would be calculated for the Annual Assessment. The characteristics of "one dry year" according to the District will be at the discretion of the District, which may be refined and changed over time based on ongoing data collection. The 2020 UWMP suggests the conditions of a single-dry year for District wells would be consistent with the conditions observed in 2015, which was approximately 60 percent of the 1994-2020 average production rate (Submittal Table 7-1). The 2020 UWMP also assumes the conditions of a single-dry year for imported water from the SWP would be that which was observed in 1977 or 7 percent of Table A, consistent with DWR's *2019 SWP Delivery Capability Report*.

[1] For the Annual Assessment and WSCP, Water Code Section 10632(a)(2)(B)(i) directs the District to use current year "unconstrained demand" when assessing water supply reliability. Unconstrained demand is defined as expected water use in the upcoming year, based on recent water use, and before any projected shortage response actions that may be taken under the WSCP. Unconstrained demand may be differentiated from observed demand, which may be constrained by preceding, ongoing, or future actions, such as emergency actions taken as part of a multi-year drought. Routine activities such as ongoing conservation programs and regular operational adjustments are not considered to be constraints on demands.

The District will focus the Annual Assessment based on actual forecasted near-term water supply conditions to ensure appropriate shortage response actions are triggered in a timely manner with expected outcomes. The primary data sources that could be used by the District to evaluate the water reliability for the current year and one dry year are detailed below pursuant to Water Code Section 10632(a)(2).

1. **Evaluation Criteria.**

   For each Annual Assessment, the District will characterize current year and one dry year scenarios based on best-available data. CVWD will consult with CLAWA with regard to any limitations on imported water deliveries. Said consult will focus on estimates for the next 12 months and estimates if a single-dry year condition occurs. The District will make an estimation of available core supplies and unconstrained demands for the next 12-month period and a dry-year scenario to calculate shortage percentages.[2] These findings will be given additional context and influenced by infrastructure considerations (discussed below in Step 5), which will differ from year to year.

2. **Water Supply.**

   For each Annual Assessment, the District will quantify each source of the core water supply for the next 12 months and in a single-dry year condition based at least in part on the consultations described in step 1 (Evaluation Criteria). Quantification of core supplies will differentiate from the District's water supplies that are expected to be used in a supply augmentation situation.

3. **Current Year Unconstrained Customer Demand.**

   For each Annual Assessment, the District will gather data to forecast near-term demands, and may take into consideration historical usage trends, weather trends, and water-use efficiency trends. Additionally, factors such as the number of service availability letters issued recently, and knowledge about planned development projects may be referenced to gauge demand. Because these would be "constrained" demands rather than unconstrained demands, the District would adjust its near-term demand

[2] Core Supplies is not a defined term in the Water Code. It is used here to infer water supplies that are regularly available and to distinguish between water supplies slated for use in emergencies or severe shortage conditions as part of supply augmentation efforts.

forecast for the Annual Assessment to account for extraordinary demand management measures that the District may intend or have already put into effect for the current year.

4. **Current Year Available Supply.**

   For each Annual Assessment, the District will make two estimates of the available annual water supply using (1) current year conditions for the next 12 months and (2) one dry year conditions. Because the definition of one dry year is at the discretion of the District, CVWD will be able to refine and update its assumptions for a dry year scenario in each Annual Assessment as information becomes available.

5. **Infrastructure Considerations.**

   For each Annual Assessment, the District will describe infrastructure constraints that would influence the ability to obtain the water supply as expected and/or the ability to distribute normally to customers. Projects in the next 12 months that would influence capabilities would be quantified with the volume of water becoming available or unavailable and the duration of said projects or constraints.

   Each year, CVWD regularly carries out preventative and corrective maintenance of its facilities to inspect and repair pipelines and facilities and support capital improvement projects. These shutdowns involve a high level of planning and coordination; they are scheduled to ensure that major portions of the distribution system are not out of service at the same time. Operational flexibility within CVWD's system allows shutdowns to be successfully completed while continuing to meet all system demands.

6. **Other Factors.**

   For each Annual Assessment, the District can describe locally applicable factors that can influence or disrupt supplies, along with other unique local considerations that are considered to be part of the Annual Assessment.

8.3 SIX STANDARD WATER SHORTAGE STAGES

The Water Code requires six standard water shortage stages in the WSCP that correspond to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than a 50 percent shortage. Each stage represents an increasing gap between CVWD's supplies and demands as determined in the Annual Assessment. As described above, shortage percentages will be calculated as percent shortfall of core supplies against unconstrained demands for anticipated current year conditions and assumed dry year conditions. Shortage levels also apply to catastrophic interruption of water supplies, including but not limited to a regional power outage or earthquake. The District's shortage response actions for each of the six state-mandated shortage levels are shown in **Submittal Table 8-1** below.

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Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** (*Narrative description)*
1	Up to 10%	For up to a 5% shortage: 13 CCF allocation, surcharge 1.5 times the basic rate, 5% per-person water use reduction. CVWD Ord. No. 35 Phases 1 and 1.a prohibitions on water waste in-effect. For a 5-10% shortage: 12 CCF allocation,.surcharge 2 times the basic rate, and 10% per-person water use reduction. CVWD Ord. No. 35 Phases 1, 1a, and 2 prohibitions on certain water uses in-effect.
2	Up to 20%	11 CCF allocation. Surcharge 2 times the basic rate. 20% per-person water use reduction. CVWD Ord. No. 35 Phases 1, 1a, 2 and 3 prohibitions on certain water uses in-effect.
3	Up to 30%	9 CCF allocation. Surcharge 2.5 times the basic rate. 30% per-person water use reduction. CVWD Ord. No. 35 Phases 1, 1a, 2, 3, and 4 prohibitions on certain water uses in-effect. Augment supply with additional supply from CLAWA
4	Up to 40%	8 CCF allocation. Surcharge 3.5 times the basic rate. 40% per-person water use reduction. CVWD Ord. No. 35 Phases 1, 1a, 2, 3, 4 and 5 prohibitions on certain water uses in-effect. Augment supply with additional supply from CLAWA.
5	Up to 50%	7 CCF allocation. Surcharge 4 times the basic rate. 50% per-person water use reduction. CVWD Ord. No. 35 Phases 1, 1a, 2, 3, 4, 5, and 6 prohibitions on certain water uses in-effect. Augment supply with additional supply from CLAWA. Augment supply with additional supply from CLAWA
6	>50%	7 CCF allocation. Surcharge 4 times the basic rate. 50% per-person water use reduction. CVWD Ord. No. 35 Phases 1, 1a, 2, 3, 4, 5, and 6 prohibitions on certain water uses in-effect. Augment supply with additional supply from CLAWA
NOTES: (Source: CVWD Ord. No. 35) Units in hundred cubic feet (CCF). Exceptions to the basic allocation may be granted by the District Manager or his/her designee, upon written request for the following reasons: (i) substantiated medical requirements, (ii) multiple family units served by a single meter, (iii) single-family household exceeding 6 residents, and (iv) unnecessary and undue hardship to the consumer.		

CVWD Ordinance No. 35 was adopted by the CVWD Board of Directors on August 19, 2014 and describes the District's original six-phase Water Conservation Program to be invoked when determined by resolution of the Board of Directors. Resolution No. 414 was also adopted by the CVWD Board of Directors on August 19, 2014 to move the District's water conservation level at that time from Phase 1 to Phase 1.a. (the seventh phase) Currently, the District is in Phase 1 pursuant to Resolution No. 421. A copy of Ordinance No. 35, Resolution No. 414, and Resolution no. 421 are located in **Appendix K**. A visual cross-reference between the 2015 UWMP stages and the 2020 WSCP levels prescribed by statute is shown below in **Table 8A.**

Table 8A: Cross-Reference Between 2015 and 2020 WSCP Levels

2015 UWMP Stage	Per Person Water Use Reduction Target	2020 WSCP Level	Shortage Levels Prescribed by Statute
1	< 5%	1	Up to 10%
1.a	5%	2	Up to 20%
2	10%	3	Up to 30%
3	20%	4	Up to 40%
4	30%	5	Up to 50%
5	40%	6	> 50%
6	50%		

8.4 WATER SHORTAGE RESPONSE ACTIONS

The water shortage response actions the District can take that align with the defined shortage levels and shortage percentages in Submittal Table 8-1 include demand reduction actions, supply augmentation actions, operational changes, and additional mandatory prohibitions. The authority to determine shortage conditions and to select appropriate shortage response actions remains with the District.

8.4.1 Demand Reduction

There are generally two ways to respond to a water shortage—through either demand reduction actions or supply augmentation. The District's Water Conservation Program in Ordinance No. 35 focuses on reducing demand for water in response to a water shortage and/or worsening drought conditions. Demand reduction actions have been effective in the past, for example when the District transitioned from Water Conservation Phase I to Phase I.a effective September 1, 2014, water use in the District decreased more than 10 percent from 79.8 gallons per capita per day (GPCD) in 2014 to 71.6 GPCD in 2015 (WEBB(a), p. 8-6).

Table 8B summarizes the demand reduction actions listed in CVWD Ordinance No. 35 and in which stage the action is mandatory. Descriptions of each conservation stage are noted after the table.

Table 8B: CVWD Ord. No. 35 Demand Reduction Actions

Water Use Prohibition	Level When Prohibition is Mandatory(1)					
	Phase I.a	Phase II	Phase III	Phase IV	Phase V	Phase VI
Washing of sidewalks and all hard-surfaced areas by direct hosing is prohibited, except when required for public health.	X	X	X	X	X	X
Use of potable water for any non-essential outdoor use is prohibited.					X	X
Use of potable water for any non-essential use.						X
Each break, leak, or dripping faucet should be corrected within 48 hours of notification.	X	X	X	X	X	X
Using a hose to wash vehicles unless it has a spring-release shut-off nozzle is prohibited.	X	X	X	X	X	X
Vehicles must be washed either (1) using water contained in a 3-gallon maximum bucket or, (2) at a commercial washing facility with water recycling equipment.				X	X	X
Any irrigation which results in runoff or overspray is prohibited.	X	X	X	X	X	X
Any irrigation of landscaping installed after the date that this phase is effective is prohibited.		X	X	X	X	X
Sprinkling for dust control is prohibited.	X	X	X	X	X	X
Use of potable water for construction is prohibited.				X	X	X
Any water use that results in runoff of water is	X	X	X	X	X	X

Water Use Prohibition	Level When Prohibition is Mandatory(1)					
	Phase I.a	Phase II	Phase III	Phase IV	Phase V	Phase VI
prohibited.						
Lawn or garden, or any other watering beyond what is required to sustain plant life.	X	X	X	X	X	X
Fountains or other decorative features must use a recirculating system.	X	X	X	X	X	X
Using potable water for decorative fountains or filling of pools is prohibited.			X	X	X	X

Notes: (Source: CVWD Ord. No. 35)

(1) Phase I consists of the basic allocation and surface for excess consumption. The District operates in Phase I unless otherwise determined by the Board of Directors.

Phase I – General Water Use Reduction Program

The basic allocation for each single-family residential customer is 1,300 cubic feet (CF)[3] per month for Phase I and Phase I.a. A surcharge of 1.5 the basic rate would be billed for use in excess of the basic allocation.[4] Every consumer shall eliminate the waste of potable water from the District in an effort to conserve supplies.

Phase I.a – 5 Percent Water Use Reduction Program

The basic allocation and water waste prohibition from Phase I are still applicable, but in Phase I.a, the District aims to reduce the amount of water used by all consumers during the base calendar year by five percent. In addition, the State emergency drought regulations adopted by the CVWD Board of Directors in Resolution No. 421 are applied in Phase I.a., as listed in Table 8B.

Phase II – 10 Percent Water Use Reduction Program

The basic allocation is reduced to 1,200 CF per month. For use in excess of the allocation, a surcharge of two times the rate will be billed. Phase II aims to reduce the amount of water

[3] One cubic foot equals 7.48 gallons.

[4] The customer of record may request an increase in the allocation for the following reasons: (i) substantiated medical requirements; (ii) multiple family units served by a single meter; (iii) a single-family residential household exceeding six residents; or (iv) unnecessary and undue hardship to the consumer or the public, including but not limited to, adverse economic impacts (Ord. 35, Section 3.3.4.1).

used by all consumers by 10 percent over the base calendar year. Beginning with Phase II, irrigation of landscaping is prohibited (Table 8B).

Phase III – 20 Percent Water Use Reduction Program

The basic allocation is reduced further to 1,100 CF per month with a District-wide water reduction goal of 20 percent during the base calendar year. The surcharge for use in excess of the allocation is increased to 2.5 times the rate. In addition to the prohibitions of the previous phases, Phase III also prohibits potable water for the purpose of filling pools, spas, or decorative fountains, lakes, or ponds (Table 8B).

Phase IV – 30 Percent Water Use Reduction Program

The basic allocation is reduced further to 900 CF per month with a District-wide water reduction goal of 30 percent over the course of the base calendar year. The surcharge for use in excess of the allocation is increased to 3 times the rate. In addition to the prohibitions of the previous phases, Phase IV also states it shall be unlawful for consumers: (i) to use potable water for sewer or storm system flushing for normal maintenance and fire department training, except as approved by the District; (ii) use potable water for construction, and (iii) vehicle washing except from a 3-gallon bucket, which excludes commercial vehicle washing facilities that use water recycling systems (Table 8B).

Phase V – 40 Percent Water Use Reduction Program

The basic allocation is reduced to 800 CF per month and all water waste and non-essential use of potable water shall be eliminated to achieve a District-wide reduction of 40 percent over the year. The rate for water used in excess of the basic allocation shall be 3.5 times the rate. In addition to the prohibited uses in Phases I, I.a, II, III, and IV, Phase V prohibits the use of potable water for any non-essential outdoor use (Table 8B).[5]

Phase VI – 50 Percent Water Use Reduction Program

The final phase of the Water Use Reduction Program reduces the basic allocation to 700 CF per month. Everyone is required to eliminate water waste and non-essential water use to

[5] Essential uses of potable water are uses necessary for the health, sanitation, fire protection, or safety of the consumer or public.

achieve a District-wide reduction of 50 percent. The surcharge for excess consumption is 4 times the rate for the basic allowance. In addition to the prohibited uses from the previous phases, Phase VI also prohibits any indoor or outdoor water use that is non-essential (Table 8B).

The District's demand reduction actions are provided in **Submittal Table 8-2** (next page) including the estimated proportion of the water shortage gap that the demand reduction action is expected to meet at each level of the WSCP. The percentages in Submittal Table 8-2 are estimates of the observed effectiveness of the demand reduction actions as the District does not quantify the effect of individual water conservation measures.

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Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				
Any Level	Moratorium or Net Zero Demand Increase on New Connections	10%	The Board, by resolution, may restrict new service commitments and connections based on current and future water availability projections.	Yes
1	Other	Negligible, <5%	Every consumer shall eliminate the waste of potable water.	Yes
1	Other	10%	Each customer is required to install a shut-off valve on the customer's side of the meter, outside the meter box, to allow onsite plumbing to be drained as nececssary to prevent water loss from frozen or broken pipes.	Yes
1	Implement or Modify Drought Rate Structure or Surcharge	5%	Basic allocation of 1,300 CF/month per single-family residential customer. Other types of accounts may request an increase in the allocation. Surcharge of 1.5 for water in excess of allocation.	
1	Expand Public Information Campaign	5%	(Phase 1.a)	No
1	Other - Prohibit use of potable water for washing hard surfaces	5%	(Phase 1.a)	Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Less than 4%, combined with other portions of Phase	(Phase 1.a) Repair leaks within 48 hours of notification.	Yes
1	Other	Significant effect, 16% based on full-time vs. part-time population.	(Phase 1.a) Prohibit use of running water during freezing weather to prevent freezing of water lines.	Yes
1	Other - Require automatic shut of hoses	3-4%	(Phase 1.a)	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	10%	(Phase 1.a)	Yes
1	Other - Prohibit use of potable water for construction and dust control	No effect.	(Phase 1.a) Prohibit sprinkling for dust control.	Yes
1	Landscape - Other landscape restriction or prohibition	8% when combined with other Landscape restriction measures within Phase	(Phase 1.a) Prohibit any water use that results in the runoff of water in the street, gutters, driveways, or waterways.	Yes
1	Landscape - Prohibit certain types of landscape irrigation	<4%	(Phase 1.a) Prohibit any lawn or garden wateriang beyond what is needed to sustan plant life.	Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	<1%	(Phase 1.a) Fountains or features must have a recirculating system.	Yes

(continues on next page)

Submittal Table 8-2: Demand Reduction Actions

Shortage Level	Demand Reduction Actions ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				
2	Other	75% toward reducing the shortage gap	All demand reduction actions in Phase 1 and 1a.	Yes
2	Implement or Modify Drought Rate Structure or Surcharge	10%	Basic allocation reduced to 1,200 CF/month with surcharge of 2.0 for water used in excess of allocation.	Yes
2	Landscape - Other landscape restriction or prohibition	10-15%	Any irrigation, after the date that this phase is effective.	Yes
3	Other	65%	All demand reduction actions in Phases 1, 1a, and 2.	Yes
3	Implement or Modify Drought Rate Structure or Surcharge	10%	Basic allocation reduced to 1,100 CF/month with surcharge of 2.5 for used in excess of allocation.	Yes
3	Other water feature or swimming pool restriction	5%	Prohibit using potable water for decorative fountains or other water features.	Yes
4	Other	55%	All demand reduction actions in Phases 1, 1a, 2, and 3.	Yes
4	Implement or Modify Drought Rate Structure or Surcharge	10%	Basic allocation reduced to 900 CF/month with surcharge of 3.0 for water used in excess of allocation.	Yes
4	Other - Prohibit use of potable water for construction and dust control	1%		Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Estimated, 10% dependant on population	Exception: washing vehicles from water contained in a 3-gallon or less bucket.	Yes
5	Other	40%	All demand reduction actions in Phases 1, 1a, 2, 3, and 4.	Yes
5	Implement or Modify Drought Rate Structure or Surcharge	10%	Basic allocation reduced to 800 CF/month with surcharge of 3.5 for water used in excess of allocation.	Yes
5	Other	20-30%	Prohibit use of potable water for any non-essential outdoor use.	Yes
6	Other	25%	All demand reduction actions in Phases 1, 1a, 2, 3, 4, and 5.	Yes
6	Implement or Modify Drought Rate Structure or Surcharge	5%	Basic allocation reduced to 700 CF/month with surcharge of 4.0 for water used in excess of allocation.	Yes
6	Other	Estimated, 30% dependant on population	Prohibit use of potable water for any non-essential use.	Yes

NOTES: Percentages represent estimated proportion of shortage gap that will be met by the action. Phase 1 reflects normal conditions; therefore the percent effectiveness of its demand reduction actions is combined with Phase 1a actions to meet the level 1 goal. Customers are always required to eliminate waste of potable water in an effort to conserve water supplies. It is important to note that any prohibited use in each phase is also prohibited in a more restrictive phase. For shortage levels 1 and 2, the sum of the percentages here equal 100% meaning that demand reduction measures are estimated to meet the shortage gaps. For shortage levels 3-6, the sum of the percentages here and in Table 8-3 (Supply Augmentation) equal 100% of meeting the shortage gaps.

8.4.2 Supply Augmentation

The District can augment or supplement its water supplies by utilizing its ability to purchase additional water supplies from CLAWA. This augmentation action would not be redundant to the supplies discussed in UWMP Chapter 6 because these actions are above and beyond a normal water supply scenario. This is consistent with past water shortages when imported water met more than half of demands during significant conservation. As shown in **Submittal Table 8-3**, these supply augmentation measures are not likely to start until a water shortage of approximately 30 percent.

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
3	Other Purchases	20%	Additional purchase from CLAWA
4	Other Purchases	25%	Additional purchase from CLAWA
5	Other Purchases	30%	Additional purchase from CLAWA
6	Other Purchases	40%	Additional purchase from CLAWA
NOTES: Percentages represent estimated proportion of shortage gap that will be met by the action. CLAWA: Crestline-Lake Arrowhead Water Agency.			

8.4.3 Operational Changes

The operational actions that would be undertaken in the various drought scenarios are outlined in Submittal Table 8-2. The District already has a program to monitor, analyze, and track customer usage rates and continues an active pipeline repair and replacement program.

8.4.4 Additional Mandatory Restrictions

All mandatory restrictions developed by the District in addition to state-mandated prohibitions are listed in Table 8B and Submittal Table 8-2. No additional mandatory restrictions are available; however, the Board of Directors has the discretion to develop in the future locally appropriate restrictions as conditions dictate.

8.4.5 Emergency Response Plan

CVWD updated its *Water System Emergency Response Plan* (ERP) on August 1, 2018. The ERP was prepared in accordance with Section 1433(b) of the Safe Drinking Water Act as amended by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188, Title IV – Drinking Water Security and Safety).

CVWD has provided the required certification to the EPA that the 2018 ERP incorporates the results of the vulnerability assessment completed for the system and includes plans, procedures, and identification of equipment that can be implemented or utilized in the event of a terrorist attack on the water system. Applicable excerpts from the document are included herein where noted; the document in its entirety is kept by the District.

The purpose of the ERP is to provide CVWD with a standardized response and recovery protocol to prevent, minimize, and mitigate injury and damage resulting from emergencies or disasters of man-made or natural origin. The ERP also describes how CVWD will respond to potential threats or actual terrorist scenarios identified in the vulnerability assessment, as well as additional emergency response situations. Included in this ERP are specific Action Plans (APs) that will be utilized to respond to events and incidents. The primary threats identified for CVWD in the ERP are natural disasters (i.e., earthquake, winter storm, and fire) and human-caused, which can damage structures/equipment and/or disrupt service (ERP, p. 45). The following is a summary of pertinent information from the ERP related to water service interruption:

> *CVWD has one alternate and independent raw water source (well) which can supplement the water supply if the other sources are compromised. There are 3 other water utilities within the regional area, Crestline-Lake Arrowhead Water Agency, Valley of Enchantment Mutual Water Company and Cedarpines Park Mutual Water Company. These water utilities have their own water supply and treatment systems. To enable CVWD to have uninterruptible water service capability, bypass turnout valve connections from CVWD's water distribution system to Crestline-Lake Arrowhead Water Agency are in place and are currently maintained by Crestline-Lake Arrowhead Water Agency.* (p. 34)

ERP Action Plan 9 – Water Supply Interruption describes the District's five levels of severity for a water supply interruption with a series of stages of action corresponding to each level. AP 9 includes how to handle public notifications, locate alternative water supply options, shut-off and restart procedures, regulatory filings, use of backup generators, and when to issue a precautionary boil water order. The District also maintains Action Plans to respond to natural events (i.e., flood, winter storm, hurricane/tropical storm, and earthquake), contamination, structural damage, bomb threats, and power outages (AP 1A to AP 10C).

CVWD must also consider CLAWA's emergency response plans for an interruption of its supplies, because CVWD does not have sufficient tank storage to supply customers during an extended drought period nor does it have direct access to a reservoir of sufficient capacity (WEBB(a), p. 8-14).

CLAWA has installed permanent natural gas engine-operated standby generators at each of its main treatment, pumping, and operation facilities to avoid water supply interruptions during electrical power outages. In order to minimize potential damages due to earthquakes, CLAWA's facilities have been designed or upgraded in accordance with current building and safety standards and have been conducted with multiple units where feasible to minimize disruption if a single unit is damaged. CLAWA has also stockpiled various materials necessary to repair pipeline breaks and leaks in order to minimize outages during catastrophic events. (WEBB(a), p. 8-14)

CLAWA's water supply comes primarily from the State Water Project supplied by water from the Sacramento-San Joaquin Delta (Delta). According to DWR's *2019 Final Delivery Capability Report*, the Delta faces numerous challenges to its long-term sustainability. For example, climate change poses the threat of increased variability in floods and droughts, and sea level rise complicates efforts to manage salinity levels and preserve water quality in the Delta so that the water remains suitable for urban and agricultural uses. Among the other challenges are continued subsidence of Delta islands, many of which are already below sea level, maintained by relatively unstable levee system, and the related threat of a catastrophic levee failure as water pressure increases on fragile levees (DCR, p. 2). Federal, state, and local agencies have been working to address the hazards that threaten the Delta through implementation by 2018 of recommendations made by the Sacramento-San Joaquin Delta Multi-Hazard Coordination Task Force (Delta Stewardship Council).

8.4.6 Seismic Risk Assessment and Mitigation Plan

Pursuant to Water Code Section 10632.5 beginning January 1, 2020, the UWMP shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.[6]

CVWD recently updated its *Hazard Mitigation Plan* (HMP) in 2018 as part of the San Bernardino County Fire Protection District Office of Emergency Services' *Operational Area Multi-Jurisdictional Hazard Mitigation Plan* (MJHMP, 2017). The District is a participating special district to the County MJHMP. The County MJHMP includes information from 31 local HMPs; all of which were prepared in compliance with the federal Disaster Mitigation Act of 2000 (Public Law 106-390). Applicable excerpts from the District's HMP are included herein where noted, but the entire document is held by the District. Key findings from the 2020 HMP that are pertinent to the UWMP include:

- Natural and man-made hazard considered by the HMP include: Wildfires, Earthquake, Drought, Infestation, Climate Change, Terrorism, Winter Storms, Flooding, Dam Inundation (p. 16). The following natural hazards were considered not to be a risk to the District's planning team based on geography, topography, elevation, development or previous occurrence: Extreme Heat, Flash Flooding, High Winds/Straight Line Winds, Lightning, Severe Thunderstorms (p. 17).

- Earthquake hazards – The area served by CVWD is in close proximity to several major earthquake faults. The San Andreas Fault runs across the foot of the San Bernardino Mountains near Highway 18, Arrowhead Springs Area, less than five miles from Crestline. Additional faults in the San Bernardino area, e.g., San Jacinto, are also within 10 miles of the District. While there have been many earthquakes in and around the District's service area, none have caused damages to the District's facilities. (HMP, p. 23)

- HMP Appendix C.1 presents the earthquake profile findings for the District's service area. The ground motion findings indicate the peak ground acceleration (PGA) within

[6] Pursuant to Water Code section 10632.5, the assessment herein is based on other sources, as described below. Albert A. Webb Associates is not qualified to make its own independent seismic risk assessments or recommend mitigation actions and assumes no responsibility for those recommended herein.

the District's service area could potentially exceed 80 percent. Typically, any acceleration over 3 percent is considered excessive. (HMP, p. 28)

- Each District vehicle has been provided with a First Aid Kit containing basic first aid supplies. The District office also has two of these kits; one upstairs and one downstairs. The District office has a natural gas-powered generator for the operation of the District's Administrative Building and one adjoining well. (HMP, p. 57)

To assess risk in the HMP, each potential type of risk was first prioritized based on probability to occur, magnitude of impact, length of warning time before an event occurs, and duration of the disaster event. The CVWD Hazard Assessment Matrix in the HMP identifies earthquakes as the second highest ranking hazard, after wildfire. The HMP earthquake vulnerability analysis estimates that approximately 92 percent of the community's population is vulnerable to earthquake risks and approximately 100 percent of the community's critical facilities are vulnerable. Further, all District facilities and 30 percent of District pipelines are at risk if a severe earthquake occurred (HMP, p. 50).

The HMP contains mitigation goals, objectives, and projects for all hazards. Seismic hazard mitigation from the HMP is replicated below. The District HMP estimates the potential costs of damage to District facilities resulting from an earthquake and ranked the seismic mitigation actions of securing alternate power, water main replacement, and tank retrofit as priorities 2-4 among the five top priority actions (HMP, p. 66).

Description: *Goal is to avoid damages to property and prevent loss of life or injuries.* The District agreed that the strengthening of building, mechanical, and fire codes is critical to the protection of property and life and the reduction of seismic risk, fire and flood hazards. These codes help water utilities design and construct tanks, pump stations, groundwater wells, and pipelines that resist the forces of nature and ensure safety.

Objectives:

- Encourage property protection measures for all communities and structures located in hazard areas.
- Reduce or eliminate all repetitive property losses due to flood, fire and earthquake.
- Research, develop, and adopt cost-effective codes and standards to protect properties beyond the minimum of protecting life safety.
- Establish a partnership among all levels of government and the business community to improve and implement methods to protect property.

Mitigation Actions:

- Alternate Power Sources. Install emergency standby generators to provide water pumping in power outage conditions.
- Water Main Replacement. Install 2500′ of new water main.
- Tank Retrofit. Retrofit tanks to insure water availability. Continually make improvements to the District's facilities so the water system will continually deliver water.
- Continuous inspection of District facilities.

From CVWD Hazard Mitigation Plan, p. 61.

8.4.7 Shortage Response Action Effectiveness

The District's water shortage response actions are shown in **Submittal Table 8-2** and **Submittal Table 8-3**. Each response action listed has a corresponding percentage of the shortage gap that the action is expected to meet. The percentages in Submittal Table 8-2 are based on the observed effectiveness of demand reduction actions undertaken during the past five years including the drought from 2013-2017. The higher the percentage, the more effective the action is expected to be in reducing demand.

As described previously, the District demonstrated during the drought of 2013-2017 that demand reduction efforts are achievable and effective; for example, average Districtwide consumption decreased more than 10 percent from 79.8 GPCD in 2014 to 71.6 GPCD in 2015 (WEBB(a), p. 8-6). During normal and drought periods, the CVWD operations staff reports weekly production figures to the General Manager, who then prepares a monthly report to the

Board of Directors to report on water demands, water supplies, and progress toward the water conservation target if a drought stage has been declared. In doing so, the District does analyze the efficacy of demand reduction and supply augmentation response actions on a monthly basis.

The supply augmentation actions shown in Submittal Table 8-3 have been used in the past and additional supplies have been available from CLAWA so that CVWD can meet customer demands when combined with demand reduction actions.

8.5 COMMUNICATION PROTOCOLS

In the event of a water shortage declaration, or declaration of water shortage response actions, communication protocols to inform the customers, the public, interested parties, and local, regional, and state governments will proceed pursuant to the current ERP and CVWD Ordinance No. 35, which states in part:

> *The District shall monitor and evaluate the projected supply and demand for water by its customers, and shall recommend to the Board of Directors any change in customer curtailment as indicated in the respective phases of Section 3.3.3. The Board of Directors shall, by resolution, determine the base calendar year from which the amount of water reduction shall be calculated and order that the appropriate phase of water use reduction be implemented. The effective date of said phase change shall be published once in a local newspaper and a notice shall be mailed to all property owners and customers of record within 10 days after the adoption date of the resolution changing the phase of water use reduction. Said phase shall remain in effect until a different phase is initiated and made effective pursuant to the provisions of this section. The District can, by resolution, order a more stringent phase be implemented, and it need not order one phase at a time.*

In the event of an emergency, the District's ERP will provide complete guidance on notification procedures, which states in part (pp. 21, 25):

> *In general, communications during an emergency response will proceed along the chain of command of the ICS* [incident command system]*. 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 that will be used. The possibility of a coordinated attack that targets the water, power, and communications systems must be considered. In this case, it would be reasonable to assume that some methods of communication will either be unavailable or limited to certain areas during an emergency. It is anticipated that employees will know upon arrival at their duty stations which communication systems are functional and which are not. This information should be relayed to the CVWD Information Officer upon discovery.

The individual(s) who discover the threat or emergency situation will immediately notify CVWD's 24-hour Call Center. The On-call Person will then notify the Water Utility Emergency Response Manager or WUERM. The remainder of the CVWD staff will be notified according to the table in Section III.D.2.

The ERP provides staff an internal and external notification list that includes critical customers, vendors, local, state, and federal agencies. Public notification channels can include the CVWD Website, media outlets, local radio, and local cable TV. District staff should refer to the ERP for detailed procedures, assumptions and available resources related to communications in an emergency.

8.6 COMPLIANCE AND ENFORCEMENT

Pursuant to Water Code Section 10632(a)(6), the following explains the customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined by the WSCP.

The District will make a reasonable effort to assist customers in complying with the penalties and charges associated with a triggered shortage response action. The District provides each customer with an allocation of water and charges a surcharge for any water used in excess of the allocation compared to the basic rate. This system encourages water efficiency, particularly at the more restrictive phases of water conservation. Additionally, when Phase I.a through Phase VI are in effect, any consumer using more than 125 percent of their allocation, for any billing period, may be warned that such use is considered waste of water, and that a reduction in use is required to avoid being subject to the enforcement provisions shown in **Table 8C**. The District Board of Directors may also restrict new service commitments and connections based on current and future water availability predictions, by act of resolution.

Table 8C: Enforcement Provisions of Water Conservation Program

First Violation	Written Warning
Second Violation	$50 charge
Third Violation	Up to $500 for each day in which the violation occurs and may discontinue water service. The reinstatement charge would apply; however, a flow restrictor may be required before service is reinstated. The cost of installing the flow restrictor may be charged to the customer.

Source: CVWD Ord. No. 35.

The District may utilize the enforcement provisions of Section 3.3.6.2 of the District's Administrative Code to violations of temporary restrictions.

8.7 LEGAL AUTHORITIES

This section of the WSCP discloses the legal authorities that CVWD relies upon to implement the shortage response actions in Section 8.4, and to enforce them relative to Section 8.6.

The District maintains legal authority to implement all active CVWD ordinances including the demand reduction actions in Section 8.4.1 and enforcement actions in Section 8.6. Ordinance No. 35 was adopted on May 26, 2015 by the CVWD Board of Directors and enacted in conformity with Section 350, et seq., and Section 31026 of the Water Code.

The following statements have been included herein to demonstrate consistency with Water Code Section 10632(a)(7):

1. Water Code Section Division 1, Section 350 - Declaration of a water shortage emergency condition.

> The governing body of the Crestline Village Water District shall declare a water shortage emergency condition to prevail within the area served by the Crestline Village Water District whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the Crestline Village Water District to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

2. California Government Code, California Emergency Services Act (Article 2, Section 8558).

> The Crestline Village Water District shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency.

The following is a list of contacts at the county for which the District provides service that can be used in the event of a local emergency as defined in subpart (c) of Gov. Code Section 8558:

a. San Bernardino County, Office of Emergency Services (909) 356-3998

b. San Bernardino County Sheriff's Department, Twin Peaks (909) 336-0600

c. Crest Forest Fire Protection District (909) 338-3311

8.8 FINANCIAL CONSEQUENCES OF THE WSCP

The CVWD water rate schedule consists of two parts: first, a flat Monthly Minimum Charge based on the size of the meter; and second, a quantity rate based on a two-tier rate structure of a Basic Allocation Rate and Excess Consumption Rate which are determined by the declared water conservation phase. Most of the residences in the District have a 5/8 x 3/4 inch meter, but some meters can be as large as 3 or 4 inches (Minutes 20.06.16). The basic allocations by water conservation phase, the basic allocation rate, and excess consumption surcharge according to CVWD Resolution No. 460 are shown in **Table 8D.**

Table 8D: CVWD Quantity Rate Structure

Water Conservation Phase	Basic Allocation per Month (CF) (1)	Basic Allocation Rate per Month (per 100 CF)(2)	Excess Consumption Surcharge(2) (per 100 CF)
Phase 1	1,300	$5.10	$7.65
Phase 1.a	1,300		$7.65
Phase II	1,200		$10.20
Phase III	1,100		$12.75
Phase IV	900		$15.30
Phase V	800		$17.85
Phase VI	700		$20.40

Source: CF: cubic feet. CVWD Ord. No. 460, adopted June 16, 2020. Monthly minimum charge based on meter size is not shown.

(1) Exceptions to Basic Allocation may be granted for reasons outlined in CVWD Ord. No. 35.

(2) Also applicable to commercial fire services. Increases to $7.65 per 100 CF for 1,301 CF or greater. .

The revenues collected by the District as a result of consumer use in excess of the basic allocation, and the charges added to consumer bills as a result of enforcement actions by the District, are deposited into the operating fund. This reimburses the District's costs and expenses of administration and enforcement of the Water Conservation Program (Ordinance 35), and provides funding to promote, encourage, and implement water conservation programs.

CVWD does not have a written Reserve Policy that specifically addresses revenue fluctuations from water conservation. The total District reserves are currently about 74 percent of the Operating Budget and includes a reserve for purchased water, reserve for future improvements, contingency, and minimum emergency reserve. The "Reserve for Purchased Water" fund of up to $700,000 helps balance the fluctuations of purchased water from year to year. The reserve builds in wet years and is used in dry years. Currently, the reserve is at $700,000 (Memo, 4/20/21). While the Reserve for Purchased Water is not specifically designed to compensate for fluctuations in water use, it has helped to balance the budget during drought and water conservation efforts.

8.8.1 Additional Costs from Discouraging Excessive Water Use During a Drought Emergency

During a drought emergency, the District is required to prohibit excessive water use pursuant to Water Code Section 365 et al. Reporting the actions undertaken by the District to do so does not need to be reported in this WSCP; however, reporting the cost of compliance with Section 365 et al. is a required component of this WSCP, pursuant to Water Code Section 10632(a)(8)(C).

For reference, Water Code Section 367 states there are three types of drought emergencies: (1) declared statewide drought emergency; (2) suppliers move to a local stage of requiring mandatory reductions (as part of the WSCP); and (3) declared local drought emergency. During any one of these three types of drought emergencies, Water Code Section 366 states that excessive water use must be prohibited by using either a rate structure or an excessive water use ordinance.

CVWD prohibits water waste at all times, including declared statewide and local drought emergencies. As described previously, the District's rate structure includes an excessive water use surcharge. Violations of water use restrictions are subject to the penalties described in District ordinances and Administrative Code. Revenue collected from penalties issued related to water waste support the District expenses to monitor water use. The District's costs associated with prohibiting excessive water use during a drought emergency are rolled into various operating expenses depending on the staff involved and response actions required. Said expenses include activities like staff effort to announce the drought declaration and conveying expectations to the customers, staff effort to respond to reports of water waste and leaks, and staff effort to enforce penalties.

8.9 MONITORING AND REPORTING

The District will monitor and report on implementation of this WSCP based on key water use metrics to meet state reporting requirements. The District monitors all activities in the water distribution system through a dynamic system control and data acquisition (SCADA) system. The District will continue to monitor and contact high water users and investigate potential leaks. Staff will continue to monitor the system daily and weekly. Reports are provided monthly to the Board of Directors as to the status of water supplies and water demands. At such time the State Water Board provides the regulations for monthly reporting along with associated enforcement metrics, these will be reviewed and incorporated herein as appropriate.

8.10 REFINEMENT PROCEDURES

Water Code Section 10632(a)(10) requires a description of how this WSCP will be reevaluated and improved upon to ensure water shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

The WSCP will be periodically reevaluated to ensure that its shortage response actions are effective and up-to-date based on lessons learned from implementing the WSCP. The plan will be revised and updated during the UWMP five-year cycle to incorporate new information. For example, new demand reduction and/or supply augmentation actions may be added. If significant revisions are warranted, then the WSCP will be updated outside of the UWMP five-year update cycle. In the course of preparing the forthcoming Annual Assessments each year, CVWD staff can routinely analyze the functionality of the WSCP and prepare recommendations to modify the WSCP to the Board of Directors for the purpose of improving effectiveness in meeting the intent and goals of the WSCP.

8.11 SPECIAL WATER FEATURE DISTINCTION

Pursuant to Water Code Section 10632(b), water features that are not for human recreation are analyzed and defined separately from swimming pools and spas.

Non-Swimming Pool and Non-Spa Water Features

Water features that are not used for the purpose of human recreation are referred to as “decorative fountains, decorative lakes or ponds” in CVWD Ordinance No. 35. Beginning in Phase I.a, potable water may not be used for such features except where the water is part of a recirculating system. At Phase III, potable water is prohibited from use in these features. Water waste that is found to be related to such features may be enforced pursuant to the penalties in CVWD Ordinance No. 35. Said water waste can be reported to the District by the public and addressed by staff while in the field. The District can also spot a malfunctioning meter or water waste through its AMR system. Additional demand reduction actions that are triggered during declared droughts can be developed to address decorative water features and incorporated herein during the next update to the WSCP.

Swimming Pools and Spas

Swimming pools and spas that are intended for human recreation must use potable water for health and safety considerations. According to CVWD Ordinance 35, during water conservation Phase III, potable water is prohibited from use to fill pools or spas. Water waste that is found to be related to pools and spas may be enforced pursuant to the penalties in CVWD Ordinance No. 35. Said water waste can be reported to the District by email or phone, as well as by staff. The District can also spot a malfunctioning meter or water waste through its AMR system. Additional demand reduction actions that are triggered during declared droughts can be developed to address swimming pools and spas and incorporated herein during the next update to the WSCP.

8.12 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

The following are the steps to adopt, submit, implement, and amend the WSCP. The WSCP may be amended independently of the UWMP, as needed.

8.12.1 WSCP Adoption or Amendment

To adopt a WSCP or amend an adopted WSCP, the District will provide two required notices to customers and each city and county within which it provides service: (1) notice of a public hearing at least 60 days prior to the public hearing stating that the WSCP is being reviewed and adoption (or amendment) of the WSCP is being considered; (2) notice of the time and place of the public hearing including where the draft document is available for public viewing. Per Government Code Chapter 17.5 (commencing with Section 7290) of Division 7 of Title 1, the District must hold the public hearing consistent with the Dymally-Alatorre Bilingual Services Act. Determination of whether language assistance is needed is at the discretion of the District (per Gov. Code Section 7293). The District shall also place the notice containing the date and location of the public hearing and location of where the plan is available for public viewing in a newspaper once a week for two successive weeks (per Gov. Code Section 6066).

The public hearing for the WSCP may take place at the same meeting as the adoption hearing of the Board of Directors; however, the meeting agenda must include the public hearing as an agenda item. Before the District can submit the WSCP to DWR, the Board of Directors must formally adopt the WSCP. The adoption resolution should be included with the WSCP, either as an attachment or Web address where it can be found online. A copy of the adoption resolution is included in **Appendix A**.

8.12.2 WSCP Submittal and Availability

The WSCP (or amended WSCP) must be submitted to DWR within 30 days of adoption. Submittal must be done electronically using the Water Use Efficiency (WUE) data online submittal tool located online at: https://wuedata.water.ca.gov/. Within 30 days of submitting the adopted WSCP to DWR, the District must make the plan available for public review during normal business hours. This can be accomplished by placing a hardcopy at the front desk or by posting copies on the District Web site.

The WSCP (or amended WSCP) must also be submitted to the California State Library within 30 days of adoption. Submittal must be done via compact disc (CD) or hardcopy and mailed to:

California State Library
Government Publications Section
Attn: Coordinator, Urban Water Management Plans
P.O. Box 942837
Sacramento, CA 94237-0001

(If delivered by courier or overnight carrier, the street address should be used instead: 900 N Street, Sacramento, CA 95814.)

The WSCP (or amended WSCP) must also be submitted to each city or county to which the District provides water within 30 days of adoption. It may be submitted in an electronic format. Proof of required submittals are provided in **Appendix M**.

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CHAPTER 9 DEMAND MANAGEMENT MEASURES

This chapter describes the water conservation programs that CVWD has implemented, is currently implementing, and plans to implement in the future to meet future urban water use reduction targets. Demand management is an integral part of water resources management. Because the demand for water tends to increase as communities grow and available water supplies can change over time, having water-use demand management measures (DMMs) that help lower demands for water can improve water service reliability.

9.1 DEMAND MANAGEMENT MEASURES FOR RETAIL AGENCIES

The section of the Water Code that addresses DMMs was significantly modified in 2014 to simplify, clarify, and update DMM reporting requirements to six general requirements plus an "other" category as follows (CWC §10631(1)(B)):

1. Water waste prevention ordinances;
2. Metering;
3. Conservation pricing;
4. Public education and outreach;
5. Programs to assess and manage distribution system real loss;
6. Water conservation program coordination and staffing support; and
7. Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovating measures, if implemented.

Pursuant to the Water Code, each DMM description below includes how the measure has been implemented over the past five years, and how future projects will help the District to meet future water use targets.

9.1.1 Water Waste Prevention Ordinances

Conservation of water supplies has been a priority of the District for decades. The CVWD Board of Directors adopted a Water Waste Prohibition in Resolution No. 200 on March 11, 1982. This Resolution is still in effect today and reads, in part:

> *No customer shall knowingly permit leaks or waste of water. Where water is wastefully or negligently used on a customer's premises, and such waste seriously affects the general service, the District may discontinue the service if such conditions are not corrected within five days after giving the customer written notice.*

In 1991, the CVWD Board of Directors adopted Ordinance No. 29 containing the District's first Water Conservation Program. The program has since been modified by Ordinance No. 30, in 1992, codified by Ordinance No. 32 in 1998, and updated by Ordinance No. 35 to include the State Water Board's Resolution No. 2014-0038 (Emergency Regulation for Statewide Urban Water Conservation). CVWD Ordinance No. 35 was adopted by the CVWD Board of Directors on August 19, 2014, effective September 1, 2014. The adoption of Ordinance No. 35 was accompanied by the adoption of CVWD Resolution No. 414 to move the District from water conservation program Phase I to Phase I.a, and thusly began requiring a 5-percent reduction in water use. Subsequently, CVWD adopted Resolution No. 421 on April 21, 2015 to supplement Resolution No. 414 with the State Water Board's March 2015 Drought Emergency Water Conservation Regulations. On June 16, 2020, the District adopted Resolution No. 460 (Adopting a New Water Rate Schedule) which moved the water conservation program from Phase 1.a. back to Phase 1. Therefore, the District is currently in water conservation Phase 1. Copies of Ordinance No. 35 and Resolution No. 421 are in **Appendix K**. Resolution No. 460 is located in **Appendix L**.

The CVWD Water Conservation Program outlines a seven-phase program to reduce water use. These seven stages range from the most restrictive stage, Phase 6, to the least restrictive stage, Phase 1. The stages reflect increasing levels of prohibitions and consumption reduction methods. The District monitors and evaluates projected water supply and demand for its customers to determine the appropriate phase of water use reduction to be implemented.

Phase changes are passed by resolution, and notification is sent via mail to affected customers. Each phase remains in effect until a different phase is initiated and made effective.

The Board of Directors of CLAWA adopted Ordinance No. 59 (Declaring a Water Shortage Emergency and Adopting Rules, Regulations, and Restrictions on the use of Agency Water) on April 3, 2014. Ordinance No. 59 prohibits the waste of water and describes a five-stage water supply allocation plan for CLAWA's wholesale customers that CLAWA could enact at its discretion during a water shortage emergency. Because the District's supplies from CLAWA may be affected should an allocation plan be enacted, a copy of Ordinance No. 59 is included in **Appendix K**.

- **Implementation Over the Past Five Years**

  The CVWD water conservation phase was changed from Phase 1.a to Phase I with adoption of Resolution No. 460 on June 16, 2020. CLAWA Ordinance No. 59 has not changed in the past five years. Since 2015, CVWD has actively pursued incidents of water waste, which are investigated by staff and depending on the nature of the situation, are noticed to the property owner, repaired, or disconnected in cases of excessive leakage.

- **Planned Implementation to Achieve Future Water Use Targets**

  District staff will continue to respond to incidents of water waste and encourage water conservation in the community. Based on experience with implementing the water conservation ordinances, and future regulations from the State, District staff may make recommendations to the Board of Directors when appropriate to modify or amend the existing water conservation ordinance to improve its effectiveness.

9.1.2 Metering

CVWD is fully metered and undertook an impressive smart metering effort in 2010. The District replaced all of its meters with Neptune meters, which are part of an Aclara Fixed Network Advanced Metering Infrastructure (AMI) to better monitor water usage throughout the service area. The AMI system relies on data collection units installed throughout the system to process and store diagnostic information and data, which is then transmitted to CVWD's network control computer for further processing. The AMI system provides a number of important functions including the ability to automatically and remotely measure water use, detect tampering, identify any potential water leaks, and connect and disconnect service quickly and efficiently. The system can be combined with customer technologies, such as in-home displays and programmable communicating thermostats. The largest benefit for the District has been targeting water waste with notifications of potential water leaks.

- **Implementation Over the Past Five Years**

  Over the past five years, the District ensured that all connections are metered and connected to the AMI system. Staff continued to regularly maintain and repair the meter transmission units (MTUs). In late 2019 the District transitioned from an existing customer management software and server to a new Tyler system server. The transition caused some issues with the interaction between AMI and the new Tyler software. This led to a number of billing errors that including billing the wrong rates. Field crews are currently working through re-certifying the programming on every District meter.

  In 2020 the batteries on many District MTUs failed almost all at once. This resulted in some meters not reading for a several months. However, the final MTU replacements were completed in April 2021.

- **Planned Implementation to Achieve Future Water Use Targets**

  CVWD will continue to use the AMI system and improve software and features as needed. The District has budgeted for meter maintenance and repairs for FY 2021/2022. With this system, the District will be able to conduct long-term analysis of water use trends throughout the service area.

9.1.3 Conservation Pricing

Conservation pricing incentivizes customers regarding their water use. For example, the rates might be tiered at progressively higher prices to encourage efficient water use. Like a water waste ordinance, a conservation pricing structure is always in place and is not dependent upon a water shortage for implementation.

The CVWD water rate schedule consists of two parts: first, a flat Monthly Minimum Charge based on the size of the meter; and second, a quantity rate based on a two-tier rate structure of a Basic Allocation Rate and Excess Consumption Rate, which are determined by the declared water conservation phase. Most of the residences in the District have a 5/8 x 3/4 inch meter, but some meters can be as large as 3 or 4 inches (Minutes 20.06.16). The water rate schedules were last increased on December 20, 2016.

- **Implementation Over the Past Five Years**

On June 16, 2020, the District adopted Resolution No. 460 (Adopting a New Water Rate Schedule) which increases the Monthly Minimum Charge and Basic Allocation. A copy of Resolution No. 460 is included in **Appendix L**. Pursuant to Resolution No. 460, the Monthly Minimum Charge will increase by $5.00 for all meter sizes over a five-year period. The Basic Allocation Rate will increase to $5.10 per one hundred cubic feet (CCF) of water for the 0 -1,300 CF consumption range effective July 1, 2020. The Excess Consumption Rate will also increase to $7.65 per 100 CF at 1,301 CF or greater. Use in excess of the Basic Allocation is charged a surcharge (Excess Consumption Rate), which also changes with the current water conservation Phase, as shown in **Table 9A.**

Table 9A: CVWD Quantity Rate Structure

Phase	Basic Allocation per Month (CF)	Basic Allocation Rate (per 100 CF)(1)	Excess Consumption Surcharge (per 100 CF)
Phase I	1,300	$5.10	1.5 x Basic Rate
Phase I.a.	1,300		1.5 x Basic Rate
Phase II	1,200		2 x Basic Rate
Phase III	1,100		2.5 x Basic Rate
Phase IV	900		3 x Basic Rate
Phase V	800		3.5 x Basic Rate
Phase VI	700		4 x Basic Rate

Notes: CF = cubic feet;..
(1) Basic Allocation is 0 to 1,300 CF. Quantity rate increases from $5.10 per 100 CF to $7.65 per 100 CF when in excess of 1,300 CF (from CVWD Res. No. 460)

Based on how the Basic Allocation Rate and Excess Consumption Surcharge are structured, some level of conservation pricing structure is always in effect regardless of drought conditions. In addition, as described in Chapter 8, if the CVWD Board determines that water use reductions are necessary, they can vote to change the water conservation phase, which has the effect of decreasing the monthly allocation to each customer and increasing the surcharges for exceeding the allocation. For example, at the highest water conservation level Phase VI, each customer would receive an allocation of 700 CF per month, and be charged a surcharge of 4.0 times the basic rate ($7.65 x 4 = $30.60 per 100 CF) for any monthly water use exceeding this allocation.

- **Planned Implementation to Achieve Future to Achieve Water Use Targets**

Pursuant to Resolution No. 460, the Monthly Minimum Charge for each meter size will increase by $1.00 each year for the next four years. The District will continue to periodically review its water rates and will consider rate increases as necessary.

9.1.4 Public Education and Outreach

CVWD has very limited staff and serves a relatively small and tight-knit community; therefore, its public education and outreach is limited. CVWD offers residential surveys to customers to identify potential water waste in the home, and to connect customers with resources to repair inefficient appliances or change wasteful habits. CVWD also provides a similar program for large commercial users, involving site visits, evaluation of all water-using apparatuses and processes, and a customer report identifying recommended efficiency measures, paybacks, and agency incentives. The District does not offer a formal school education program; however, it has provided speakers to various classes and groups upon request.

- **Implementation Over the Past Five Years**

CVWD published a handout titled, “A Landscape Guide for Mountain Homes,” which is available at the District headquarters. Monthly water bills contain messages on water conservation strategies and show previous water usage to educate and encourage customers to reduce water use. Additionally, the District’s Web site directs customers to other resources that promote water wise use such as H2ouse.org, saveourwater.com, the District’s Water Conservation Program, and the bewaterwise.com Web site sponsored by The Metropolitan Water District of Southern California.

- **Planned Implementation to Achieve Future Water Use Targets**

In terms of public education and outreach for water conservation, CVWD's efforts have been effective, as evident in the water reduction that has occurred as described in Chapter 5. CVWD hopes to grow its outreach to the community and will continue to communicate to its customers the message of conservation and wise water use through billing notices, the CVWD Website, social media, and community outlets.

9.1.5 Programs to Assess and Manage Distribution System Real Loss

Since 2015, the District has performed an annual Water Loss Audit, copies of which are provided in **Appendix H**. The District is fully metered with an AMI system that allows the District to detect and respond to system leaks within 24 hours. The AMI system also facilitates data collection and analysis, allowing the District to better understand water waste and loss throughout the system. The District also conducts annual pipeline replacement projects.

- **Implementation Over the Past Five Years**

As described previously, the District's water losses in 2019 and 2020 are higher than normal due to two system malfunctions. In late 2019, the District transitioned from its existing customer management software and server to a new system server. This transition caused the daily reports that check for both stopped meters and potential leaks to stop for more than 6 months which affected the handling of leaks for the District. The transition also caused some issues with the interaction between AMI and the new Tyler software. These issues are being corrected and the full transition is almost complete. In 2020 the batteries on many District MTUs failed almost all at once. This resulted in some meters not reading for a several months. However, the final MTU replacements were completed in April 2021.

The meter and main repairs performed by CVWD for the past five years are detailed in **Table 9B**, as evidence of the ongoing efforts to repair leaks and minimize water loss.

Table 9B: CVWD Repairs, 2016-2020

Year	Service Connection (Meter) Breaks or Leaks	Main Breaks or Leaks
2016	21	7
2017(1)	-	-
2018	44	9
2019	32	9
2020	26	9

Source: Annual Report to the Division of Drinking Water for the Years Ending December 31, 2016 -2020

(1) None reported in 2017 report.

- **Planned Implementation to Achieve Future Water Use Targets**

CVWD budgets for annual waterline replacement projects, tank inspections/repairs, meter replacements and upgrades, as needed. The District will continue preparing water loss audits and taking into consideration the recommendations of the audit validator to improve system losses.

Staff will continue to check for leaks in several ways including the AMI system, SCADA, and visually. The District will respond to reports from the public to perform repairs quickly. Staff will continue to monitor the AMI system, as well as consumption and production data to detect a spike in loss and respond accordingly.

9.1.6 Water Conservation Program Coordination and Staffing Support

The CVWD General Manager, Jordan W. Dietz is CVWD's Conservation Coordinator. He dedicates approximately 5 percent of his time to performing these duties. He can be reached at: 909-338-1727 or jwdietz@cvwater.com. Additional staff support may be provided on an as-needed basis, budget permitting.

- **Implementation Over the Past Five Years**

Over the past five years, the District has communicated effectively to its customers on topics such as water conservation and emergency regulations. Water conservation efforts have been incorporated into the overall work of both the Conservation Coordinator (aka General Manager) and staff members.

- **Planned Implementation to Achieve Future Water Use Targets**

  CVWD will continue offering information to customers and speaking engagements as requested. Likewise, the District may investigate participation in grant or rebate programs. CVWD continues to submit annual and monthly reports to the State Water Board and DWR on water usage, amount of conservation achieved, and any enforcement efforts. CVWD will review future State requirements and continue reporting to the State, until determined otherwise.

9.1.7 Other Demand Management Measures

CVWD does not have other DMMs that have a significant impact on water use to report.

9.2 FUTURE WATER USE OBJECTIVES

In 2018, Assembly Bill 1668 (AB1668) and Senate Bill 606 (SB606) were signed into law to develop a new framework for statewide long-term water conservation. Together, the programs of these laws are organized around four goals: to use water more wisely; eliminate water waste; strengthen local drought resilience; and improve agricultural water use efficiency and drought planning. Notably, the 2018 legislation applies to the actions of DWR, State Water Board, and water suppliers; it does not set any standards or rules for individual customer use.

DWR and the State Water Board developed a handbook for the 2018 legislation titled, *Making Water Conservation a California Way of Life – Primer of 2018 Legislation on Water Conservation and Drought Planning, Senate Bill 606 (Hertzberg) and Assembly Bill 1668 (Friedman)* (November 2018). To fully plan, develop and implement the new framework, DWR and the State Water Board will work closely together over the next few years to develop new standards for indoor residential water use, outdoor residential water use, commercial / institutional / industrial (CII) water use for landscape irrigation with dedicated meters, and water loss.

Pursuant to the 2018 legislation, this UWMP includes a Water Shortage Contingency Plan and a Drought Risk Assessment that is due July 1, 2021 and every five years thereafter. The District will submit to DWR an annual water shortage assessment report beginning June 1, 2022.

Beginning November 1, 2023, and annually thereafter, CVWD will submit a report to DWR on urban water use objectives, actual urban water use, implementation of CII water use performance measures, and progress toward an urban water use objective (yet to be determined). Lastly, by January 1, 2024, the District will submit to DWR a supplement to the 2020 UWMP that describes how demand management measures are implemented to achieve their yet-to-be-determined urban water use objective.

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CHAPTER 10 PLAN, ADOPTION, SUBMITTAL, & IMPLEMENTATION

This chapter provides guidance to address the Water Code requirements for a public hearing, the UWMP adoption process, submitting an adopted Plan to DWR, Plan implementation, and the process for amending an adopted Plan.

Beginning in 2020, the Water Code requires that the Water Shortage Contingency Plan (WSCP) must have the same process for public hearing, adoption, submittal, and amendments as the UWMP.

10.1 INCLUSION OF ALL 2020 DATA

The Water Code requires current year water use and planning data to be included in the UWMP. Since CVWD is reporting on a calendar year basis, this UWMP and WSCP includes data through calendar year 2020 (January 1 through December 31). As such, this UWMP and the WSCP could not be completed until after the end of calendar year 2020.

10.2 NOTICE OF PUBLIC HEARING

Water Code requires that a public hearing must be held by the District prior to adopting the UWMP and/or WSCP. All public input shall be considered by the Board of Directors. There are two audiences within the service area that are required to be noticed for the public hearing: cities and counties, and the general public.

10.2.1 Notice to Cities and Counties

60-Day Notification

All cities and counties within which the District provides water supplies must be notified that the District will be reviewing the UWMP and considering amendments or changes to the Plan. This notice must be sent at least 60 days prior to the public hearing. Since CVWD does not serve a City, the first notice was sent to San Bernardino County on March 15, 2021. Copies of all notifications are located in **Appendix D**. (CWC § 10621(b) and §10642)

Notice of Public Hearing

The District delivered a second notice to the county and interested entities on May 15, 2021, to affirm the date, time, and place of the public hearing. The notice also reaffirmed that the Draft UWMP and Draft WSCP would be publicly available for viewing at the District Web site (http://www.cvwater.com/) and a printed hardcopy at the District Headquarters no less than two weeks prior to the public hearing. The draft documents were posted on the District Web site and the District Headquarters beginning on June 1, 2021. Copies of all notifications are located in **Appendix D**. Notifications to the county within the District service area are listed in **Submittal Table 10-1** to confirm delivery of a 60-day notice and notice of public hearing.

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
n/a		
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
San Bernardino County	Yes	Yes
NOTES: The District does not provide water service to any City.		

In addition to the county, CVWD also notified the following list of interested agencies and community organizations:

- County of San Bernardino
- Crestline-Lake Arrowhead Water Agency
- Lake Arrowhead Community Services District
- Running Springs Water District
- Arrowbear Park County Water District
- U.S. Department of Agriculture Forest Service
- Crestline Sanitation District
- San Bernardino County Fire
- Rim of the World Unified School District
- Rim of the World Recreation and Park District

- Lahontan Regional Water Quality Control Board
- Save Our Forest Association
- Division of Drinking Water, San Bernardino District
- Santa Ana Regional Water Quality Control Board
- Mojave Water Agency
- Cedarpines Park Mutual Water Company
- Valley of Enchantment Mutual Water Company
- Valley View Park Mutual Water Company
- Strawberry Lodge Mutual Water Company
- Alpine Water Users Association
- Santa Ana Watershed Project Authority
- Crestline/Lake Gregory Chamber of Commerce
- Sierra Club, Big Bear Group

Notice to the Public

The public was notified of the public hearing and availability to review the draft UWMP and draft WSCP in the local newspapers (*The Alpine Mountaineer News* and *The Mountain News)* once a week for two successive weeks pursuant to Government Code 6066. The first notice appeared on May 27, 2021, and the second appeared on June 3, 2021. The District also placed notifications on their Web site. CVWD provided a public draft of the UWMP and the WSCP at their offices located at 777 Cottonwood Drive and on their Website, http://www.cvwater.com/ beginning June 1, 2021. Copies of all notifications are located in **Appendix D**.

10.3 PUBLIC HEARING AND ADOPTION

Pursuant to the Water Code, the CVWD Board of Directors held a public hearing on Thursday, June 15, 2021, to receive public comment on the draft UWMP and the draft WSCP (CWC §10608.26(a)). The public hearing was included as an agenda item, which is included in **Appendix A**.

The Water Code requires the public hearing to accomplish all of the following in order to comply with the Water Conservation Act of 2009 (SB X7-7):

- Allow community input on the implementation plan;[1]
- Consider the economic impacts of the implementation plan; and
- Adopt a method for determining its urban water use target. [2]

Therefore, the public hearing provided information on the District's baseline values, water use targets, and implementation, and implementation required in the Water Conservation Act of 2009 (SB7-7).

10.3.1 Document Adoption

The 2020 UWMP and WSCP were adopted by the CVWD Board of Directors on June 15, 2021 following a public hearing held prior to the adoption vote, which gave CVWD the opportunity to modify the UWMP in response to public input prior to adoption. Copies of the CVWD adoption Resolution No. 470 for the UWMP and CVWD Resolution No. 471 for the WSCP are included in **Appendix A**.

10.4 PLAN SUBMITTAL

10.4.1 Document Submittal to DWR

The 2020 UWMP, including the WSCP, must be submitted to DWR within 30 days of adoption and by July 1, 2021 (CWC §10621(e)). Document submittal to DWR is done electronically through WUEdata. After the UWMP and WSCP are submitted, DWR will review the plan utilizing the checklist provided in **Appendix B** and decide as to whether or not the documents address the requirements of the Water Code. The DWR reviewer will contact CVWD as needed during the review process. Upon completion of the Plan review, DWR will issue a letter to the District with results of the review.

---

[1] The term "implementation plan" as mentioned in the Water Conservation Act of 2009 (SB X7-7) is not defined. But according to DWR staff, it is meant to suggest the District's plans, as described in the UWMP, to continue meeting its water conservation target.
[2] The method chosen by CVWD to calculate the 2020 water use target has been, "Method 3: 95 Percent of Hydrologic Regional Target from the 20 x 2020 Water Conservation Plan, State of California Agency Team, 2010" as defined in CWC Section 10608.20(a)(1).

10.4.2 Electronic Data Submittal

The adopted documents and required submittal tables were submitted to DWR using DWR's WUEdata online submittal tool. The WUEdata online submittal tool is online at https://wuedata.water.ca.gov.secure/.

10.4.3 Submitting a UWMP to the California State Library

No later than 30 days after adoption, CVWD shall submit a CD or hardcopy of the adopted 2020 UWMP, including the adopted WSCP, to California State Library at:

California State Library
Government Publications Section
Attention: Coordinator, Urban Water Management Plans
P.O. Box 942837
Sacramento, CA 94237-0001

Or by courier or overnight carrier to the State Library at:

California State Library
Government Publications Section
Attention: Coordinator, Urban Water Management Plans
914 Capitol Mall
Sacramento, CA 95814

Proof of submittal to the California State Library is provided in **Appendix M**.

10.4.4 Submitting a UWMP to Cities and Counties

No later than 30 days after adoption of the 2020 UWMP, including the WSCP, the District shall submit a hard or electronic copy of the documents to San Bernardino County (CWC §10635(c)). Proof of submittal to San Bernardino County is provided in **Appendix M.**

10.5 PUBLIC AVAILABILITY

The adopted 2020 UWMP, including the WSCP, are available for public review at CVWD Headquarters, located at 777 Cottonwood Drive, Crestline, CA 92325-3347 during normal business hours, Monday through Friday, 7:30 AM to 4:30 PM. In addition, a copy of the adopted UWMP can be found on CVWD's Web site, http://www.cvwater.com/ for public viewing anytime (CWC § 10645(a) and 10645(b)). Proof of the UWMP's public availability is provided in **Appendix M**.

10.6 NOTIFICATION TO PUBLIC UTILITIES COMMISSION

Pursuant to Water Code, those water suppliers that are regulated by the California Public Utilities Commission (CPUC) must submit their UWMP and WSCP to the CPUC as part of its general rate case filings. Because CVWD is not regulated by the CPUC, the District will not be submitting their documents to the CPUC (CWC §10621(c)).

10.7 AMENDING AN ADOPTED UWMP

If CVWD decides to amend the adopted 2020 UWMP, each of the steps for notification, public hearing, adoption, and submittal must also be followed for the amended plan. This includes providing copies of amendments or changes to the plan to DWR, California State Library, and any city or county within which the supplier provides water within 30 days of adoption. (CWC §10644(a)(1))

10.7.1 Amending a Water Shortage Contingency Plan

If CVWD decides to revise the adopted 2020 WSCP after DWR approves the 2020 UWMP, then CVWD must submit to DWR an electronic copy through the WUE Data Portal of its revised WSCP within 30 days of its adoption. (CWC § 10644(b))

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Minutes, 2012	Crestline Village Water District. *Minutes of the adjourned Regular Meeting of the Board of Directors of Crestline Village Water District.* August 28, 2012. (Available at http://www.cvwater.com/MINUTES120828.pdf) .
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PEIR	Placeworks. *San Bernardino Countywide Plan Draft Program Environmental Impact Report (PEIR), Section 5.10 – Land Use and Planning*. June 2019.
Chapter 6	
Banks & Robins	David Banks and Nick Robins, *An Introduction to Groundwater in Crystalline Bedrock,* 2002. (Available at http://www.ngu.no/FileArchive/91/Intro_to_groundwater.pdf)
Basin Plan	Lahontan Regional Water Quality Control Board. *Water Quality Control Plan (Basin Plan) forNorth and South Basins.* Effective March 31, 1995, including amendments effective Aug. 1995 through Oct. 29, 2019.
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DCR	California Department of Water Resources. *The Final State Water Project Delivery Capability Report 2019*. August 26, 2020.
DUDEK	DUDEK. *Crestline Sanitation District 2018 Wastewater Management Plan*.
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IGC	Independent Geo-Environmental Consultants, *CVWD Initial Study Water Resources Evaluation*, October 1997.
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DOCUMENT PREPARATION STAFF

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<u>Crestline Village Water District</u>

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APPENDIX

APPENDIX A

CRESTLINE VILLAGE WATER DISTRICT

A G E N D A

REGULAR MEETING

June 15, 2021

The Regular Meeting of the Board of Directors will be held on Tuesday, June 15, 2021 at 3:00 PM, by Teleconference – See Below.

IMPORTANT NOTICE REGARDING COVID-19 AND TELECONFERENCED MEETINGS:

Based on the mandates by the Governor in Executive Order 33-20 and the County Public Health Officer to shelter in place and the guidance from the CDC, to minimize the spread of the coronavirus, please note the following changes to the District's ordinary meeting procedures:

- The District offices are not open to the public at this time.
- The meeting will be conducted via teleconferencing using Zoom.
- All members of the public seeking to observe and/or to address the local legislative body may participate in the meeting telephonically or otherwise electronically in the manner described below.

HOW TO OBSERVE THE MEETING:

Telephone: Listen to the meeting live by calling Zoom at 1+**(253) 215-8782 or 1+(301) 715-8592**
Enter the **Meeting ID# 826 5733 6162** followed by the pound (#) key. More phone numbers can be found on Zoom's website at https://zoom.us if the line is busy.
Computer: Watch the live streaming of the meeting from a computer navigating to https://us02web.zoom.us/j/82657336162 using a computer with internet access that meets Zoom's system requirements(see https://support.zoom.us/hc/en-us/articles/201362023-System-Requirements-for-PC-Mac-and-Linux)
Mobile: Log in through Zoom mobile app on a smart phone and enter **Meeting ID# 826 5733 6162**

If Prompted For A Passcode, Use: 1727

HOW TO SUBMIT PUBLIC COMMENTS:

Written/Read Aloud: Please email your comments to cvwater@cvwater.com, write "Public Comment" in the subject line. In the body of the email, include the agenda item number and title, as well as your comments. If you would like your comment to be read aloud at the meeting (not to exceed three minutes at staff's cadence), prominently write "Read Aloud at Meeting" at the top of the email. All comments received before 12:00 PM the day of the meeting will be included as an agenda supplement on the District's website under the relevant meeting date and provided to the Directors at the meeting. Comments received after this time will be treated as telephonic/electronic comments.

Telephonic/Electronic Comments: During the meeting, the Board President or designee will announce the opportunity to make public comments and identify the cut off time for submission. A short recess (generally less than 10 minutes) will take place during the time public comment is open to allow the comments to be collected. Please email your comments to cvwater@cvwater.com, write "Public Comment" in the subject line. In the body of the email, include the agenda item number and title, as well as your comments. Once the public comment period is closed, all comments timely received will be read aloud. Comments received after the close of the public comment period will be added to the record after the meeting.

ACCESSIBILITY INFORMATION:

Board Meetings are accessible to people with disabilities and others who need assistance. Individuals who need special assistance or a disability-related modification or accommodation (including auxiliary aids or services) to observe and/or participate in this meeting and access meeting-related materials should contact Jordan W. Dietz, General Manager, at least 48 hours before the meeting at (909) 338-1727 or jwdietz@cvwater.com. Advanced notification will enable the District to swiftly resolve such requests to ensure accessibility.

PUBLIC RECORDS:

Public records that relate to any item on the open session agenda for a meeting are available for public inspection. Those records that are distributed after the agenda posting deadline for the meeting are available for public inspection at the same time they are distributed to all or a majority of the members of the Board. The Board has designated the District's website located at http://www.cvwater.com/boardmeetingagendasandmeetings as the place for making those public records available for inspection. The documents may also be obtained by calling the District General Manager.

CRESTLINE VILLAGE WATER DISTRICT

A G E N D A

REGULAR MEETING

June 15, 2021

The Regular Meeting of the Board of Directors will be held on Tuesday, June 15, 2021 at 3:00 PM, at the office of the District, located at 777 Cottonwood Drive in Crestline, California.

CALL TO ORDER AND FLAG SALUTE:

APPROVAL OF MINUTES: Regular Meeting of May 18, 2021. *

APPROVAL OF CASH DISBURSEMENTS: May 2021 *

PUBLIC COMMENTS:

PUBLIC HEARING:

1. Adoption of 2020 Urban Water Management Plan. *
2. Adoption of 2020 Water Shortage Contingency Plan. *

REGULAR SESSION:

1. Review and Adopt Resolution No. 470, Adopting Urban Water Management Plan. *
2. Review and Adopt Resolution No. 471, Adopting the 2020 Water Shortage Contingency Plan. *
3. Adopt Resolution No. 472, California Bank & Trust Signature Cards, Authorized Signers. *
4. Adopt Resolution No. 473, Arrowhead Credit Union Signature Cards, MMA Authorized Signers. *
5. Adopt Resolution No. 474, Arrowhead Credit Union Signature Cards, Checking Authorized Signers. *
6. Adopt Resolution No. 475, Local Agency Investment Funds, Authorized Signers. *
7. Adopt Resolution No. 476, Determining Appropriation Limitation for Fiscal Year 2021-2022*
8. Adopt Resolution No. 477, Establishing a Board Conduct Policy *
9. Consider Cost of Living Adjustment for District Employees. *
10. Discussion on Paid-Time-Off and Comp-Time Accrual Policies
11. Consider Sale of Surplus Equipment; 2001 Ford F150 4x4 Truck #5. *
12. Consider 2021 Election Ballot, California Special Districts Association. *
13. Consider Revised Proposal for Electra Well Uranium Removal *
14. Consider Proposal for Aclara ONE AMI Server Upgrade *
15. Report on Attendance of ACWA Virtual Spring Conference.
16. Update on Health Savings Accounts for Plan Year 2022. *

EXECUTIVE SESSION:

1. Public Employee Performance Evaluation:

   Title: General Manager, Pursuant to Government Code Section 54957(B).

REGULAR SESSION: Continued

17. Consider Performance Evaluation for General Manager*

MANAGER'S REPORT:

1. Update on District Projects.
2. Monthly Financial and Investment Reports.
3. Monthly Water Production Reports.

DIRECTORS' REPORTS:

1. Director's Reports.
2. Requests for Future Agenda Items.

NEXT SCHEDULED BOARD MEETING: Tuesday, July 20, 2021 at 3:00 PM.

RESOLUTION NO. 470

RESOLUTION OF THE BOARD OF DIRECTORS OF CRESTLINE VILLAGE WATER DISTRICT ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN.

WHEREAS, the District is an urban water supplier providing water to more than 3,000 customers in the Crestline area of the San Bernardino Mountains; and

WHEREAS, in accordance with the Urban Water Management Planning Act (Water Code Sections 10610 *et seq.*), the District desires to update its existing Urban Water Management Plan by preparing a new Urban Water Management Plan (the "Plan") and the District desires to file that Plan with the California Department of Water Resources; and

WHEREAS, legislation referred to as the Water Conservation Act of 2009 or "SBX7-7" (Water Code, Part 2.55, Section 10608 et seq.), enacted by the California Legislature during the 2009 Extraordinary Session, established requirements for urban retail water suppliers to prepare interim and urban water use targets for achieving increased water use efficiency by the years 2015 and 2020, in accordance with the goal of SBX7-7 to reduce statewide per capita water use 20 percent by the year 2020; and

WHEREAS, the District has made the Plan available for public review and, in compliance with the Urban Water Management Planning Act, the District has properly noticed and held a public hearing to discuss the Plan.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Crestline Village Water District as follows:

<u>Section 1</u>. The District hereby adopts Target Method 3 under Water Code Section 10608.20{b) for determining its water use targets, and the Urban Water Management Plan dated

June 2021 and attached hereto as Exhibit "A". The District's Urban Water Management Plan, dated July 2016 and any and all previously adopted Urban Water Management Plans or portions thereof are hereby repealed and replaced by the Plan dated June 2021.

Section 2. Pursuant to Water Code Section 10621, the District Secretary is hereby authorized and directed to file a copy of the District's Urban Water Management Plan with the California Department of Water Resources.

Section 3. The District General Manager, or his designee, is hereby authorized to implement the Urban Water Management Plan.

Section 4. In accordance with Water Code Section 10652, the District finds that adoption and implementation of the Urban Water Management Plan is statutorily exempt from the provisions of the California Environmental Quality Act (Public Resources Code Sections 21000 *et seq.*).

Dated: July 15, 2020

Connie Bracken Griffin

President, Crestline Village Water District

ATTEST:

Secretary, Crestline Village Water District

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, JORDAN W. DIETZ, Secretary of the Board of Directors of the Crestline Village Water District, do hereby certify that the foregoing Resolution was duly adopted by the Board of Directors of said District at a regular meeting of said Board held on the 15th day of June, 2021, and that it was adopted by the following roll call vote:

AYES: Directors Bracher-Griffin, Brister, Hubbell and Stone
NOES: None
ABSENT: None
ABSTAINED: Director Farrell

Secretary of the Board of Directors
of Crestline Village Water District

(SEAL)

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, Jordan W. Dietz, Secretary of the Board of Directors of the Crestline Village Water District, do hereby certify that the above and foregoing is a full, true and correct copy of Resolution No. 470 of said Board, and that the same has not been amended or repealed.

DATED: 6-20-21

Secretary of the Board of Directors
of Crestline Village Water District

(SEAL)

RESOLUTION NO. 471

RESOLUTION OF THE BOARD OF DIRECTORS OF CRESTLINE VILLAGE WATER DISTRICT ADOPTING THE 2020 WATER SHORTAGE CONTINGENCY PLAN.

WHEREAS, the Urban Water Management Planning Act requires urban water suppliers providing water for municipal purposes to more than 3,000 customers to prepare and adopt, in accordance with prescribed requirements, a water shortage contingency plan; and

WHEREAS, the Urban Water Management Planning Act specifies the requirements and procedures for adopting such Water Shortage Contingency Plans; and

WHEREAS, the Board of Directors of Crestline Village Water District has duly reviewed, discussed, and considered such Water Shortage Contingency Plan and has determined the Water Shortage Contingency Plan to be consistent with the Urban Water Management Planning Act and to be an accurate representation of the planned actions during shortage conditions for Crestline Village Water District.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Crestline Village Water District hereby approves and adopts the Water Shortage Contingency Plan, as presented to the Board; and

The Board of Directors authorizes the General Manager to incorporate comments from the public hearing as approved by the Board of Directors; and

That the General Manager is authorized and directed to submit a copy of the adopted Water Shortage Contingency Plan, as part of the 2020 Urban Water management Plan in Section 8, to the Department of Water Resources by July 1, 2021, as required by Section 10621 of the

California Water Code, and the California State Library, and the County of San Bernardino within 30 days of its adoption, as required by Section 10644 of the California Water Code.

Dated: June 15, 2021

Connie Bianchi Griffin

President, Crestline Village Water District

ATTEST:

Secretary, Crestline Village Water District

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, JORDAN W. DIETZ, Secretary of the Board of Directors of the Crestline Village Water District, do hereby certify that the foregoing Resolution was duly adopted by the Board of Directors of said District at a regular meeting of said Board held on the 15th day of June, 2021, and that it was adopted by the following roll call vote:

AYES: Directors Bracher-Griffin, Brister, Farrell, Hubbell and Stone
NOES: None
ABSENT: None
ABSTAINED: None

Secretary of the Board of Directors
of Crestline Village Water District

(SEAL)

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, Jordan W. Dietz, Secretary of the Board of Directors of the Crestline Village Water District, do hereby certify that the above and foregoing is a full, true and correct copy of Resolution No. 471 of said Board, and that the same has not been amended or repealed.

DATED: 6-20-21

Secretary of the Board of Directors
of Crestline Village Water District

(SEAL)

APPENDIX B

Appendix F: UWMP Checklist

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	1.2 Simple Lay Description
x	x	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	1.2 Simple Lay Description
x	x	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	1.1 Regulatory Background; Appendix A; 2.1 Plan Prep.

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	2.2 Plan Coordination; Appendix D 2.2.1 Land Use Agency Coordination; Appendix C
x	x	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	2.2 Plan Coordination; Appendix D
x		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	2.2 Plan Coordination; Appendix C

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
	x	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	N/A
x	x	Section 3.1	10631(a)	Describe the water supplier service area.	System Description	3.1 & 3.2
x	x	Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	3.3 & 3.3.1
x	x	Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	3.4
x	x	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	3.4.3
x	x	Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	3.4.1 & 5.3
x	x	Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	3.4.2 & 3.5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	4.1, 4.2 & 4.3
x	x	Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	4.4,,4.4.1 & Appendix G
x	x	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	4.3
x	x	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	4.3
x	optional	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	4.4 & Appendix G
x	optional	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	4.5
x	x	Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	3.3.1, 4.3.1 & Appendix F

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x		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	5.1, 5.2, 5.3 5.4 & 5.5; Appendix I
x		Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	5.5
	x	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	N/A
x		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	N/A

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x		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	N/A (5-year baseline is 95 GPCD)
x		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	5.5; Appendix I
x	x	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	6.1, 6.2. 6.10, 6.11.1, 7.1, 7.2 & Appendix F
x	x	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, *including changes in supply due to climate change.*	System Supplies	6.11.1

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	6.1 & 6.2
x	x	Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	6.2 6.9 & 6.10
x	x	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	6.10
x	x	Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	6.2 & 6.10
x	x	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	6.2
x	x	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	6.2

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	6.2
x	x	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	6.2
x	x	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	6.2.4
x	x	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	6.2
x	x	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	6.1 & 6.8

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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)	6.5 & 6.6
x	x	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	6.6.1
x	x	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)	6.6.1
x	x	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)	6.6.2
x	x	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)	6.6.3

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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)	6.6 (Refers to CSD's Plan)
x	x	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	6.7
x	x	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)	6.6
x	x	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	6.9 & 6.10
x	x	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 Suppliers, Energy Intensity	6.12

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	7.1.2 & Appendix K
x	x	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	7.2.4
x	x	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	7.2 & Appendix F
x	x	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	7.3 & Appendix F

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	7.3.1, 7.3.2 & Appendix F
x	x	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	7.3.2
x	x	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	7.3.3
x	x	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	7.3.1 & 7.3.2
x	x	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Chapter 8

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	8.1
x	x	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	8.2
x	x	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	8.2.1
x	x	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	8.2.2

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	8.3 & Appendix L
x	x	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	8.3
x	x	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	8.4.2
x	x	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	8.4.1

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	8.4.1 & 8.4.3
x	x	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	8.4.1 & 8.4.3
x	x	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	8.4.1
x	x	Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	8.4.6
x	x	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	8.5
x	x	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	8.5

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x		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	8.6
x	x	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	8.7
x	x	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	8.7
x	x	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	8.7
x	x	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	8.8
x	x	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	8.8

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x		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	8.8.1
x		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	8.9
x		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	8.11
x	x	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	8.12

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	8.12.1 & 8.12.2
	x	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	N/A
x		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	9.1 & 9.2
x		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	10.4

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	10.2 & Appendix D
x	x	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	10.4
x	x	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 M
x	x	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	10.2
x	x	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 A

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	10.4.3; Appendix M
x	x	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	10.4.4; Appendix M
x	x	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	10.4.2
x	x	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	10.5; Appendix M
x	x	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	10.5; Appendix M

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	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	10.6
x	x	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	10.7

APPENDIX C

crestline village WATER DISTRICT

March 8th, 2021

Heidi Duron
Planning Director
COUNTY OF SAN BERNARDINO
385 N. Arrowhead Ave.
San Bernardino, CA 92415

RE: Crestline Village Water District 2020 Urban Water Management Plan

Dear Ms. Duron,

Crestline Village Water District (CVWD) is in the process of preparing its 2020 Urban Water Management Plan (UWMP) for submittal to the State Department of Water Resources by July 1, 2021. The UWMP is updated every five years and is a legal and technical water resources planning document required by water suppliers throughout the State.

Because CVWD's service area lies completely within unincorporated San Bernardino County (see enclosure), I am reaching out to you today to coordinate pursuant to Water Code Section 10631(a), which requires that CVWD write a service area description in the UWMP that:

> *...shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code."*

Pursuant to said Water Code section, CVWD and its engineering consultants at Albert A. Webb Associates request to meet with County Planning Staff, via teleconference at their earliest convenience, to discuss the County's current and future land use information for the purpose of including it in the UWMP and considering it in our water use and water supply planning efforts.

Thank you for your prompt attention to this meeting request. Please feel free to contact me at (909) 338-1727 with any questions and we look forward to hearing from your staff so that we can make the appropriate arrangements for a meeting.

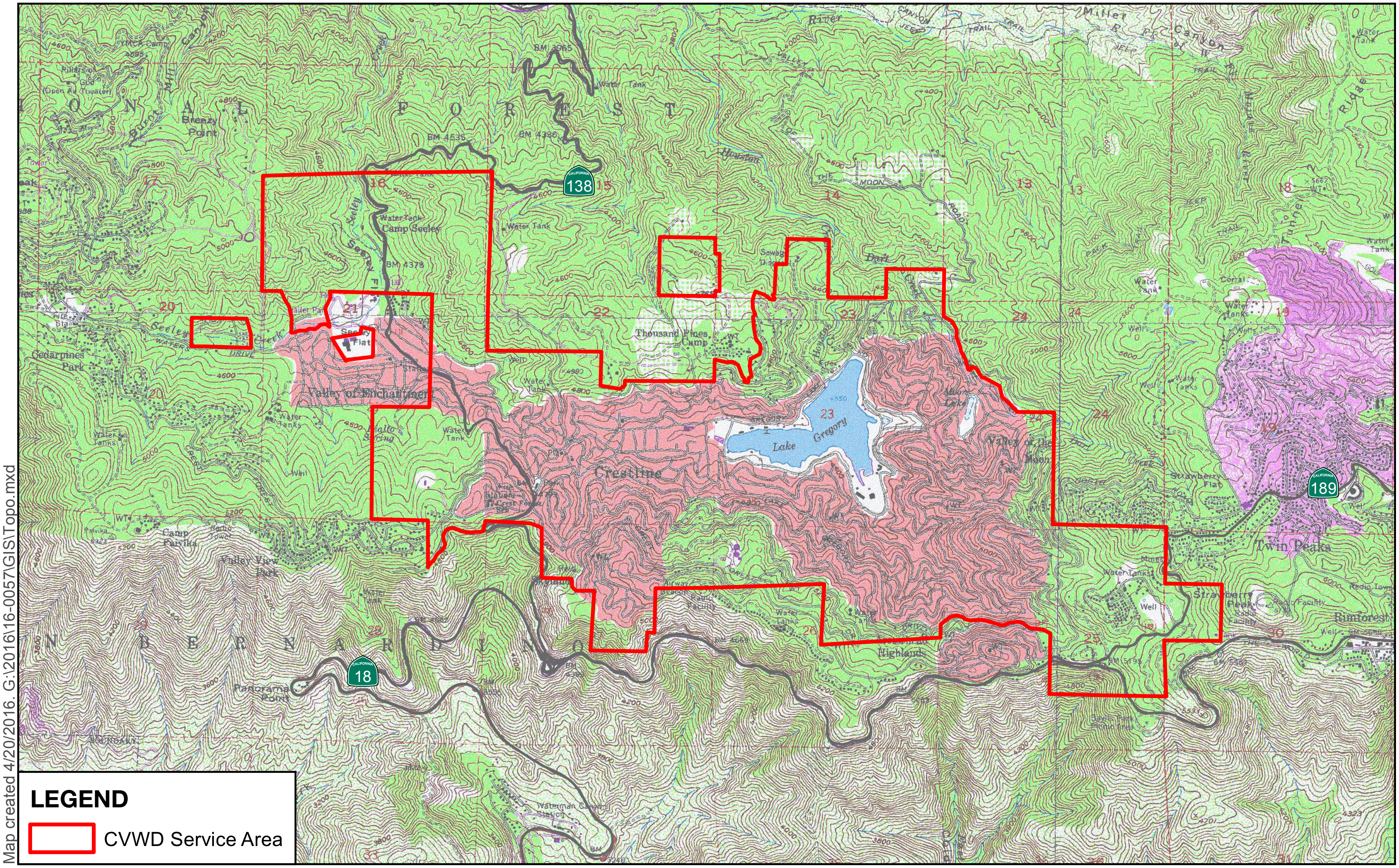
Sincerely,

CRESTLINE VILLAGE WATER DISTRICT

Jordan W. Dietz
General Manager

cc: Lupe Biggs, Administrative Assistant to Planning, Land Use Services Dept., SB County.
Autumn DeWoody, Albert A. Webb Associates

Enclosure *CVWD Service*



Map created 4/20/2016. G:\2016\16-0057\GIS\Topo.mxd

Sources: ESRI / USGS 7.5min Quad

Enclosure 1

Crestline Village Water District Service Area

0 2,000 4,000 6,000 Feet

crestline village
WATER DISTRICT

March 18, 2021

Jennifer Spindler
General Manager
CRESTLINE-LAKE ARROWHEAD WATER AGENCY
PO Box 3880
Crestline, CA 92325

RE: Crestline Village Water District 2020 Urban Water Management Plan

Dear Jennifer,

Crestline Village Water District (CVWD) is in the process of preparing its 2020 Urban Water Management Plan (UWMP) for submittal to the State Department of Water Resources by July 1, 2021. I am reaching out to you today pursuant to Water Code Section 10631(h), which states:

> *Water Code Section 10631*
> *(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).*

Although the State has not finalized their UWMP Guidebook, and therefore we are not prepared to provide our water use projections at this time, I am reaching out to you today to start the process of data sharing that will be exceedingly important for our 2020 UWMP. I can assure you that CVWD will provide the Agency our water use projections when they are ready, same as we did for the 2015 UWMP cycle.

We respectfully request the Agency to review and provide the data as listed on Enclosure 1, to the extent practicable. Due to the limited time frame the District has to comply with DWR we would appreciate receiving the data by Friday, April 2, 2021.

Thank you for your prompt attention to this data request. Please feel free to contact me with any questions or to schedule a teleconference meeting to discuss further.

Sincerely,
CRESTLINE VILLAGE WATER DISTRICT

Jordan W. Dietz
General Manager

P.O. BOX 3347 ▪ 777 COTTONWOOD DRIVE, CRESTLINE, CA 92325-3347 ▪ TELEPHONE (909) 338-1727 ▪ FAX (909) 338-4080

ENCLOSURE 1

DATA REQUEST FOR 2020 CVWD UWMP CYCLE

I. CLAWA ENTITLEMENTS

A. Our 2015 UWMP states that the Agency has two Houston Creek diversion permits issued by SWRCB in 1991; one for up to 1,000 AFY and the second for up to 302 AFY. Please confirm whether this information has changed.

B. What agreements has CLAWA entered into that are currently in-effect which would supplement the supply allocation from the State Water Project? For example:

1. Our 2015 UWMP states the Agency has a 2005 agreement with LACSD and SBVMWD that allows CLAWA to purchase up to 15% of SBVMWD's State Water Project Allocation. Please confirm whether this information has changed or an updated agreement has been entered into.
2. Our 2015 UWMP states the Agency entered into an amendment to a 2008 exchange agreement with SBVMWD that gives up to 1,650 AF when requested by the Agency between 2009 and 2018. Please confirm whether this agreement was extended and/or modified.
3. Our 2015 UWMP states that CLAWA entered into an exchange agreement in 2010 with SGPWA so that they will deliver up to 1,000 AF when requested by the Agency between 2012 and 2020. Please confirm whether this agreement has been extended and/or modified.

II. CLAWA SUPPLY

A. Confirm current water treatment methods used at Silverwood Lake; have they changed since CLAWA's 2010 UWMP?

B. What future supply projects does the Agency have planned, if any?

C. Please complete/update tables below to the extent possible:

Table 7A: Recorded SWP Deliveries to CLAWA and CVWD Purchases from CLAWA (AF)

	2015	**2016**	**2017**	**2018**	**2019**	**2020**
SWP Allocation (AF)						
Percent of Table A Allocation (%)						
Carryover Water (AF)						
Houston Creek Credit (AF)						
Exchange Agreements (AF)						
Volume Purchased by CVWD (AF)						

Projections

DRAFT Submittal Table 8-4 Wholesale: Minimum Supply Next Three Years			
	2021	2022	2023
Available Water Supply			
NOTES:			

DRAFT Submittal Table 7-2 Wholesale: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals	0	0	0	0	0
Demand totals	0	0	0	0	0
Difference	0	0	0	0	0
NOTES:					

DRAFT Submittal Table 7-3 Wholesale: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals					
Demand totals					
Difference	0	0	0	0	0
NOTES: Please indicate how you expect supply/demand would change in a single-dry year.					

DRAFT Submittal Table 7-4 Wholesale: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Second year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Third year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fourth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fifth year *(optional)*	Supply totals					

	Demand totals					
	Difference	0	0	0	0	0

NOTES:
For 2020, DWR requires us to look at a 5-year drought. Please indicate how CLAWA expects demand and supply to change in such a drought, if known.

III. CLAWA DEMAND

A. Please provide a copy of the current CLAWA Water Supply Allocation Plan for Wholesale Customers. What Stage of Allocation are we in currently and can you provide a copy of the corresponding Agency ordinance?

B. What programs if any are planned for CLAWA to encourage water conservation and/or projects to prepare for potential effects of climate change (e.g., decreased or stopped SWP deliveries due to Delta levee failures, wildfire, landslide, power outage, etc.)?

CRESTLINE-LAKE ARROWHEAD WATER AGENCY

A Public Agency
P.O. BOX 3880 PHONE (909) 338-1779
24116 CREST FOREST DRIVE
CRESTLINE, CALIFORNIA 92325

April 12, 2021

Jordan Dietz,
General Manager
Crestline Village Water District
P.O. Box 3347
Crestline, CA 92325

RE: Crestline Village Water District 2020 Urban Water Management Plan

Mr. Dietz,

In response to your letter dated April 6, 2021 and hand delivered to the Agency's office on April 8, 2021, the Crestline-Lake Arrowhead Water Agency does not prepare an Urban Water Management Plan because it delivers less than 3,000-acre feet of water per year and has fewer than 3,000 urban connections. However, enclosed is a copy of the 2019 State Water Project Delivery Capability Report, which is the document that the Agency would use to prepare its own Urban Water Management Plan if the Agency were required to prepare one. The Delivery Capability Report assesses the water supply that can be delivered from the State Water Project under wet conditions and under drought conditions.

According to the Delivery Capability Report the Department can deliver an average of 58% of the total Contract amounts for all Contractors under current conditions. Although DWR proposes to construct the Delta Conveyance (Tunnel) Project, which would help increase that percentage, we cannot count on that being constructed as that is being challenged legally and potentially could be delayed or abandoned as a matter of politics and State policy changes. Since the Agency does not pump from wells and has no other reliable source of supply, we should assume that the Agency's only supply will be the imported water available from the State Water Project, and therefore that the analysis set forth in the Delivery Capability Report will be the governing analysis in assessing the Agency's water supply over the next 20 years.

The demand for supplemental imported water from the Agency is highly variable. The demand for imported water is greater when locally dry conditions reduce the productivity of local wells. The Agency's total Contract amount is 5,800 AF per year and the total demand in any year is not expected to exceed 2,400 AF at most. Thus, the Agency anticipates that a 41% allocation should be sufficient to satisfy customer demand throughout the 20-year planning period. The Agency's concern has to do with those years in which its allocation is less than 41% and the demand from the Agency's customers is greater than normal. The enclosed document analyzes and projects what the allocations from the State Water Project could be during a dry year and during multiple dry years.

In the past the Agency has been able to protect against dry year shortages by "carrying over" water in the State Water Project that the Agency was allocated in a given year but did not need to take, and from exchange arrangements with other Contractors whereby the Agency delivered water to those Contractors in a year of plenty in exchange for being able to take back water during years of need, when allocations from the State Water Project were not sufficient to satisfy demands for imported water within the Agency's boundaries. For example, this year the Agency's allocation is only 5% (290 acre-feet total), but the Agency has ample carryover water and exchange water available to satisfy the expected demand from its customers this year. The Agency intends to continue to carry over water in the State Water Project when it can, and also negotiate additional exchange agreements with other Contractors as opportunities arise. However, we cannot assume that additional carryover water will be available or that additional exchange agreements can be negotiated. Therefore, the Agency's customers must assume that in some years the Agency will not be able to provide all of the imported water its customers might need, and they should plan for that scenario in their own Urban Water Management Plans.

Sincerely,

Jennifer A. Spindler

Jennifer A. Spindler,
General Manager

Corporate Headquarters
3788 McCray Street
Riverside, CA 92506
951.686.1070

Palm Desert Office
74967 Sheryl Avenue
Palm Desert, CA 92260
951.686.1070

Murrieta Office
41870 Kalmia Street #160
Murrieta, CA 92562
951.686.1070

WO: 2021-0036

June 8, 2021

Jennifer Spindler
General Manager
CRESTLINE-LAKE ARROWHEAD WATER AGENCY
PO Box 3880
Crestline, CA 92325-3880

Sent Via Email to clawa2@clawa.net

RE: Water Use Projections Provided per Water Code Section 10631(h)

Dear Jennifer,

Pursuant to Water Code Section 10631(h) and on behalf of Crestline Village Water District, please find herein for your use the water demand and water supply projections from the Draft 2020 CVWD Urban Water Management Plan.

Should you have any questions, please feel free to contact me at (951) 320-6046.

Sincerely,

Albert A. Webb Associates

Autumn DeWoody
Senior Environmental Analyst

Copy
Jordan Dietz, General Manager, CVWD

Enclosures
DWR Submittal Table 4-1 – Use for Potable and Non-Potable Water – Projected.
DWR Submittal Table 6-9 – Retail Water Supplies – Projected.

Submittal Table 4-2 Retail: Use for Potable and Non-Potable[1] Water - Projected						
Use Type	Additional Description (as needed)	Projected Water Use[2] *Report To the Extent that Records are Available*				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Single Family		253,932	266,886	280,499	294,808	
Multi-Family		7,810	8,208	8,627	9,067	
Commercial		43,967	46,210	48,567	51,044	
Other Potable	Hydrants	92	97	102	107	
Losses		18,967	18,967	18,967	18,967	
	TOTAL	324,768	340,368	356,762	373,993	0

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2]
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.

NOTES: Other Potable is all hydrant water, whether for hydrant meter rental or fire operations. Assumes 1% growth rate per year. Losses remain constant.

Submittal Table 6-9 Retail: Water Supplies — Projected					
Water Supply	Additional Detail on Water Supply	**Projected Water Supply *** Report To the Extent Practicable			
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		**2025**	**2030**	**2035**	**2040**
		Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Add additional rows as needed					
Groundwater (not desalinated)	District wells	232,937	244,487	256,037	267,587
Purchased or Imported Water	Imported water purchased from CLAWA	439,607	439,607	439,607	439,607
	Total	672,544	684,094	695,644	707,194

Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES: Units in hundred cubic feet (CCF). Assumes CY 2020 supply per Table 6-8 plus two new District wells coming online by 2025 and then one new well coming online every five years thereafter, per Table 6-7. The amount of new well production per year is calculated at 11,550 CCF per new well per year in Table 6-7. Imported water supply is 30% of normal year SWP delivery allocation (58% of 5,800 AF).

APPENDIX D

FirstName	LastName	Title	Agency Name	Address 1	City	State	Zip
Brian	Smith	General Manager	Valley of Enchantment Mutual Water Company	PO Box 6510	Crestline	CA	92325
Catherine	Cerri	General Manager	Lake Arrowhead CSD	PO Box 700	Lake Arrowhead	CA	92352
Dan	Munsey	Fire Chief	San Bernardino County Fire	157 W 5th St, 2nd Floor	San Bernardino	CA	92415-0451
David	McCelland	General Manager	Cedarpines Park Mutual Water Company	PO Box 9259	Cedarpines Park	CA	92322
Ellen	Shaw	Supervisor	USDA Forest Service, San Bernardino NF	602 S Tippecanoe Ave	San Bernardino	CA	92408
Eric	Zuniga	District Engineer	DDW San Bernardino District	464 W 4th St Suite 437	San Bernardino	CA	92401
Hope	Smythe	Executive Officer	Santa Ana Regional Water Quality Control Board	3737 Main St, Suite 500	Riverside	CA	92501-3348
Hugh	Bialecki	President	Save Our Forest Association	PO Box 126	Rimforest	CA	92378
Janice	Rutherford	Supervisor	County of San Bernardino	385 N Arrowhead Ave, Fifth Floor	San Bernardino	CA	92415
Jeff	Mosher	General Manager	Santa Ana Watershed Project Authority	11615 Sterling Ave	Riverside	CA	92503
Jennifer	Spindler	General Manager	Crestline-Lake Arrowhead Water Agency	PO Box 3880	Crestline	CA	92325
Jordan	Dietz	General Manager	Crestline Village Water District	PO Box 3347	Crestline	CA	92325
Joshua	Lattimore	General Manager	Alpine Water Users Association	PO Box 122	Twin Peaks	CA	92321
Karen	Reams	General Manager	Rim of the World Recreation & Park District	PO Box 8	Rimforest	CA	92378
Kathy	Cortner	General Manager	Mojave Water Agency	13846 Conference Center Dr	Apple Valley	CA	92307-4377
Leonard	Hernandez	Chief Executive Officer	County of San Bernardino	385 N Arrowhead Ave	San Bernardino	CA	92415-0120
Louis	Boehle	President	Crestline/Lake Gregory Chamber of Commerce	PO Box 926	Crestline	CA	92325
Michelle	Murphy	Superintenndent	Rim of the World Unified School District	PO Box 430	Lake Arrowhead	CA	92352
Norman	Huff	General Manager	Arrowbear Park County Water District	PO Box 4045	Arrowbear Lake	CA	92382-4045
Patti	Hayden	General Manager	Strawberry Lodge Mutual Water Company	PO Box 7	Twin Peaks	CA	92391
Patty	Kouyoumdjian	Executive Officer	Lahontan Regional Water Quality Control Board	15095 Amargosa Rd Building 2 Suite 210	Victorville	CA	92394
Rick	Dever	General Manager	Crestline Sanitation District	PO Box 3395	Crestline	CA	92325
Robert	Kavert	Board President	Valley View Park Mutual Water Company	PO Box 301	Crestline	CA	92325
Ryan	Gross	General Manager	Running Springs Water District	PO Box 2206	Running Springs	CA	92382
Sherry	Noone	Group Secretary	Sierra Club, Big Bear Group	PO Box 3048	Big Bear Lake	CA	92315

CRESTLINE VILLAGE WATER DISTRICT

PUBLIC NOTICE ON URBAN WATER MANAGEMENT PLAN UPDATE

03-15-2021

This letter shall serve as notice that Crestline Village Water District is reviewing its current Urban Water Management Plan and is considering amendments or changes thereto in compliance with the California Water Code. Any changes will be incorporated into the District's Draft 2020 Urban Water Management Plan, which will include a Water Shortage Contingency Plan. I am reaching out to you today pursuant to Water Code Section 10621(b), which states:

> *Water Code Section 10621(b)*
> *(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.*

A public hearing will be held at our District office in Summer 2021 prior to adoption of the 2020 Urban Water Management Plan. A draft copy of the Plan will be publicly available on our Web site (www.cvwater.com) and a hard copy will be available for public viewing at the District office no less than two weeks prior to the public hearing. A second notification will be provided when the public hearing is scheduled.

All interested parties are invited to submit comments and consult with the District regarding its forthcoming 2020 Urban Water Management Plan. Please contact me with any questions or concerns.

Sincerely,
CRESTLINE VILLAGE WATER DISTRICT

Jordan W. Dietz
General Manager
jwdietz@cvwater.com

Providing our community with a reliable water system that delivers high quality water for its health and safety needs.

crestline village
WATER DISTRICT

NOTICE OF PUBLIC HEARING ON

PROPOSED URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Notice is hereby given that Crestline Village Water District (the District) will conduct a public hearing on **Tuesday, June 15, 2021, at 3:00 PM**, at the regular meeting of the Board of Directors, to be held at 777 Cottonwood Drive, Crestline, California, 92325.

The public hearing is set for receiving comments on the District's proposed **2020 Urban Water Management Plan** which includes the **2020 Water Shortage Contingency Plan**. Copies of both plans are available for public viewing beginning June 1, 2021 at the District Office during normal business hours and online at www.CVWater.com.

IMPORTANT NOTICE REGARDING COVID-19 AND TELECONFERENCED MEETINGS:

Based on the mandates by the Governor in Executive Order 33-20 and the County Public Health Officer to shelter in place and the guidance from the CDC, to minimize the spread of the coronavirus, please note the following changes to the District's ordinary meeting procedures:

- The meeting will be conducted via teleconferencing using Zoom, and in person.
- Attendance is allowed on a first-come, first-basis until maximum capacity is reached.
- Face coverings are required for in-person attendance.

Dated: May 15, 2021

Jordan W. Dietz
General Manager
Crestline Village Water District

Providing our community with a reliable water system that delivers high quality water for its health and safety needs.

P.O. BOX 3347 • 777 COTTONWOOD DRIVE, CRESTLINE, CA 92325-3347 • TELEPHONE (909) 338-1727 • FAX (909) 338-4080

The Alpine Mountaineer
P.O. Box 4572
Crestline, CA 92325-4572
Phone: 909.589.2140
Email: info@thealpinemountaineer.com

Affidavit of Publication

State of California
County of San Bernardino

Michael T. Harris being duly sworn, deposes and says that...he is and at all times herein mentioned was a Citizen of the United States, over the age of twenty-one years, and that...he is not party to, nor interested in the above entitled matter, that...he is the principal clerk of the printers of The Alpine Mountaineer, a newspaper of general circulation, printed and published in the State of California, County of San Bernardino, and which newspaper at which at all times herein subscription lists of paying subscribers, and...which newspaper at regular intervals in the said State of California, County of San Bernardino, for a period exceeding one year next preceding the date of publication of the notice hereinafter referred to, and which newspaper is not devoted to nor published for the interests, entertainment or instruction of a particular class, profession, trade, calling, race or denomination or any number of same: that the notice of which the annexed is a printed copy, had been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit

5/27/2021 AND
6/3/2021

I certify and declare under penalty of perjury that the foregoing is true and correct

Michael T. Harris

Dated: 6/3/2021

The Alpine Mountaineer was adjudicated a Newspaper of General Circulation on August 3, 2018, in the Superior Court of San Bernardino, Case No. SCVSS232612

crestline village
WATER DISTRICT

Crestline Village Water District
Notice of Public Hearing on Proposed Urban Water Management Plan and Water Shortage Contingency Plan

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- The meeting will be conducted via teleconferencing using Zoom, and in person.
- Attendance is allowed on a first-come, first-serve basis until maximum capacity is reached. Current capacity limit is 10 guests.
- Face coverings are required for in-person attendance.

Published: **The Alpine Mountaineer, 05/27/2021, 06/03/2021**

PROOF OF PUBLICATION

(2015.5 C.C.P.)

STATE OF CALIFORNIA
COUNTY OF SAN BERNARDINO,

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years,

and not a party to or interested in the above entitled matter. I am the principal clerk of **Mountain News**, a newspaper of general circulation, published by Hi Desert Publishing Co. Inc., in the unincorporated area of Lake Arrowhead, County of San Bernardino, and which newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of San Bernardino, State of California, under date of October 5, 1950, Case Number 67902; that the notice, of which published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates to-wit:
May 27, and June 3, 2021

all in the year 2021
I certify (or declare) under penalty of perjury that the fore going is true and correct.

Dawna Munson

Signature
Dawna Munson
06/03/21 Lake Arrowhead, CA

This Space is for the PROOF OF PUBLICATION Stamp.

crestline village
WATER DISTRICT

PUBLIC NOTICE

CRESTLINE VILLAGE WATER DISTRICT

NOTICE OF PUBLIC HEARING ON PROPOSED URBAN WATER MANAGEMENT PLAN AND WATE SHORTAGE CONTINGENCY PLAN

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- Attendance is allowed on a first-come, first-serve basis until maximu capacity is reached.
- Face coverings are required for in-person attendance.

Published in the Mountain News May 27 and June 3, 2021

Mailed 6-9-21 w/ inv.

PO Box 3347, 777 Cottonwood Drive, Crestline, CA 92325-3347

Telephone: (909) 338-1727 <> FAX: (909) 338-4080

Providing our community with a reliable water system that delivers high quality water for its health and safety needs.

CVWD Weather: 06/02/21 at 5:31p
TEMP: 75.3°F
BAROMETER: 29.712 in and Falling Slowly
HUMIDITY: 48% - WIND: 2.0 mph
RAINFALL:
Today: 0.00 in - Storm: 0.00 in
Month to Date: 0.00 in
Year to Date: 9.47
SUNRISE: 5:38a - SUNSET: 7:57p

Website address: www.cvwater.com
E-mail address: cvwater@cvwater.com

Board/Staff | Agenda | Water Rates | Water Quality | Availabilty Assessment | Home

Rainfall year (Year to Date) is from October 1 to September 30.

- Click here for Weather Conditions at our office
- Click here for Month and Annual Weather Information
- National Weather Service Forecast for Crestline

(best viewed at minimum resolution of 800x600)

Links to other sites

Crestline Village Water District is committed to continuing to serve customers during the COVID-19 Pandemic. The District has taken steps to protect employees and customers from COVID-19 and is following guidelines from the Centers for Disease Control and Prevention.

Our Office is currently open to the public during normal business hours 7:30 a.m. - 4:30 p.m. Monday through Friday. A mask is required when entering the District Office. For your convenience, we are still accepting payments through the night drop, by mail, online and via our automated phone payment system at 1-866-238-4188. If you are experiencing any COVID-19 symptoms, we ask that you please refrain from making a payment in person.

If you have questions, are unable to make a payment using any of the methods listed above or need any other form of assistance please contact our Office at (909) 338-1727. You can also email the District at cvwater@cvwater.com. We will continue to do all we can to protect our customers and our employees. Thank you for your cooperation during these difficult times.

PAY BILL NOW

VISA | AMERICAN EXPRESS | DISCOVER | MasterCard | G Pay | SAMSUNG pay | Apple Pay

Credit/Debit/Apple Pay/Google Pay/Samsung Pay now accepted.

An online payment convenience fee is charged by the Payment Processors. Crestline Village Water District does not profit from this fee.

To Make a Payment by Telephone:

1-866-238-4188 *(convenience fee will apply)*

If your account has been locked off for non-payment and you would now like the water restored, please call the office to make arrangements.

This is the Official Site of Crestline Village Water District online payments. We are not affiliated with any other online payment websites.

CRESTLINE VILLAGE WATER DISTRICT

- **Crestline Village Water District** was formed in 1954 to serve water to the Crestline Village area. In 1979, the District was asked to serve the Lake Gregory area. Today, the District serves water to about 4,950 properties within its service area. Crestline is located in the San Bernardino Mountains in Southern California, north of San Bernardino and west of Lake Arrowhead.
- **Office Hours:** Our normal business hours are:

  7:30 AM to 4:30 PM - Monday through Friday.

  Directions to our office
- **Water Emergencies:** If you have a water emergency when we are closed, **call our office at 909-338-1727 and leave a message. Our serviceman will be paged and will return your call.**
- Click here to see a list of days the business office is scheduled to be closed.
- **Additional Information:** For additional information, please do not hesitate to call us at (909) 338-1727, or e-mail us at **cvwater@cvwater.com**. You can also send us correspondence at the address at the top of the screen, or come and visit us at our office.

INFORMATION

- Board Meeting Agendas & Minutes
- Board of Directors & Staff
- Coronavirus Information
  - Centers for Disease Control
  - California Water Boards
- Employment Information/Opportunites

Crestline Village Water District

is a proud supporter of Crestline-Lake Gregory Rotary Club.

Click here to join.

ANNOUNCEMENTS

Public Notice: The Draft 2020 Urban Water Management Plan is available to the Public for review through this link and is also available at our District Office located at 777 Cottonwood Drive, Crestline, CA.

A Regular Board Meeting is scheduled for:

Tuesday, June 15, 2021 at 3:00pm

The Agenda for the next Board Meeting will be posted on: Friday, June 11, 2021

CURRENT BOARD AGENDA

NOTICES

- **Water Rates and Billing Information**
- Water Availability Assessments
- **Enroll in our Automatic Payment Plan**
- **Discontinuation of Residential Water Service**
- 생활용수 공급 중단
- 中断居民供水服务
- Ngừng Dịch Vụ Nước Sinh Hoạt
- Pagputol ng Pantahanang Serbisyo sa Tubig
- Interrupción del Servicio de Agua Residencial
  - **Information Notices** Check here for additional information regarding District programs and policies.

LINKS TO OTHER SITES

Water Conservation and Landscaping Sites

crestline village WATER DISTRICT

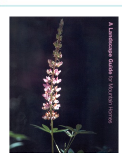
Crestline Village Water District Water Conservation Program

Save Our WATER

www.saveourwater.com - Presented by the Association of California Water Agencies

Annual Consumer Confidence Report

2019 Report now Available



"A Landscape Guide for Mountain Homes"

This guide was developed especially for the **San Bernardino Mountains**. Stop by the office and pick one up.

Save Water and Money

Visit the Virtual Water Saver Home Website

bewaterwise.com - Presented by the Metropolitan Water District of Southern California

Other Water Related Sites

- American Water Works Associations
- Association of California Water Agencies
- California Department of Water Resources
- California Special Districts Association
  - Districts Make the Difference
- State Water Resources Control Board
- Water Education Foundation

Road & Weather Conditions

- CalTrans - Highway Information
  - CalTrans - District 8 (San Bernardino/Riverside Co)
  - California Highway Patrol Traffic
- Weather Information
  - Local Weather
  - NOAA Weather-Ready Nation

AMBASSADOR™ WRN WEATHER-READY NATION

State, County & Local Sites

- State of California
- County of San Bernardino
  - Assessor's Office
  - Treasurer/Tax Collector
  - Regional Parks
    - Lake Gregory Regional Park
  - Crestline Chamber of Commerce
  - Rim of the World Recreation & Park District
  - Rim of the World School District
  - Rim of the World Trails Alliance

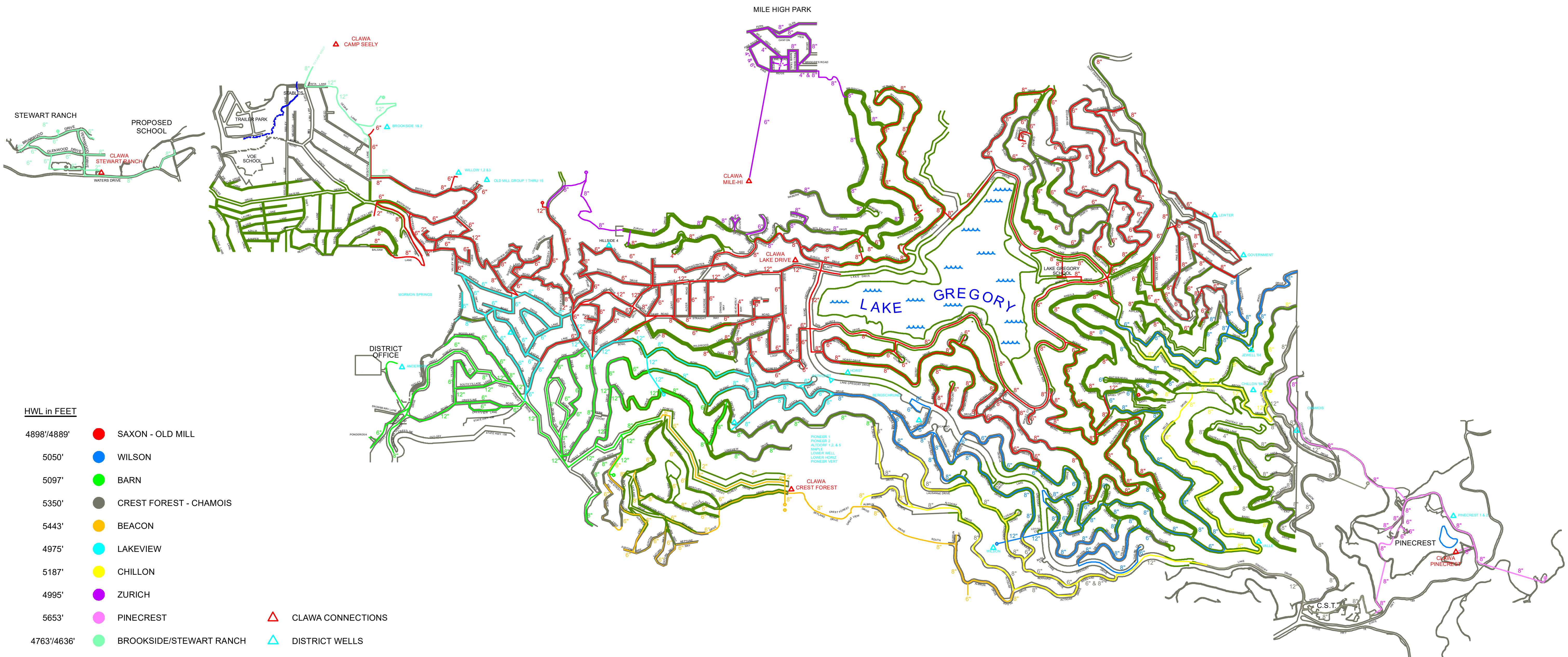
Employee Information

- ACWA JPIA
- AWWA
- BSwift
- Incode ESS Time and Attendance
- Target Solutions

Board/Staff | Agenda | Water Rates | Water Quality | Availabilty Assessment | Home

Comments or questions - contact us at: ladavis@cvwater.com

APPENDIX E



crestline village water district

NOT TO SCALE

NORTH

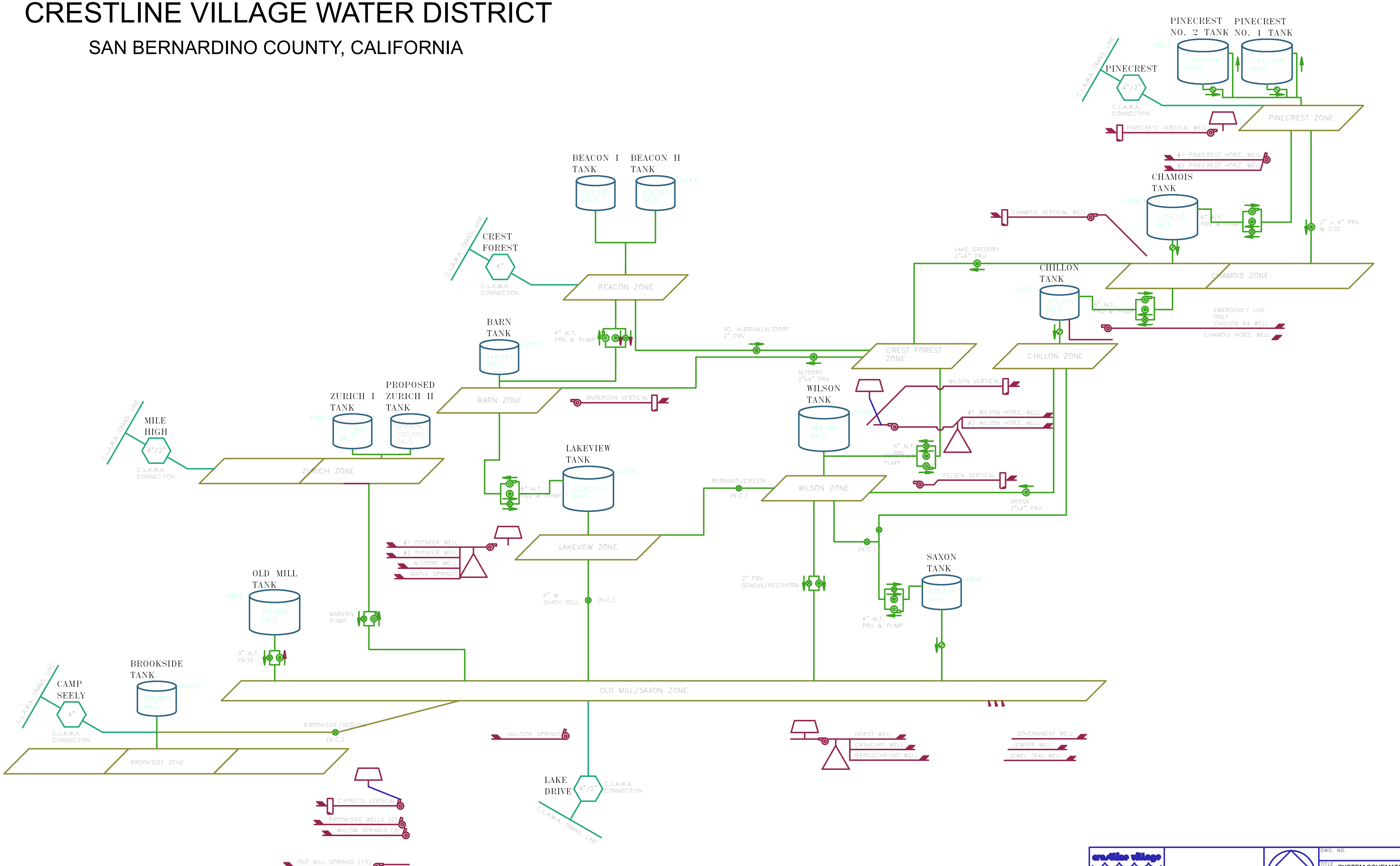
TITLE PRESSURE ZONES

PG. NO. 1 of 1

RL Jobe

CRESTLINE VILLAGE WATER DISTRICT

SAN BERNARDINO COUNTY, CALIFORNIA



system4-070327.dwg

NOT TO SCALE

NORTH

DWG. NO.	
TITLE	SYSTEM SCHEMATIC
DATE	REVISED 03/07/11
PG. NO.	1 of 1
	CFH

APPENDIX F

1.6 Climate Change Vulnerability Screening Form for Urban Water Management Planning—

Crestline Village Water District Staff Responses

This screening exercise is intended to guide urban water management planners in identifying climate change vulnerabilities in their water supply source. The information gathered here can help guide the climate change analysis.

I. Water Supply and Demand

- ***Are the water supply diversions sensitive to climate change?***

  Both stream flows and water demands are likely to be affected by climate change. Any water supply source that involves long-term water diversions may be subject to conditions that differ from current or historical conditions. As average temperatures increase, water demands from agriculture, industrial, and municipal users may increase resulting in changes to water availability. Droughts are also expected to become more frequent and more severe in the future potentially leading to increased restrictions on water diversions.

Response: Yes. CLAWA obtains a small portion of its total water supply from a water supply diversion on Houston Creek. The annual diversion amount will vary annually depending on rainfall. As of 2020, the District does not serve any industrial or agricultural end users, nor does it sell water to other agencies. The mountainous Crestline community has different water use characteristics than those exhibited by typical urban areas. Large lots with expansive landscaped areas are nonexistent, so significant increases in landscape irrigation in response to extended drought conditions caused by climate change are not anticipated. Further, the District does not supply water for saline water intrusion barriers, groundwater recharge, conjunctive use, exchanges, surface water augmentation, transfers, or wetlands/wildlife habitat. The District also does not sell or purchase non-potable or recycled water.

CVWD Ordinance No. 35 incorporates the SWRCB Regulations for Statewide Water Conservation for end uses related to landscape irrigation by:

- Limiting lawn or garden watering, or any other outdoor irrigation, to no more than three days per week.
- Prohibiting the application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall.

(The full list of restrictions and prohibitions on outdoor end uses may be found in Chapter 8)

CLAWA's Ordinance No. 59, Section 4.B states: "The Board finds the following uses constitute waste, and therefore retail customers are urged to avoid the following practices at all times, and such practices shall be prohibited for the Agency's retail customers during all phases of allocation declared by this Board:

(i) Running water into streets or gutters.

(ii) Washing automobiles or equipment with running water (as opposed to the use of a bucket, other container or a commercial wash establishment using reclaimed water).

(iii) Washing down buildings (except windows), walks, driveways or streets

(iv) Sprinkling for dust control.

(v) Water displays or ornamental water use (fountains, etc.) except when the display uses reclaimed or recycled water.

(vi) Dripping faucets, or other leaks, or unattended or excessively running hoses.

(vii) Watering lawns, parks, playgrounds or ball fields more than twice per week, which watering must occur after 9:00 p.m. and before 3:00 a.m.; provided there shall be no prohibition against watering with reclaimed water."

Because of the unique characteristics of the service area that limit outdoor water use and encourage conservation, increased restrictions on water supply diversions would not adversely affect the District's ability to meet demands.

- ***Is the water supply source affected by urban or agricultural water demand that might be climate sensitive?***

  Would shifts in daily heat patterns, such as how long heat lingers before night-time cooling, potentially change cropping patterns, landscaping, or water demand in other ways?

Response: Shifts in daily heat patterns could cause the District to consider greater restrictions on outdoor water uses.

- ***Is groundwater a major supply source?***

  Climate change may affect natural recharge to aquifers. Droughts are expected to become more frequent and more severe in the future. In *times of drought, California water users tend to rely more heavily on groundwater. These changing conditions would likely affect future groundwater conditions.*

Response: Groundwater is a significant source of water supply for CVWD, ranging from 48% to 93% in a given year over the past five years. The rest of the percentage of total water supply is provided by water purchases from CLAWA. During drought conditions, CVWD relies more heavily on purchased water from CLAWA, which they import from the State Water Project (SWP) via Lake Silverwood to meet the demands of its customers. There is a prohibition against discharging recycled wastewater at the elevation of the District's service area; thus, groundwater recharge is generally limited to natural recharge. Production from fractured bedrock aquifers depends heavily on the precipitation received over the year. This limits the resiliency of groundwater supplies after drought events.

Curtailment measures were extremely effective during recent droughts. For example, the District was required to have an 8 percent reduction in water use through December 2015; indeed, it was actually down 21.7 percent (General Manager's Report to Board, 2/16/16). CVWD has developed a seven-level Water Shortage Contingency Plan and uses Advanced Metering Infrastructure, which are discussed in detail in Chapter 8 of this document.

- ***Does the water supply source rely on or could it be affected by snowmelt?***

  As climate warming occurs a greater percentage of precipitation falls as rain instead of snow resulting in smaller snowpack. Also, higher temperatures result in remaining snowpack melting earlier. (All water diverted from the Sacramento River, San Joaquin River, Colorado River, or the Delta would be affected by changes in snowmelt.)

Response: Although Crestline does not receive a significant amount of snow each winter, snowmelt is very important to feed the fractured bedrock wells that supplement its purchased, imported water from CLAWA. Crestline has supplemented its local water supply with imported water from CLAWA since 1972. CLAWA is a wholesale water provider, selling SWP water from Silverwood Lake to approximately 25 water purveyors in Southern California, so supplies from this source could also be affected by a reduction in snowpack caused by climate change.

- ***Does the water supply source come from or could it be affected by coastal aquifers? Has saltwater intrusion been a problem in the past?***

Coastal aquifers are susceptible to saltwater intrusion as sea levels rise and many have already observed salt intrusion as a result of groundwater overdraft.

Response: The local water supply is not affected by saltwater intrusion.

- ***Does the water supply source rely on or could it be affected by changes in stored water supplies?***

  Changes in hydrology and water demand are likely to have significant effects on the amount of water stored in reservoirs, particularly water storage for carryover from one year to the next. Droughts are expected to become more frequent and more severe in the future potentially leading to changes in stored water supplies.

Response: CLAWA has the ability to store carryover water through exchange agreements with other State Water Contractors. CLAWA does not have the ability, however, to store water locally in groundwater storage, or in Lake Silverwood. Assuming CLAWA will maintain SWP carryover storage agreements with other SWP contractors, as well as effective water conservation measures, CVWD anticipates continuing to meet customer demands during extended drought periods.

II. Extreme Heat

- ***Could extreme heat impact operations of the water supply project or diversions?***

  Climate change is altering seasonal patterns in California, making hot days hotter, and increasing the duration of heat waves. This change could drive up customer usage and evaporative-related water losses.

Response: Yes. Extreme heat could cause increases in outdoor water use, which could warrant increased restrictions. However, as noted above, large lots with expansive landscaped areas are nonexistent, so significant increases in landscape irrigation in response to extended drought conditions caused by climate change are not anticipated.

- ***Does the supply source rely on equipment or infrastructure that could be impacted by extreme or prolonged heat?***

  Infrastructure impacts from extreme or prolonged heat can include things such as increased corrosion, wear from heat expansion, and difficulties operating cooling systems.

Response: Historically, high temperatures have had no effect on system reliability. The majority of piping and appurtenances are located below ground, allowing for better insulation during temperature extremes. Reservoirs are designed for direct exposure to sunlight as well as seismic concerns, leaving them robust and prepared for temperature extremes. Corrosion inhibition additives are already used and monitored and no cooling systems are utilized in the system.

III. Water Quality

- ***Could water quality issues, such as low dissolved oxygen, algal blooms, disinfectant biproducts affect the water supply source?***

  Warming temperatures result in lower dissolved oxygen levels in water bodies, which are conducive to algal blooms and eutrophication. Changes in stream flows may also alter pollutant concentrations in water bodies.

Response: The District's local supply from groundwater is not expected to respond in this way to warming temperatures. The District's imported supply from CLAWA is treated prior to delivery.

- ***Could reduction in assimilative capacity of a receiving water body affect the water supply source?***

  In the future, low flow conditions are projected to be more extreme and last longer. This may result in higher pollutant concentrations where loadings increase or remain constant, including potentially in groundwater as observed in the 2012–2016 Drought. Disinfectant biproducts also can build up in reservoirs or distribution systems as supplier's implement conservation measures (reducing movement of supplies through the system) (Kimbrough 2019).

Response: The District's local supply from groundwater is not expected to respond in this way to warming temperatures. The District's imported supply from CLAWA is treated prior to delivery.

- ***Could the water supply source be affected by water quality shifts during rainfall/runoff events?***

  Although it is unclear how average precipitation will change with temperature changes, it is generally agreed that storm severity likely will increase. Areas that already observe water quality responses to rainstorm intensity may be especially vulnerable.

Response: Because District groundwater sources do not receive a great amount of urban runoff, significant water quality shifts due to severe storms are not anticipated.

IV. Flooding

- ***Is the water supply source or any of its associated infrastructure located within the 200-year floodplain? Does the water supply source rely on flood protection infrastructure such as levees or dams?***

  Although it is unclear how average precipitation will change with temperature changes, it is generally agreed that storm severity likely will increase. Areas that already observe water quality responses to rainstorm intensity may be especially vulnerable.

Response: No above-ground District facilities are located within a FEMA flood hazard zone. Further, no above-ground District facilities are located within canyons where flooding could be expected during greater-than-average rain events. CLAWA's supply from Silverwood Lake relies on the Cedar Springs Dam, which is maintained by DWR. The lake is approximately 995 acres with a capacity of approximately 73,000 AF. Releases from Silverwood Lake come in a variety of ways depending on the storm; however, more intense, severe storms are not anticipated to reduce CLAWA's ability to obtain its supply from this source.

V. Wildfire

- ***Is the water supply source located in an area that is expected to experience an increase in wildfire activity or severity? Would a wildfire result in damage to the water supply source infrastructure or interruption of its ability to perform as designed? Could the water supply source be affected by an increase in wildfire activity or severity in an upstream watershed or other adjacent area?***

  Wildfires alter the landscape and soil conditions, increasing the risk of flooding within the burn and downstream areas. Some areas are expected to become more vulnerable to wildfires over time.

Response: Wildfires are always a threat to this mountainous region, particularly in times of extended drought. The mountain vegetation may be drier and more vulnerable to become fuel if a spark occurs as temperatures increase. The primary concern from fires on CVWD's local water supply is disruption of power, thereby requiring the use of standby generators. CVWD does have a system of water tanks throughout its service area that have storage volumes sized for providing adequate fire flows. To protect this equipment, the District maintains a regular schedule of clearing vegetation around its above-ground structures. CVWD also relies on SWP water from Silverwood Lake. When large areas of the forest surrounding the lake burned in 2003, mulch was laid down to limit erosion (CLAWA 2010 UWMP).

Although the District does not experience an exaggerated risk of flooding resulting from the after-effects of wildfires, some flooding is anticipated in certain canyons during rain events. As described in Chapter 6, System Supplies, CVWD maintains water storage tanks for emergencies and fires. As growth continues, the District will evaluate each pressure zone and the fire flow requirements to determine if and when additional tanks are necessary and locating them in places where flooding is not anticipated.

VI. Sea Level Rise

- ***Is any of the water supply source infrastructure located in areas that could be exposed to rising tides?***

  While sea level rise of 10 feet would be a very extreme outcome by the end of the 21st century, more modest levels of sea level rise combined with higher storm surge, and coinciding with high tide could pose risks to areas below 10 feet.

Response: No infrastructure in the service area is vulnerable to being exposed to rising tides.

- ***Could coastal erosion affect the water supply source?***

  Higher sea levels and more severe storms in the future are expected to result in higher rates of coastal erosion.

Response: The District's groundwater supply is not affected by sea-level rise. However, because of its reliance on SWP supplementation from CLAWA, the District's supplies from CLAWA may be affected by sea-level rise that affects Delta water supplies. The Delta is the key to the SWP's ability to deliver water to its agricultural and urban contractors in the North Bay, the South Bay, California Central Valley, and Southern California, including CVWD.

- ***Is the water supply source dependent on coastal structures, such as levees or breakwaters, for protection from flooding?***

  Coastal structures designed for a specific mean sea level may be impacted by sea level rise.

Response: The District's groundwater supply is not dependent on coastal structures. Because of its reliance on SWP supplementation from CLAWA, some of the supplies may be affected if those purchased water sources are protected by levees and breakwaters in the Delta.

Technical Memorandum

To: Drought Contingency Plan Task Force

From: Drought Contingency Plan Development Team

CC: Melissa Matlock, Western Municipal Water District

Date: 4/22/2021

Re: Western Drought Contingency Plan – Climate Change Vulnerability Assessment

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Executive Summary

This technical memorandum (memo) describes the retrieval and analysis of climate data provided by the California Department of Water Resources (DWR) to project the impact of climate change on future water supplies and demands within Western Municipal Water District's (Western) service area. The DWR climate data is assembled from the results of 20 global climate models, which best represent California's climate processes. Biases in the climate model results have been adjusted using historical hydrologic data in the state. DWR projected climate change data is most appropriate for this analysis because it is the only climate projection dataset specifically developed to meet the requirements of water resources planners in California. Western is making this memo available to its retail agencies for their use in their respective water resource planning efforts to reduce the data processing burden on individual agencies. The results are intended for use by Western and its member agencies as they prepare the 2020 updates to their Urban Water Management Plan (UWMP) and a regional Drought Contingency Plan (DCP). This technical memo provides:

- A description of the area subject to the vulnerability assessment
- A description of the analysis approach and data sources chosen for the analysis
- Narrative discussions of the climate change factors calculated for local supply and demand conditions in multiple scenarios
- Discussion of the water supply and demand projections resulting from the vulnerability assessment

Summary of Findings

Projected changes in future water supplies and water demand are analyzed during a normal year, a single dry year and multi-year (5-year) droughts over the next 20 years, using climate projections developed for the water resources planning by DWR. This analysis of future climate impacts on water supplies and demands is based on the median projected change from the majority of the climate models selected for water resources planning in California. The results of this analysis show:

- Projected decreases in water supplies from Santa Ana and Santa Margarita River basins under normal and drought conditions relative to baseline conditions in 2020, due to projected decreases in precipitation and projected increases in surface water evaporation caused by increasing temperatures.

- Smaller decreases in projected precipitation and natural recharge under normal and multi-year drought years. However, the single dry year was slightly wetter under future conditions compared to the baseline. Precipitation will occur during shorter rainy seasons with higher intensity.
- Outdoor water uses are projected to increase under normal, single dry, and multi-year drought conditions, caused by projected temperature increases, which lead to higher evapotranspiration (ET) rates for landscaping, irrigated crops, and native vegetation.

This technical memo also includes worksheets for using the vulnerability assessment results with Western's water supplies and growth-adjusted water demand forecasts for the Western's wholesale service area.

1. INTRODUCTION

The study of climate change impacts on water resources is continuously yielding new models and updated local and regional datasets. This continuous improvement makes it necessary to narrow the selection of data sources and methods of data analysis most applicable to local conditions. The scope of this vulnerability assessment is limited to improving our understanding of climate change impacts on future water demand in Western's wholesale service area and the sources of Western's water supplies during normal and drought periods.

The following section provides the background information for the requirements of both the DCP and the UWMP, a general description of the impacts analyzed in the vulnerability assessment, and information about Western's sources of information used in the assessment.

1.1 DCP and UWMP Requirements for Climate Change Analysis

In accordance with Sections 10610 to 10657 of the California Water Code, the UWMP requires the consideration of climate change impacts for drought planning because of the significant duration of recent droughts in California. This includes an analysis of projected future uses and the reliability of anticipated water supplies during a normal year, a single dry year and drought lasting 5 consecutive dry water years. This drought risk assessment (DRA) compares projected water supply sources with projected water use over the next 20-years, in 5-year increments.

A vulnerability assessment is required as part of the DCP to understand the characteristics and potential risk of future droughts and to develop appropriate mitigation and response actions. Since future droughts cannot be predicted by observed past drought information, the inclusion of a climate change analysis is needed to provide the incorporation of historic and future climate projections to assess the hydrological impacts of climate change on drought conditions, thereby creating a more effective plan. The DCP requires either a qualitative and/or quantitative assessment of a range of potential drought conditions derived from climate change information to determine potential the risk to critical resources.

Imported water projections are also required for preparing both the UWMP and DCP. However, the imported water projections for Western's service area are being developed by Metropolitan Water District (Metropolitan) as part of their 2020 UWMP Drought Risk Assessment and the 2020 Integrated Resources Plan (IRP). The current (November 2020) draft of Metropolitan's 2020 UMWP Drought Risk Assessment indicates that no service reliability concerns are projected for imported water during normal and drought periods before 2045. For purposes of the UWMP, imported water supplies to Western can be assumed to be unchanged during normal years, single dry years and 5-year droughts.

However, the 2020 IRP considered a range of more extreme potential future scenarios, which include: low demands with stable imported supplies, high demand with stable imported supplies, low demand with reduced imported supplies, and high demand with reduced imported supplies. The analysis found that service reliability issues could occur more frequently and generate increasingly more severe deficits of imported supplies under the high future demand scenarios. Options for managing these imported water supplies deficits will be explored more extensively as part of regional analysis for the DCP.

1.2 Prior Climate Studies

Climate change is primarily caused by increasing global concentrations of greenhouse gases which lead to increases in temperature, disruption of the hydrologic cycle, and increased variability of precipitation. The regional impacts of climate change analyzed in two previous studies for the region, California's Fourth Climate Change Assessment and the United States Bureau of Reclamation (USBR) Santa Ana Watershed Study, are summarized in this section.

The state of California produces periodic assessments on the potential impacts of climate change in the state and reports on potential adaptation responses as required by Executive Order #S-03-05. California's Fourth Climate Change Assessment includes a Statewide Summary Report (Bedsworth et al., 2018), nine regional summary reports, a climate justice summary report, and over 40 technical reports which translate climate science into actionable adaptation and resilience policies and plans. The Los Angeles Regional Report (Hall et al., 2018) summarizes climate science, impacts, and adaptation information for Ventura, Los Angeles, Orange, and the western parts of San Bernardino and Riverside Counties. This study projects regional increases in average maximum temperatures of around four to five degrees Fahrenheit (° F) by the mid-21st century, and five to eight ° F by the late 21st century. The hottest days of the year could become up to 10° F warmer for many locations in the region by the late 21st century.

California's report also projects small changes in average annual precipitation, and in the recurrence of extreme dry and wet years. However, rainfall intensification could result in more severe atmospheric river events and rainfall increases of up to 25 to 30% on the wettest days of the year. While these assessments provide information on the magnitude of regional climate impacts, they do not provide information about climate change impacts at a scale that is directly applicable to local watersheds, water supplies, and demands.

The USBR conducted a study of local climate change impacts in the Santa Ana River Watershed (USBR, 2013). The study used a groundwater screening tool to simulate monthly water balance changes in the Orange County, Upper Santa Ana Valley, and Elsinore/San Jacinto groundwater basins. Historical monthly time series of precipitation over the groundwater basin as well as municipal and industrial water demand were analyzed for the period 1990-2009. Future water supply was analyzed for the Santa Ana River Watershed using a hydrologic model to simulate streamflow using 112 different future climate conditions. The results show future increases in water demand and reservoir evaporation due to increased temperature. Smaller, long-term decreases in precipitation are also projected. The combined impacts of these changes include decreases in annual available surface water and increased reliance on groundwater. In the 2013 USBR study, groundwater was estimated to provide approximately 54% of total water supply.

The 2013 USBR study does not account for analysis methods instituted for studying and avoiding adverse impacts under California's Sustainable Groundwater Management Act (SGMA) which was passed by the state legislature in 2014. In particular, the 2013 USBR study used a transient climate change analysis method to generate a continuous future projection from the present through end of century. The results of a such a transient climate analysis cannot be used to analyze extreme events such as a single dry year or a multi-year drought as required under the UWMP regulations.

In summary, prior studies which include statewide and regional climate assessments provide relevant background information. However, they do not provide information on climate change impacts on local water supplies and demands within the Santa Margarita basin and other service areas outside of the Santa Ana basin or on the changing severity of future drought periods. This climate change vulnerability assessment aims to provide a uniform analysis of climate impacts for all areas of Western's service area for use in regional water supply and drought planning.

1.3 Study Objectives

The objectives of this vulnerability study are to:

1. Identify the appropriate datasets for use in this analysis,
2. Project the magnitude of climate-driven changes in water supply and demand for Western's service area, and
3. Estimate the projected future impacts using the climate change factors applied to the water supply sources and water demands in the service area.

Temperatures increases and changes in precipitation patterns with climate change are expected to shift the balance between local water supply and demand within Western's service area and other parts of the state. Increases in temperature lead to increases in consumptive water use for irrigated agriculture and to maintain landscaping for residential, commercial, and recreational use. This increase in consumptive water use is compounded by increases in the portion of rainfall that is evaporated back into the atmosphere from open spaces and water bodies and consumed by native vegetation outside of urban areas. In addition, population growth within the plan area could also lead to expansion of demand.

Annual precipitation in southern California is highly variable and a significant portion of the regional rainfall is concentrated in winter months from November to April. There are typically years with much greater than average precipitation and years with much less than average precipitation. During wet years, seasonal precipitation replenishes aquifers, streams, rivers, and reservoirs which are the sources of water supply. During dry years, there is increased extraction of groundwater reserves to make up the deficit. Climate change is expected to increase the year-to-year variability in precipitation within the region as well as in other parts of the state from which imported water is sourced. The second objective of this vulnerability study is to estimate the severity of future water supply and demand changes during drought years for use in drought management and mitigation planning for Western's service area.

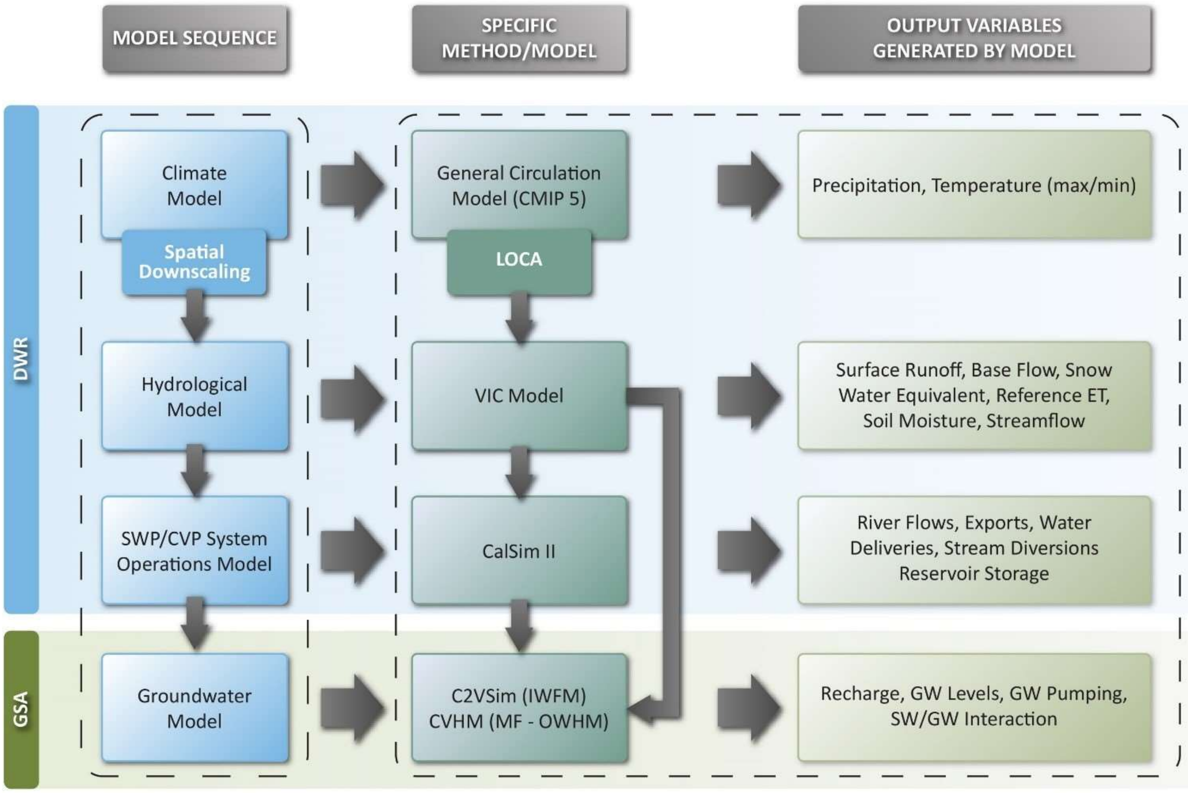
1.4 Description of Data Sources

DWR has developed statewide climate change datasets to for use in the water resource planning. The datasets depict climate conditions in California under historical and future climate conditions which are defined as follows:

- Year 2030 future condition with projected climate and sea level conditions for a 30-year period, centered at 2030
- Year 2070 future condition with projected climate and sea level conditions for a 30-year period, centered at 2070
- Year 1995 historical condition with climate and sea level conditions for a 30-year period, centered at 1995

The 2030 and 2070 climate projections are based on an ensemble of 20 global climate projections selected by the DWR Climate Change Technical Advisory Group (CCTAG) as the most appropriate projections for California water resources evaluation and planning (DWR CCTAG, 2015). The datasets are provided at a spatial resolution of 1/16th degree (approximately 3.75-mile grid cells) over California for each calendar month from 1915 through 2011.

Figure 1 shows an overview of the modeling processes used by DWR (highlighted with a blue background) in creating the statewide climate datasets which are used in this study. The lower section of the image (highlighted with a green background) shows how individual groundwater sustainability agencies are expected to use the data in groundwater models to model groundwater conditions as they collaborate to attain sustainability objectives.



DWR: Department of Water Resources; GSA: Groundwater Sustainability Agency; SWP: State Water Project; CVP: Central Valley Project; LOCA: Localized Constructed Analogs; VIC: Variable Infiltration Capacity; CalSim: SWP & CVP Operations Model; C2VSim: California Central Valley Groundwater - Surface Water Simulation Model; IWFM: Integrated Water Flow Model; CVHM: Central Valley Hydrologic Model; MF - OWHM: MODFLOW One Water Hydrologic Flow Model; ET: Evapotranspiration, SW: Surface Water; GW: Groundwater; CMIP 5: Coupled Model Intercomparison Project

Figure 1: Overview of Modeling Processes Used by DWR in Creating the Statewide Climate Datasets (SOURCE: DWR, 2018).

DWR has also run the climate datasets run through a hydrologic model called the Variable Infiltration Capacity (VIC) model to simulate future hydrologic conditions and route runoff to the outlet of subbasins defined by each eight-digit Hydrologic Unit Code (HUC) in California. Streamflow change projections from the VIC model are provided as monthly time series from 1915 through 2011 for each eight-digit HUC subbasin. As illustrated in Figure 2, the VIC model takes input climate variables such as precipitation and temperature, and it performs a series of hydrologic computations within each cell to output variables such as soil moisture, evapotranspiration, and surface runoff within each cell. The RVIC routing algorithm is then used to route runoff from each cell to its associated subbasin outlet.

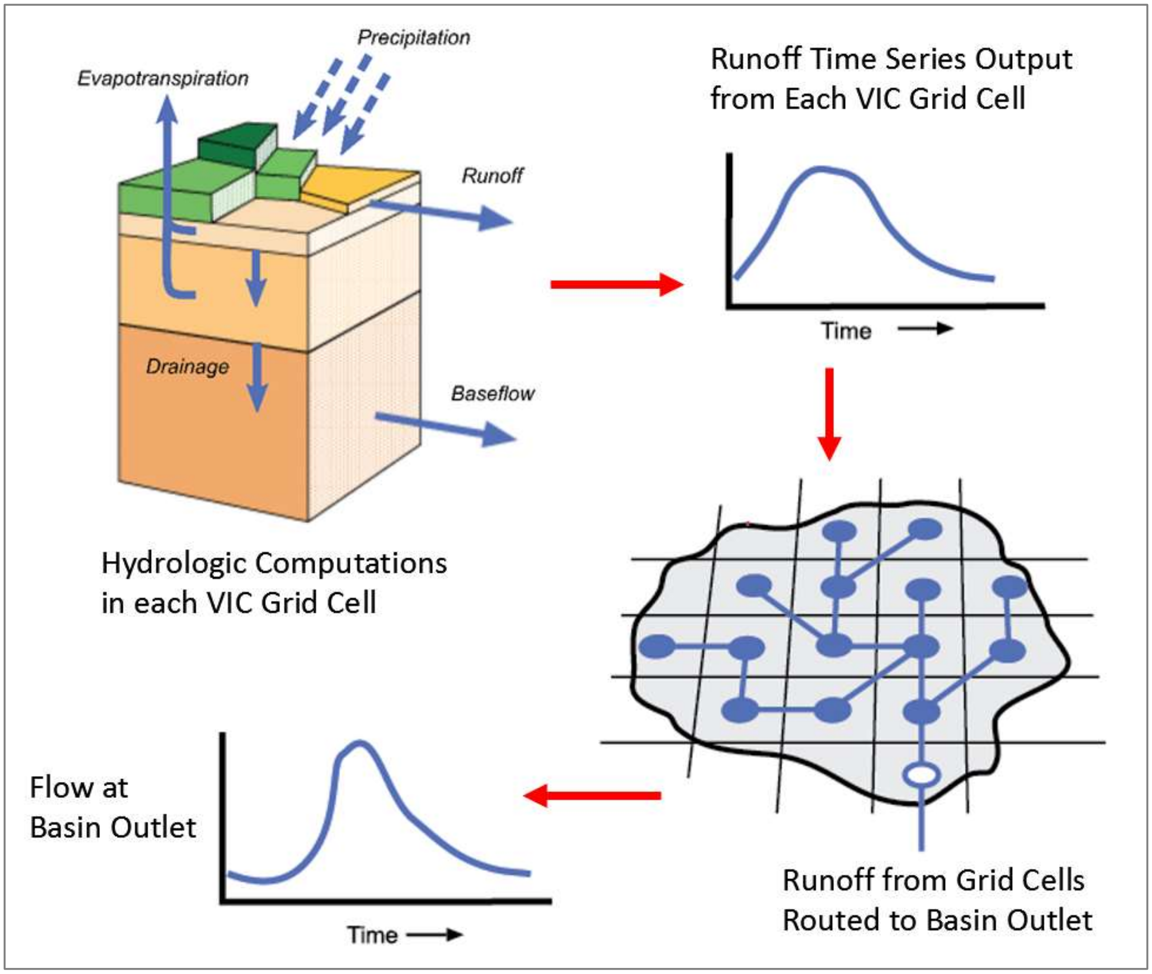


Figure 2: Schematic of the VIC Model Showing Hydrologic Computations Within Each Grid Cell and Runoff Routing

DWR has applied the VIC model to perform hydrologic simulations under historical climate conditions and under projected future climate conditions in 2030 and 2070 over 8,000 grid cells statewide. Runoff from these grid cells have also been routed to the outlet of each eight-digit HUC watersheds in the state for use in the water resource planning.

As previously shown in Figure 1, climate assessments are performed with a chain of models, each of which introduces some biases in the modeling process and derived products. To minimize the impact of such biases in decision processes, DWR presents the simulated climate projections in terms of relative change from historical conditions rather than as absolute values. For example, each monthly precipitation value simulated under 2030 conditions is divided by the precipitation value simulated for the same month under historical conditions, using the same chain of models. The resulting ratio of a simulated future value to the corresponding simulated historical value is referred to as a change factor. DWR has computed monthly time series of change factors for precipitation and evapotranspiration in each VIC grid cell and the streamflow for each HUC-8 watershed. The resulting change factor datasets are available for retrieval and use in water resources planning from the publicly accessible SGMA Data Viewer (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer). A more complete description of methods used in computing the climate datasets is provided in a publication entitled "Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development" (California DWR, 2018).

2. CLIMATE ANALYSIS APPROACH

2.1. Preprocessing Data for Western's Service Area

The statewide climate datasets include 57 grid cells each with a spatial resolution of 1/16th degree (approximately 3.75-mile) for Western's service area are shown in Figure 3.

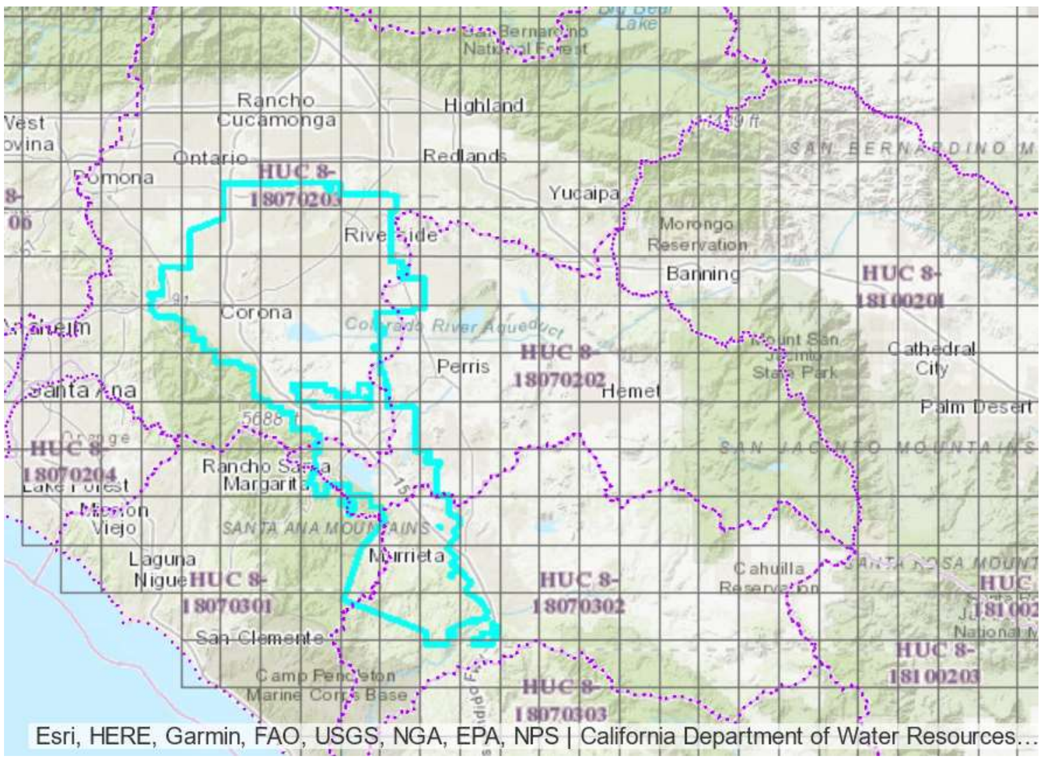


Figure 3: Climate Grid Cells and Watersheds Covering Western's service area.

Each grid cell contains 97 years of monthly time series (1915 to 2011) showing projected precipitation and evapotranspiration changes under 2030 and 2070 climate conditions relative to 1995 conditions. The area of each grid cell which falls within the service area is estimated by spatially intersecting feature layers of the climate grid and Western's service area boundary. Regional time series of projected precipitation and evapotranspiration changes are computed from the cell time series by using an area-weighted average of data from grid cells which fall wholly or partially within the service area. Projections of future streamflow change were also retrieved for the Santa Ana River (HUC- 18070203) and the Santa Margarita River (HUC- 18070302) basins which provide surface water supplies to portions of the service area.

2.2. Analysis of Normal, Single, and Multi-Year Drought Periods

Every urban water supplier is required to assess water service reliability in normal year, single-dry year, and multiple-dry years lasting 5-years. For imported water supplies, the normal and dry years used by Metropolitan are adopted for Western since it is the largest source of imported water. For local water supplies, year types are selected by reviewing time series data at two local precipitation gauges with long time historical records. The monthly time series for the gauge at Riverside Fire Station 3 are available online in the California DWR Bulletin 195 from back as far back as 1882 but were last updated in 2007. The CIMIS #44 gauge has more current data available from 1986 to present. For this analysis, the Riverside FS3 gauge is used because it has full coverage of the normal period of record (1922 to 2004) used in the imported water analysis.

Table 1: Analysis Periods for Normal, Single and Multi-Year Droughts

Year Type	Imported Supplies	Riverside FS3 Gauge	CIMIS #44 Gauge
Normal	1922 - 2004	1922 - 2004	1986 - 2020
Single Dry-Year	1977	1989	2007
Five-Year Drought	1988 - 1992	1971 - 1975	2005 - 2009

The results shown in Table 1 indicate that 1989 was the single driest year locally, while 1977 was the driest year for imported water. The driest 5-year period for local supplies was from 1971 to 1975, while imported water supplies were lowest from 1988 to 1992. Year types for the CIMIS #44 gauge are also provided in the table for reference.

2.3. Computing Water Supply Change Factors

Local water sources used within Western's service area include local groundwater from 12 different groundwater basins, surface water supplies from Santa Ana River and the Santa Margarita River basins, recycled water from indoor water use, and reclaimed groundwater. Groundwater systems are recharged through a variety of water sources. These sources of recharge can be described as:

- Natural recharge is the portion of precipitation that infiltrates to the underlying aquifer within the same grid cell in which precipitation occurs. Changes in natural recharge are directly related to changes in precipitation in the grid cell.
- Artificial recharge (including injection systems)) is water that is diverted from rivers and streams for the purpose of replenishing the underlying aquifer. Since artificial recharge relies on surface water and other remotely sourced water supplies, it is influenced by accumulative flow changes in the source watersheds.

Supplies of recycled water and reclaimed water which are sourced from indoor uses are largely insensitive to changes in climate. For this analysis, three different sets of climate change results are computed for use with natural recharge, the Santa Ana River, and the Santa Margarita River sources, respectively.

For characterization of future changes in natural recharge, precipitation change projections from the DWR-provided climate change dataset is used. The 97-year monthly time series of precipitation for Western's service area is used to compute Water Supply Change Factors which show percentage changes in mean monthly and mean annual precipitation under future 2030 and 2070 climate conditions relative to historical conditions under 1995 conditions. The 2030 and 2070 Water Supply Change Factors for natural recharge are computed for normal year, single dry year, and 5-year drought periods.

Characterization of future changes in the Santa Ana and Santa Margarita River basins are based on streamflow projections from the VIC model under 2030 and 2070 climate conditions. The streamflow projections are used to compute Water Supply Change Factors which show percentage changes in mean monthly and mean streamflow under future 2030 and 2070 climate conditions relative to historical conditions under 1995 conditions. Change factors are similarly computed for normal year, single dry year, and 5-year drought periods.

Each set of Water Supply Change Factors is interpolated at 5-year intervals from 2020 to 2045. The 1995 to 2011 conditions are used to project climate change conditions out to 2030. Linear interpolation is used to determine the climate change factors between 2020 and 2030, based on the historic conditions from 2011 and the projected conditions for 2030. Different climate change conditions are anticipated between 2030 and 2070 because of the implementation of policies and practices that are expected to influence the rate of climate change further out in time. For the years between 2030 and 2070, linear interpolation is used for the 5-year increments based on the difference in projected conditions at 2030 and the projected conditions at 2070. Time series of Water Supply Change Factors are similarly interpolated at 5-year intervals for normal year, single dry year, and 5-year drought periods for application to local water sources for 2020 to 2045.

2.4 Computing Water Demand Change Factors

Indoor and outdoor water uses are computed separately when considering climate impacts. Outdoor water use, particularly landscape irrigation, is sensitive to changes in climate while indoor water use is generally not sensitive. Plants require more water to sustain growth in a warmer climate, and users respond to increases in temperature by increasing landscape irrigation to keep their plants alive and flourishing. This increase in water requirement is characterized in climate models using the rate of evapotranspiration which represents total amount of water released from soil, plants, and water bodies from the land surface to the atmosphere through evaporation and transpiration.

The DWR datasets includes 57 grid cells each with a spatial resolution of 1/16th degree (approximately 3.75-mile) for Western's service area. Each grid cell contains 96 years of monthly time series (1915 to 2011) showing projected evapotranspiration changes under 2030 and 2070 climate conditions. An area-weighted average of the evapotranspiration data from the 57 cells is first computed to generate a single time series for Western's service area. The regional time series is used to compute Water Demand Change Factors which show percentage changes in mean monthly and mean annual evapotranspiration under future 2030 and 2070 climate conditions relative to historical conditions under 1995 conditions.

Similar values of 2030 and 2070 Water Demand Change Factors are computed for normal year, single dry year, and 5-year drought periods.

The Water Demand Change Factors are computed for 5-year intervals from 2020 to 2045 by interpolation. The 1995 to 2011 conditions are used to project climate change conditions out to 2030. Linear interpolation is used to determine the climate change factors between 2020 and 2030, based on the historic conditions from 2011 and the projected conditions for 2030. Different climate change conditions are anticipated between 2030 and 2070 because of the implementation of policies and practices that are expected to influence the rate of climate change further out in time. For the years between 2030 and 2070, linear interpolation is used for the 5-year increments based on the difference in projected conditions at 2030 and the projected conditions at 2070. The 5-year time series of Water Demand Change Factors are similarly interpolated for normal year, single dry year, and 5-year drought periods for application to growth adjusted indoor water use projections for 2020 to 2045.

3. LOCAL CLIMATE CHANGE RESULTS

3.1. Water Supply Change Factor Results

The water supply change factors for precipitation and natural recharge are shown in Table 2. For normal years, precipitation and natural recharge are initially projected to decrease during the first decade before stabilizing during the second decade. The maximum projected range of decrease for normal year values is 1.7 percent. However, the projections show that droughts will initially be less severe from the perspective of local rainfall and recharge for the single dry year with increases of up to 1 percent. Recharge during 5-year droughts is projected to decrease by up to 2.3 percent by 2045.

Table 2: Water Supply Change Factors for Precipitation and Natural Recharge with 2020 as the Baseline Year

Year	Normal	Dry	5-year Dry
2020	100.0%	100.0%	100.0%
2025	99.1%	100.5%	99.5%
2030	98.3%	101.0%	98.9%
2035	98.5%	100.8%	98.5%
2040	98.7%	100.7%	98.1%
2045	98.9%	100.5%	97.7%

Table 3 shows the effects climate change on water supply change factors for use with the Santa Ana River basin water supplies using 2020 as the baseline year. Flows are projected to decrease for normal, single dry, and multi-year periods. Normal year flows are projected to gradually decrease by up to 3.1 percent by 2045. Flow decreases of up to 7.2 percent during single dry years and 5.5 percent during multi-year droughts are projected by 2045.

Table 3: Water Supply Change Factors for the Santa Ana River Flows with 2020 as the Baseline Year

Year	Normal	Dry	5-year Dry
2020	100.0%	100.0%	100.0%
2025	99.6%	99.6%	99.0%
2030	99.1%	99.2%	98.1%
2035	98.4%	97.1%	96.9%
2040	97.6%	94.9%	95.7%
2045	96.9%	92.8%	94.5%

Table 4 shows the effects climate change on water supply change factors for the Santa Margarita River basin supplies using 2020 as the baseline year. The projected changes in normal year flows are very similar to those in the Santa Ana River basin with decreases reaching 3.6 percent by 2045. Flow decreases of up to 5 percent during single dry years and 5-year droughts are projected by 2045.

Table 4: Water Supply Change Factors for the Santa Margarita River Flows with 2020 as the Baseline Year

Year	Normal	Dry	5-year Dry
2020	100.0%	100.0%	100.0%
2025	99.7%	99.9%	99.5%
2030	99.3%	99.8%	98.9%
2035	98.4%	98.2%	97.6%
2040	97.4%	96.6%	96.3%
2045	96.4%	95.0%	95.0%

These water supply change projections indicate that as climate change progresses, local water systems which rely on natural recharge are likely to become more reliable water supply sources, while river supplies that are water sources for artificial recharge are likely to become less reliable. Natural groundwater recharge will still occur in normal and dry year, but the timing of available water will change as precipitation will increasingly fall during a shorter rainy season with a longer dry season each year. Furthermore, the increase in temperatures over time will also lead to increases in evaporation from surface water bodies and land surface which will decrease the volume of water available for diversion from rivers. diversions from rivers. Increased attention should be paid to understanding the adequacy and operational constraints of natural and artificial recharge systems in the service area.

3.2 Water Demand Change Factors Results

Table 5 shows water demand change factors for outdoor water uses for Western's service area. The impacts of climate change on outdoor water demand are projected to be similar during normal and drought years over the next two decades. This is because climate change datasets show that temperatures are projected to increase over time, regardless of hydrologic conditions. These projected increases in temperature are estimated to increase ET rates for landscaping, irrigated agriculture, and native vegetation. For all year types, outdoor water use is projected to increase by about 3 percent during the next two decades.

Table 5: Water Demand Change Factors for Outdoor Water Uses with 2020 as the Baseline Year

Year	Normal	Dry	5-year Dry
2020	100.0%	100.0%	100.0%
2025	100.6%	100.6%	99.8%
2030	101.2%	101.3%	101.2%
2035	101.8%	101.9%	101.8%
2040	102.4%	102.5%	102.4%
2045	103.1%	103.2%	103.0%

The water demand change factors are applied to outdoor water uses, which have been adjusted for future population growth and conservation measures. Indoor water uses are assumed to respond to future population growth and conservation as well but are not sensitive to climate change.

4. APPLYING RESULTS TO LOCAL WATER ANALYSIS

4.1. Computing Future Water Supply and Demand

Climate change impacts on future water supplies and demands must be considered by Western and its retail agencies when preparing the 2020 updates to their respective UWMPs, in accordance with California Water Code requirements, and will also inform development of the DCP.

This technical memo provides Western and its retail agencies with the ability to utilize the data in the DWR climate change projections and methods of climate change analysis for Western's service area to evaluate the impacts of climate change either qualitatively or quantitatively. If quantitative methods are used, computations needed to convert the percent change results presented in this memo into quantitative estimates of future water supply and demand are provided as worksheets included as Appendix A of this report. The worksheets consist of the following six tables:

- Table A1: Normal Year Water Supply Projections
- Table A2: Single Dry Year Water Supply Projections
- Table A3: Multi-Year Drought Water Supply Projections
- Table A4: Normal Year Water Demand Projections
- Table A5: Single Dry Year Water Demand Projections
- Table A6: Multi-Year Drought Water Demand Projections

If an agency desires to use these worksheets, an agency would enter its baseline water supply and demand values in Section 1 of each table. Section 2 of each table is prepopulated with the regional water supply and demand change factor results. Instruction for finalizing future water supply and demand values by multiplying values from section 1 with corresponding values from Section 2 of each table are includes in the "Notes" column of each table.

While not required for preparing the UWMPs, monthly change factors are useful for understanding how seasonal changes are contributing to the annual changes discussed in Section 3 of this report. Monthly values are also useful for planning management actions and mitigation actions in the DCP. Monthly water supply and demand change factors computed for the service area are presented in Appendix B which consists of the following six tables:

- Table B1: Monthly Water Supply Change Factors for Normal Year
- Table B2: Monthly Water Supply Change Factors for Single Dry Year
- Table B3: Monthly Water Supply Change Factors for Multi-Year Drought
- Table B4: Monthly Water Demand Change Factors for Normal Year
- Table B5: Monthly Water Demand Change Factors for Single Dry Year
- Table B6: Monthly Water Demand Change Factors for Multi-Year Drought

4.2. Constraints and Limitations

This technical memo presents planning-level projections of climate impacts on water supplies and demand for Western's service area during normal and drought periods. The results are intended for use by Western in preparing climate-impacted water supply and demand projections for its wholesale UWMP and the regional DCP. This memo is also available for Western's retail agencies to use in their respective 2020 UWMPs if they choose to use the DWR climate change factors rather than another method of estimating projected climate change impacts to supply and demand. These agencies are required to develop adaptive management actions and projects as part of their 2020 UWMPs to address any deficits in future supply relative to future demand.

This analysis of future climate impacts on water supplies and demands is based on the median projected change from the majority of the climate models selected for water resources planning in California. DWR has also developed two more extreme climate scenarios for 2070, which were not used in the analysis presented in this technical memo. The first extreme scenario uses future projections from the 10 global climate models with least warming and least precipitation while the second extreme scenario using the 10 global models with the most warming and highest precipitation. These extreme scenarios have not been used in this round of planning. However, it would be prudent to analyze the extreme scenarios when preparing longer range plans and projects beyond mid-century.

The results are not intended for use in other applications such as flood resilience planning, infrastructure design, or for making decisions about operating any specific structure. Flood resilience planning requires analysis of daily or finer temporal resolution using statistical methods to fit frequency distributions to extreme values. Infrastructure design and operations applications require more detailed analysis and ground-truthing of site-specific characteristics, operations and regulations that are not considered in this report.

Climate change can also impact water resources indirectly. For example, wildfire hazards are projected to increase in southern California with climate change. Wildfires can impact water resources by increasing water requirements for firefighting, changing surface vegetation and runoff patterns in burn areas, causing debris flows, and increasing siltation of reservoirs and hydraulic structures. Such secondary impacts of climate change on water resource are not captured in this study.

Future water supplies and demands can also be impacted by policy and regulatory decisions made at the local, state, and federal level. It is difficult to anticipate and quantify the impacts of policy and regulatory considerations that have not yet been made. Therefore, it is not the intention of this report to anticipate future policy or regulatory decisions and their impacts to future water supplies or demands.

4.3. Next Steps

The next step in the planning process is for Western and its member agencies to use the change factors and analysis provided in this technical memorandum, if desired, to compute quantitative estimates of future supplies and demands during normal and drought years, incorporating the effects of climate change. The net change in future water supply for each member agency will depend on the percentage of their local water supply that is sourced from the direct precipitation and natural recharge, Santa Margarita, or Santa Ana basins. Similarly, the net change in future water demand will depend on the percentage of outdoor water use and projections of future growth within each member agency's service area. The difference between net future water supply and net future water demand, if any, is the net water deficit that the agency will need to address by developing new management actions and projects. A calculated deficit, if any, would represent the minimum gap that would need to be addressed; however, it is prudent for water managers to consider additional management actions and projects to prepare for uncertain future conditions.

This technical memo provides Western and its retail agencies with the ability to utilize the data in the DWR climate change projections and methods of climate change analysis for Western's service area to evaluate the impacts of climate change either qualitatively or quantitatively. Should a retail agency choose to use the analysis presented in this technical memo, the agency may use the forms provided in Appendices A and B to compute quantitative estimates of their future water supplies, demands and deficits. For use in the DCP, the projections used in each agency's UWMP will be aggregated and quantitative estimations of the magnitude and location of regional water supplies, demands and deficits. The aggregated regional quantitative results would be discussed during future workshops to inform development of the DCP, regional project planning, and estimation of import requirements.

References

Bedsworth, Louise, Dan Cayan, Guido Franco, Leah Fisher, and Sonya Ziaja, 2018. Statewide Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-013.

California DWR, 2018, Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development, Sustainable Groundwater Management Program.

Hall, Alex, Neil Berg, and Katharine Reich, 2018. Los Angeles Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-007.

US Bureau of Reclamation, 2013, Climate Change Analysis for the Santa Ana River Watershed, Santa Ana Watershed Basin Study, California. Technical Memorandum No. 86-68210-2013-02.

Appendix A: Projection Worksheets

Table A1: Normal Year Water Supply Projections

Agency: ____

Notes: ____

Row	Year Type	Variable	2025	2030	2035	2040	2045	Notes
1a	Normal Year	Current Water Supply from Natural Recharge (AFY)						Repeat 2020 Value for All Years
1b	Normal Year	Current Water Supply from Santa Ana River (AFY)						Repeat 2020 Value for All Years
1c	Normal Year	Current Water Supply from Santa Margarita River (AFY)						Repeat 2020 Value for All Years
2a	Normal Year	Water Supply Change Factor for Natural Recharge	99.1%	98.3%	98.5%	98.7%	98.9%	From Memo Results
2b	Normal Year	Water Supply Change Factor for Santa Ana River	99.6%	99.1%	98.4%	97.6%	96.9%	From Memo Results
2c	Normal Year	Water Supply Change Factor for Santa Margarita River	99.7%	99.3%	98.4%	97.4%	96.4%	From Memo Results
3a	Normal Year	Future Water Supply from Natural Recharge						Multiply Row 1a by Row 2a
3b	Normal Year	Future Water Supply from Santa Ana River (AFY)						Multiply Row 1b by Row 2b
3c	Normal Year	Future Water Supply from Santa Margarita River (AFY)						Multiply Row 1c by Row 2c
4	**Normal Year**	**Total Future Water Supply from Local Sources**						**Sum of Rows 3a, 3b and 3c**

Table A2: Single Dry Year Water Supply Projections

Agency: ____

Notes: ____

Row	Year Type	Variable	2025	2030	2035	2040	2045	Notes
1a	Single Dry Year	Current Water Supply from Natural Recharge (AFY)						Repeat 2020 Value for All Years
1b	Single Dry Year	Current Water Supply from Santa Ana River (AFY)						Repeat 2020 Value for All Years
1c	Single Dry Year	Current Water Supply from Santa Margarita River (AFY)						Repeat 2020 Value for All Years
2a	Single Dry Year	Water Supply Change Factor for Natural Recharge						From Memo Results
2b	Single Dry Year	Water Supply Change Factor for Santa Ana River						From Memo Results
2c	Single Dry Year	Water Supply Change Factor for Santa Margarita River						From Memo Results
3a	Single Dry Year	Future Water Supply from Natural Recharge (AFY)	100.5%	101.0 %	100.8%	100.7%	100.5%	Multiply Row 1a by Row 2a
3b	Single Dry Year	Future Water Supply from Santa Ana River (AFY)	99.6%	99.2%	97.1%	94.9%	92.8%	Multiply Row 1b by Row 2b
3c	Single Dry Year	Future Water Supply from Santa Margarita River (AFY)	99.9%	99.8%	98.2%	96.6%	95.0%	Multiply Row 1c by Row 2c
4	**Single Dry Year**	**Total Future Water Supply from Local Sources (AFY)**						**Sum of Rows 3a, 3b and 3c**

Table A3: Multi-Year Drought Water Supply Projections

Agency: ____

Notes: ____

Row	Year Type	Variable	2025	2030	2035	2040	2045	Notes
1a	5-Year Drought	Current Water Supply from Natural Recharge (AFY)						Repeat 2020 Value for all Years
1b	5-Year Drought	Current Water Supply from Santa Ana River (AFY)						Repeat 2020 Value for all Years
1c	5-Year Drought	Current Water Supply from Santa Margarita River (AFY)						Repeat 2020 Value for all Years
2a	5-Year Drought	Water Supply Change Factor for Natural Recharge	99.5%	98.9%	98.5%	98.1%	97.7%	From Memo Results
2b	5-Year Drought	Water Supply Change Factor for Santa Ana River	99.0%	98.1%	96.9%	95.7%	94.5%	From Memo Results
2c	5-Year Drought	Water Supply Change Factor for Santa Margarita River	99.5%	98.9%	97.6%	96.3%	95.0%	From Memo Results
3a	5-Year Drought	Future Water Supply from Natural Recharge (AFY)						Multiply Row 1a by Row 2a
3b	5-Year Drought	Future Water Supply from Santa Ana River (AFY)						Multiply Row 1b by Row 2b
3c	5-Year Drought	Future Water Supply from Santa Margarita River (AFY)						Multiply Row 1c by Row 2c
4	**5-Year Drought**	**Total Future Water Supply from Local Sources (AFY)**						**Sum of Rows 3a, 3b and 3c**

Table A4: Normal Year Water Demand Projections

Agency: ____

Notes: ____

Row	Year Type	Variable	2025	2030	2035	2040	2045	Notes
1a	Normal Year	Growth-Adjusted Outdoor Water Demand (AFY)						Different for Each Year
1b	Normal Year	Growth-Adjusted Indoor Water Demand (AFY)						Different for Each Year
2a	Normal Year	Water Demand Change Factor for Outdoor Use	100.6%	101.2%	101.8%	102.4%	103.1%	From Memo Results
3a	Normal Year	Climate-Adjusted Future Water Demand (AFY)						(Row 1a * Row 2a) + Row1b
3b	Normal Year	Climate-Adjusted Future Water Demand (AFY)						(Row 1a * Row 2a) + Row1b
4	**Normal Year**	**Total Climate-Adjusted Water Demand**						**Sum of Rows 3a, 3b and 3c**

Table A5: Single Dry Year Water Demand Projections

Agency: ____

Notes: ____

Row	Year Type	Variable	2025	2030	2035	2040	2045	Notes
1a	Single Dry Year	Growth-Adjusted Outdoor Water Demand (AFY)						Different for Each Year
1b	Single Dry Year	Growth-Adjusted Indoor Water Demand (AFY)						Different for Each Year
2a	Single Dry Year	Water Demand Change Factor for Outdoor Use	100.6%	101.3%	101.9%	102.5%	103.2%	From Memo Results
3a	Single Dry Year	Climate-Adjusted Future Water Demand (AFY)						(Row 1a * Row 2a) + Row1b
3b	Single Dry Year	Climate-Adjusted Future Water Demand (AFY)						(Row 1a * Row 2a) + Row1b
4	**Single Dry Year**	**Total Climate-Adjusted Water Demand**						**Sum of Rows 3a, 3b and 3c**

Table A6: Multi-Year Drought Water Demand Projections

Agency: ____

Notes: ____

Row	Year Type	Variable	2025	2030	2035	2040	2045	Notes
1a	Multi-Year Drought Year 1	Growth-Adjusted Outdoor Water Demand (AFY)						Enter Future Demand
1b	Multi-Year Drought Year 2	Growth-Adjusted Outdoor Water Demand (AFY)						Enter if Different from 1a
1c	Multi-Year Drought Year 3	Growth-Adjusted Outdoor Water Demand (AFY)						Enter if Different from 1a
1d	Multi-Year Drought Year 4	Growth-Adjusted Outdoor Water Demand (AFY)						Enter if Different from 1a
1e	Multi-Year Drought Year 5	Growth-Adjusted Outdoor Water Demand (AFY)						Enter if Different from 1a
1f	Normal Year	Growth-Adjusted Indoor Water Demand (AFY)						Enter Future Demand
2a	5-Year Drought	Water Demand Change Factor	99.8%	101.2%	101.8%	102.4%	103.0%	From Memo Results
3a	Multi-Year Drought Year 1	Climate-Adjusted Future Water Demand (AFY)						(Row 1a * Row 2a) + Row 1f
3b	Multi-Year Drought Year 2	Growth-Adjusted Outdoor Water Demand (AFY)						(Row 1b * Row 2a) + Row 1f
3c	Multi-Year Drought Year 2	Growth-Adjusted Outdoor Water Demand (AFY)						(Row 1c * Row 2a) + Row 1f
3d	Multi-Year Drought Year 2	Growth-Adjusted Outdoor Water Demand (AFY)						(Row 1d * Row 2a) + Row 1f
3e	Multi-Year Drought Year 2	Growth-Adjusted Outdoor Water Demand (AFY)						(Row 1e * Row 2a) + Row 1f

Appendix B: Monthly Change Factors

Table B1: Monthly Water Supply Change Factors for Normal Year

Precipitation and Natural Recharge

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	100.5%	99.4%	100.0%	100.4%	96.2%	99.5%	99.3%	100.8%	100.6%	96.4%	97.9%	99.0%
2030	101.0%	98.9%	100.0%	100.8%	92.3%	99.0%	98.7%	101.6%	101.2%	92.8%	95.8%	98.0%
2035	101.9%	99.2%	99.3%	97.7%	90.7%	98.3%	100.7%	102.6%	103.7%	91.5%	93.3%	97.3%
2040	102.7%	99.5%	98.5%	94.6%	89.0%	97.6%	102.8%	103.6%	106.1%	90.3%	90.9%	96.6%
2045	103.5%	99.7%	97.8%	91.5%	87.3%	97.0%	104.8%	104.5%	108.6%	89.0%	88.4%	95.9%

Santa Ana River Basin

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	100.6%	100.1%	99.3%	97.7%	96.2%	98.0%	99.4%	100.2%	100.5%	99.4%	98.9%	99.6%
2030	101.1%	100.3%	98.5%	95.4%	92.3%	95.9%	98.7%	100.4%	100.9%	98.9%	97.8%	99.2%
2035	101.2%	100.2%	97.3%	92.7%	89.8%	94.9%	98.4%	100.3%	101.8%	98.6%	96.9%	97.9%
2040	101.2%	100.2%	96.2%	90.0%	87.3%	93.9%	98.1%	100.1%	102.7%	98.3%	96.0%	96.6%
2045	101.3%	100.2%	95.0%	87.2%	84.7%	92.9%	97.8%	100.0%	103.6%	97.9%	95.1%	95.4%

Santa Margarita River Basin

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	100.3%	99.8%	99.5%	99.1%	98.8%	99.5%	99.6%	100.3%	100.3%	99.4%	98.9%	99.5%
2030	100.6%	99.6%	99.0%	98.2%	97.6%	99.0%	99.2%	100.6%	100.5%	98.9%	97.9%	98.9%
2035	100.4%	99.0%	97.5%	96.1%	96.2%	98.2%	99.0%	100.3%	101.4%	98.6%	96.9%	97.3%
2040	100.1%	98.4%	96.0%	94.0%	94.9%	97.5%	98.8%	99.9%	102.2%	98.3%	95.9%	95.7%
2045	99.9%	97.8%	94.5%	91.8%	93.6%	96.8%	98.5%	99.6%	103.0%	98.0%	94.9%	94.1%

Table B2: Monthly Water Supply Change Factors for Single Dry Year

Precipitation and Natural Recharge

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	100.9%	98.5%	100.7%	105.5%	98.1%	99.9%	100.0%	100.4%	100.0%	99.1%	99.8%	100.1%
2030	101.9%	97.1%	101.5%	111.1%	96.1%	99.8%	100.0%	100.8%	100.0%	98.2%	99.6%	100.2%
2035	102.8%	97.0%	100.9%	104.8%	95.2%	100.1%	100.0%	99.2%	100.0%	98.9%	94.4%	98.3%
2040	103.7%	96.9%	100.4%	98.6%	94.4%	100.4%	100.0%	97.6%	100.0%	99.5%	89.1%	96.5%
2045	104.6%	96.8%	99.8%	92.3%	93.5%	100.7%	100.0%	96.1%	100.0%	100.2%	83.9%	94.6%

Santa Ana River Basin

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	101.4%	98.1%	100.2%	98.1%	96.0%	96.5%	99.2%	100.5%	98.0%	98.9%	99.1%	98.4%
2030	102.8%	96.2%	100.4%	96.1%	91.9%	93.0%	98.4%	101.1%	96.0%	97.7%	98.3%	96.8%
2035	105.4%	95.8%	99.9%	94.3%	90.2%	91.9%	98.2%	99.9%	96.0%	97.6%	97.9%	94.4%
2040	108.0%	95.5%	99.5%	92.5%	88.4%	90.9%	98.0%	98.7%	95.9%	97.4%	97.5%	91.9%
2045	110.6%	95.1%	99.0%	90.7%	86.7%	89.8%	97.8%	97.6%	95.9%	97.3%	97.0%	89.4%

Santa Margarita River Basin

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	99.0%	98.8%	100.2%	99.7%	96.1%	99.0%	99.5%	104.8%	100.3%	100.1%	100.1%	100.5%
2030	98.0%	97.5%	100.4%	99.3%	92.3%	98.1%	99.0%	109.6%	100.7%	100.2%	100.3%	101.0%
2035	99.5%	97.8%	99.0%	98.7%	90.4%	97.6%	98.8%	104.0%	100.2%	99.9%	100.0%	97.6%
2040	100.9%	98.0%	97.7%	98.1%	88.5%	97.1%	98.6%	98.3%	99.6%	99.6%	99.7%	94.2%
2045	102.4%	98.3%	96.4%	97.4%	86.6%	96.7%	98.3%	92.7%	99.1%	99.3%	99.4%	90.9%

Table B3: Monthly Water Supply Change Factors for Multi-Year Drought

Precipitation and Natural Recharge

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	100.8%	100.2%	99.5%	100.8%	95.5%	100.1%	99.4%	100.2%	101.3%	96.1%	98.9%	98.1%
2030	101.6%	100.4%	98.9%	101.6%	91.0%	100.1%	98.7%	100.3%	102.7%	92.2%	97.8%	96.3%
2035	102.2%	100.5%	98.8%	98.7%	89.6%	99.0%	101.0%	100.6%	106.5%	90.4%	94.8%	96.3%
2040	102.7%	100.7%	98.6%	95.8%	88.1%	97.9%	103.3%	100.8%	110.4%	88.6%	91.8%	96.4%
2045	103.3%	100.9%	98.5%	92.9%	86.7%	96.7%	105.6%	101.1%	114.2%	86.8%	88.8%	96.4%

Santa Ana River Basin

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	100.8%	99.9%	99.2%	97.6%	96.5%	98.5%	99.5%	100.0%	100.0%	99.1%	99.3%	100.4%
2030	101.6%	99.8%	98.3%	95.2%	93.0%	96.9%	99.1%	100.1%	99.9%	98.3%	98.6%	100.7%
2035	102.2%	100.2%	97.6%	93.0%	90.9%	96.3%	98.9%	100.0%	100.3%	97.7%	97.8%	99.6%
2040	102.9%	100.5%	96.9%	90.7%	88.8%	95.7%	98.8%	99.9%	100.7%	97.2%	96.9%	98.4%
2045	103.5%	100.9%	96.2%	88.5%	86.6%	95.1%	98.6%	99.8%	101.1%	96.7%	96.1%	97.3%

Santa Margarita River Basin

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	100.4%	99.6%	99.1%	98.2%	98.7%	99.3%	99.6%	100.4%	99.9%	99.7%	99.6%	99.8%
2030	100.8%	99.2%	98.2%	96.3%	97.5%	98.6%	99.2%	100.8%	99.9%	99.3%	99.2%	99.7%
2035	101.2%	98.7%	97.1%	94.5%	96.4%	98.0%	99.0%	100.3%	100.1%	99.0%	98.7%	98.0%
2040	101.5%	98.2%	96.0%	92.7%	95.4%	97.4%	98.8%	99.8%	100.3%	98.7%	98.2%	96.3%
2045	101.9%	97.7%	95.0%	90.9%	94.4%	96.8%	98.6%	99.3%	100.5%	98.5%	97.7%	94.6%

Table B4: Monthly Water Demand Change Factors for Normal Year

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	101.0%	100.7%	100.4%	100.5%	100.8%	100.5%	100.5%	100.5%	100.6%	100.7%	100.9%	101.0%
2030	102.1%	101.3%	100.9%	101.1%	101.7%	101.1%	100.9%	101.1%	101.2%	101.4%	101.8%	102.0%
2035	102.8%	102.1%	101.6%	101.8%	102.4%	101.7%	101.3%	101.5%	101.6%	102.0%	102.7%	103.1%
2040	103.6%	102.9%	102.2%	102.5%	103.0%	102.3%	101.6%	101.9%	101.9%	102.6%	103.6%	104.2%
2045	104.4%	103.6%	102.9%	103.3%	103.7%	102.9%	102.0%	102.3%	102.3%	103.2%	104.5%	105.3%

Table B5: Monthly Water Demand Change Factors for Single Dry Year

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	101.0%	100.7%	100.6%	100.5%	101.0%	100.6%	100.5%	100.6%	100.6%	100.6%	100.6%	100.7%
2030	102.0%	101.5%	101.1%	100.9%	102.1%	101.3%	101.1%	101.1%	101.2%	101.3%	101.2%	101.4%
2035	102.5%	101.9%	101.7%	101.7%	103.1%	101.8%	101.5%	101.6%	101.8%	102.0%	102.2%	102.3%
2040	103.0%	102.3%	102.2%	102.4%	104.0%	102.4%	101.9%	102.1%	102.4%	102.8%	103.2%	103.3%
2045	103.5%	102.7%	102.8%	103.2%	105.0%	103.0%	102.3%	102.6%	103.0%	103.5%	104.2%	104.2%

Table B6: Monthly Water Demand Change Factors for Multi-Year Drought

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2025	101.0%	100.6%	100.4%	100.5%	100.9%	100.6%	100.5%	100.5%	100.6%	100.7%	100.8%	101.0%
2030	102.0%	101.3%	100.8%	101.1%	101.8%	101.1%	101.0%	101.0%	101.2%	101.4%	101.6%	101.9%
2035	102.8%	101.9%	101.4%	101.8%	102.5%	101.7%	101.3%	101.4%	101.6%	102.0%	102.4%	103.0%
2040	103.6%	102.6%	102.1%	102.5%	103.2%	102.3%	101.7%	101.8%	102.0%	102.6%	103.3%	104.0%
2045	104.4%	103.3%	102.7%	103.1%	103.9%	102.9%	102.1%	102.2%	102.4%	103.2%	104.1%	105.0%

APPENDIX G

WUEdata - Crestline Village Water District

Sign Out

Please print this page to a PDF and include as part of your UWMP submittal.

Confirmation Information

Generated By	Water Supplier Name	Confirmation #	Generated On
Nanette Pratini	Crestline Village Water District	5811429679	4/2/2021 3:40:29 PM

Boundary Information

Census Year	Boundary Filename	Internal Boundary ID
1990	CVWD_fromAGOL_2016.kml	994
2000	CVWD_fromAGOL_2016.kml	994
2010	CVWD_fromAGOL_2016.kml	994
1990	CVWD_fromAGOL_2016.kml	994
2000	CVWD_fromAGOL_2016.kml	994
2010	CVWD_fromAGOL_2016.kml	994

Baseline Period Ranges

10 to 15-year baseline period

Number of years in baseline period:	10
Year beginning baseline period range:	2001
Year ending baseline period range[1]:	2010

5-year baseline period

Year beginning baseline period range:	2006
Year ending baseline period range[2]:	2010

[1] The ending year must be between December 31, 2004 and December 31, 2010.

[2] The ending year must be between December 31, 2007 and December 31, 2010.

Persons per Connection

Year	Census Block Level Total Population	Number of Connections *	Persons per Connection
1990	5,596	2352	2.38
1991	-	-	2.40
1992	-	-	2.41
1993	-	-	2.42
1994	-	-	2.44
1995	-	-	2.46
1996	-	-	2.47
1997	-	-	2.48
1998	-	-	2.50
1999	-	-	2.51
2000	6,919	2730	2.53
2001	-	-	2.55
2002	-	-	2.57
2003	-	-	2.59
2004	-	-	2.61
2005	-	-	2.63
2006	-	-	2.65
2007	-	-	2.67
2008	-	-	2.69
2009	-	-	2.71
2010	7,277	2669	2.73
2011	-	-	2.75
2012	-	-	2.77
2013	-	-	2.79
2014	-	-	2.81
2015	-	-	2.83
2020	-	-	2.92 **

Population Using Persons-Per-Connection

Year		Number of Connections *	Persons per Connection	Total Population
10 to 15 Year Baseline Population Calculations				
Year 1	2001	2814	2.55	7,176
Year 2	2002	2831	2.57	7,276
Year 3	2003	2843	2.59	7,363
Year 4	2004	2876	2.61	7,506
Year 5	2005	2853	2.63	7,503
Year 6	2006	2885	2.65	7,645
Year 7	2007	2852	2.67	7,615
Year 8	2008	2795	2.69	7,519
Year 9	2009	2708	2.71	7,339
Year 10	2010	2669	2.73	7,277
5 Year Baseline Population Calculations				
Year 1	2006	2885	2.65	7,645
Year 2	2007	2852	2.67	7,615
Year 3	2008	2795	2.69	7,519
Year 4	2009	2708	2.71	7,339
Year 5	2010	2669	2.73	7,277
2020 Compliance Year Population Calculations				
2020		2814	2.92 **	8,215

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QUESTIONS / ISSUES? CONTACT THE WUEDATA HELP DESK
MWELO QUESTIONS / ISSUES? CONTACT THE MWELO HELP DESK

2020 County of San Bernardino General Plan Development Densities/Intensities

Land Use Plan as of April 2021

Countywide Plan Land Use Designation[a]		Countywide Plan Residential Density (DU/ac) or Non-Residential Intensity (FAR)	Acres within CBWD Service Area	Residential Density / Non-Residential Intensity: Maximum Density (DU/ac) or Intensity (FAR)	Residential Density / Non-Residential Intensity: Mid-Range Density (DU/ac) or Max. Intensity (FAR)[b]	Projected Development: Maximum DUs or SF of Non-Residential Uses	Projected Development: Mid-Range DUs or SF of Non-Residential Uses[c]	Population Projections[d]: Maximum Projected Population	Population Projections[d]: Mid-Range Projected Population
Residential									
RL	Rural Living	1 du/2.5 acre	393	0.4	0.4	158	158	388	388
VLDR	Very Low Density Residential	0-2 du/acre	52	2.0	1.0	105	53	258	130
LDR	Low Density Residential	2-5 du/acre	1,502	5.0	3.5	7,509	5,256	18,398	12,878
MDR	Medium Density Residential	5-20 du/acre	0	20.0	12.5	1	1	3	3
RLM	Resource Land Management[f]	1 du/40 acres	11		0.025	1	1	3	3
		Subtotal Residential	1,958	-	-	7,774	5,469	**19,100**	**13,400**
Commercial									
C	Commercial[e]	Max. FAR 0.75	94	0.75	0.75	3,067,713	3,067,713		
		Subtotal Commercial	94	-	-	3,067,713	3,067,713		
Industrial									
LI	Limited Industrial	Max. FAR 0.5	5	0.50	0.50	103,019	103,019		
		Subtotal Industrial	5	-	-	103,019	103,019		
Mixed Use and Other									
OS	Open Space	N/A	596	N/A	N/A	N/A	N/A		
PF	Public Facility	N/A	181	N/A	N/A	N/A	N/A		
		Subtotal Mixed Use and Other	777	-	-	-	-		
		Grand Total	**2,834**		**Dwelling Units**	**7,770**	**5,470**	***rounded**	
				SF of Non Residential Uses		**3,170,730**	**3,170,730**	***rounded**	

Notes: DU/ac: dwelling unit per acre; FAR: floor-to-area ratio; SF: square feet

[a] County of San Bernardino General Plan Land Use data. Acreages shown here do not include roads or road rights-of way because they do not have a land use designation.

[b] The mid-point range of dwelling units per acre for each residential land use designation and maximum FAR for non-residential designations are used to forecast EDUs and SF, respectively

[c] Projected dwelling units are the product of the acres of each residential use and the DU/Acre used for projected buildout rounded up to the nearest whole number. Projected non-residential square footage is the product of the FAR and acreage.

[d] Population projections are based on 2.45 people per dwelling unit multiplied by the number of dwelling units. Persons per household sourced from U.S. Census Bureau QuickFacts for Crestline CDP, Persons Per Household, 2015-2019.

[e] Commercial can also allow 5 units per acre maximum to allow for a mix of commercial and lower density residential uses in rural areas (when residential is permitted in the underlying zoning district).

Zoning District[a]		Development Code Maximum Residential Density (DU/ac) or Maximum Non-Residential Intensity (FAR)[b]	Acres within CVWD Water Service Area	Residential Density / Non-Residential Intensity		Projected Development		Population Projections[e]	
				Maximum Density (DU/ac) or Intensity (FAR)	Mid-Range Density (DU/ac) or Max. Intensity (FAR)[c]	Maximum DUs or SF of Non-Residential Uses	Mid-Range DUs or SF of Non-Residential Uses[d]	Maximum Projected Population	Mid-Range Projected Population
Residential									
RL	Rural Living	1 du/2.5 acre	304	0.40	0.4	122	122	299	299
RS	Single Residential	4 du/1 acre	1,543	4	2.5	6,174	3,859	15,127	9,455
RM	Multiple Residential	20 du/1 acre	36	20	12.5	722	452	1,769	1,108
		Subtotal Residential	1,883	-	-	7,018	4,433	**17,200**	**10,900**
Agricultural & Resource Management									
FW	Floodway	N/A	80	N/A	N/A	N/A	N/A		
OS	Open Space	N/A	58	N/A	N/A	N/A	N/A		
RC	Resource Conservation	1 du/40 acres	361	0.025	0.025	10	10	25	25
		Subtotal Agricultural & Resource Management	499	-	-	10	10	25	25
Commercial									
CG	General Commercial	Max. FAR 0.5	63	0.50	0.50	1,372,140	1,372,140		
CN	Neighborhood Commercial	Max. FAR 0.25	3	0.25	0.25	33,759	33,759		
CO	Commercial Office	Max. FAR 0.5	14	0.50	0.50	313,632	313,632		
CS	Service Commercial	Max. FAR 0.4	3	0.40	0.40	47,045	47,045		
		Subtotal Commercial	83	-	-	1,766,576	1,766,576		
Industrial									
IC	Community Industrial	Max. FAR 0.4	5	0.40	0.40	82,416	82,416		
		Subtotal Industrial	5	-	-	82,416	82,416		
Special Purpose									
SD	Specific Development	N/A	303	N/A	N/A	N/A	N/A		
IN	Institutional	Max. FAR 0.5	61	0.50	0.50	1,328,580	1,328,580		
		Subtotal Special Purpose	364	-	-	-	-		
		Grand Total	**2,834**		**Dwelling Units**	**7,020**	**4,430**	***rounded**	
					SF of Non Residential Uses	**1,848,990**	**1,848,990**	***rounded**	

Notes: DU/ac: dwelling unit per acre; FAR: floor-to-area ratio; SF: square feet

[a] Land Use District per San Bernardino County Development Code Section 82.01.020

[b] The San Bernardino County Development Code does not identify a range of density or intensity, rather the code identifies maximum densities and intensities.

[c] Calculated mid-range density used for Single Residential and Multiple Residential is 2 DU/ac and 12.5 DU/ac, respectively.

[d] Projected dwelling units are the product of the acres of each residential use and the DU/Acre used for projected buildout rounded up to the nearest whole number. Projected non-residential square footage is the product of the FAR and acreage.

[e] Population projections are based on 2.45 people per dwelling unit multiplied by the number of dwelling units. Persons per household sourced from U.S. Census Bureau QuickFacts for Crestline CDP, Persons Per Household, 2015-2019.

APPENDIX H

AWWA Free Water Audit Software: Water Balance

WAS v5.0

American Water Works Association.

Water Audit Report for:	Crestline Village Water District (CA3610015)
Reporting Year:	2016 — 1/2016 - 12/2016
Data Validity Score:	55

Own Sources (Adjusted for known errors) 216.198	Water Exported 0.000	Billed Water Exported			
	Water Supplied 635.843	Authorized Consumption 592.630	Billed Authorized Consumption 586.480	Billed Metered Consumption (water exported is removed) 586.480	Revenue Water 586.480
				Billed Unmetered Consumption 0.000	
			Unbilled Authorized Consumption 6.150	Unbilled Metered Consumption 0.000	Non-Revenue Water (NRW) 49.363
				Unbilled Unmetered Consumption 6.150	
		Water Losses 43.213	Apparent Losses 8.980	Unauthorized Consumption 1.590	
				Customer Metering Inaccuracies 5.924	
				Systematic Data Handling Errors 1.466	
Water Imported 419.644			Real Losses 34.233	Leakage on Transmission and/or Distribution Mains Not broken down	
				Leakage and Overflows at Utility's Storage Tanks Not broken down	
				Leakage on Service Connections Not broken down	

AWWA Free Water Audit Software: Water Balance

WAS v5.0

American Water Works Association.

Water Audit Report for:	Crestline Village Water District (CA3610015)
Reporting Year:	2017 — 1/2017 - 12/2017
Data Validity Score:	58

Own Sources (Adjusted for known errors)	Water Supplied	Authorized Consumption / Water Losses	Billed / Unbilled / Losses	Components	Revenue / Non-Revenue
	Water Exported *0.000*			Billed Water Exported	
Own Sources (Adjusted for known errors) *335.662*	Water Supplied *648.952*	Authorized Consumption *617.372*	Billed Authorized Consumption *609.995*	Billed Metered Consumption (water exported is removed) *609.995*	Revenue Water 609.995
				Billed Unmetered Consumption *0.000*	
			Unbilled Authorized Consumption *7.377*	Unbilled Metered Consumption *0.277*	Non-Revenue Water (NRW) 38.957
				Unbilled Unmetered Consumption *7.100*	
		Water Losses *31.580*	Apparent Losses *16.875*	Unauthorized Consumption *1.622*	
				Customer Metering Inaccuracies *13.728*	
				Systematic Data Handling Errors *1.525*	
Water Imported *313.290*			Real Losses *14.705*	Leakage on Transmission and/or Distribution Mains *Not broken down*	
				Leakage and Overflows at Utility's Storage Tanks *Not broken down*	
				Leakage on Service Connections *Not broken down*	

AWWA Free Water Audit Software: Water Balance

WAS v5.0

American Water Works Association.

Water Audit Report for:	Crestline Village Water District (CA3610015)
Reporting Year:	2018 — 1/2018 - 12/2018
Data Validity Score:	59

Own Sources (Adjusted for known errors) 283.569	Water Exported *0.000*			Billed Water Exported	
	Water Supplied *667.475*	Authorized Consumption *619.236*	Billed Authorized Consumption *613.409*	Billed Metered Consumption (water exported is removed) *613.409*	Revenue Water 613.409
				Billed Unmetered Consumption *0.000*	
			Unbilled Authorized Consumption *5.827*	Unbilled Metered Consumption *0.277*	Non-Revenue Water (NRW) 54.066
				Unbilled Unmetered Consumption *5.550*	
		Water Losses *48.239*	Apparent Losses *17.007*	Unauthorized Consumption *1.669*	
				Customer Metering Inaccuracies *13.805*	
				Systematic Data Handling Errors *1.534*	
Water Imported *383.906*			Real Losses *31.232*	Leakage on Transmission and/or Distribution Mains *Not broken down*	
				Leakage and Overflows at Utility's Storage Tanks *Not broken down*	
				Leakage on Service Connections *Not broken down*	

AWWA Free Water Audit Software: Water Balance

WAS v5.0

American Water Works Association.

Water Audit Report for:	Crestline Village Water District (CA3610015)	
Reporting Year:	2019	1/2019 - 12/2019
Data Validity Score:	60	

Own Sources (Adjusted for known errors) 497.700	Water Exported *0.000*			Billed Water Exported	
	Water Supplied *715.439*	Authorized Consumption *644.382*	Billed Authorized Consumption *638.360*	Billed Metered Consumption (water exported is removed) *638.360*	Revenue Water 638.360
				Billed Unmetered Consumption *0.000*	
			Unbilled Authorized Consumption *6.022*	Unbilled Metered Consumption *0.472*	Non-Revenue Water (NRW) 77.079
				Unbilled Unmetered Consumption *5.550*	
		Water Losses *71.057*	Apparent Losses *17.550*	Unauthorized Consumption *1.584*	
				Customer Metering Inaccuracies *14.370*	
				Systematic Data Handling Errors *1.596*	
Water Imported *217.739*			Real Losses *53.507*	Leakage on Transmission and/or Distribution Mains *Not broken down*	
				Leakage and Overflows at Utility's Storage Tanks *Not broken down*	
				Leakage on Service Connections *Not broken down*	

APPENDIX I

SB X7-7 VERIFICATION FORMS

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Hundred Cubic Feet
**The unit of measure must be consistent with Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	328,442	Hundred Cubic Feet
	2008 total volume of delivered recycled water	-	Hundred Cubic Feet
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range[3]	2010	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range[4]	2010	

[1] *If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If*

2 The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.

[3] *The ending year must be between December 31, 2004 and December 31, 2010.*

[4] *The ending year must be between December 31, 2007 and December 31, 2010.*

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☐	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☑	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	2001	7,176
Year 2	2002	7,276
Year 3	2003	7,363
Year 4	2004	7,506
Year 5	2005	7,503
Year 6	2006	7,645
Year 7	2007	7,615
Year 8	2008	7,519
Year 9	2009	7,339
Year 10	2010	7,277
5 Year Baseline Population		
Year 1	2006	7,645
Year 2	2007	7,615
Year 3	2008	7,519
Year 4	2009	7,339
Year 5	2010	7,277
2015 Compliance Year Population		
2015		7,588
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *								
Baseline Year *Fm SB X7-7 Table 3*		**Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**Deductions**					**Annual Gross Water Use**
			Exported Water	**Change in Dist. System Storage** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use**	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	2001	367,734			-		-	367,734
Year 2	2002	384,122			-		-	384,122
Year 3	2003	391,476			-		-	391,476
Year 4	2004	399,518			-		-	399,518
Year 5	2005	368,538			-		-	368,538
Year 6	2006	367,959			-		-	367,959
Year 7	2007	388,579			-		-	388,579
Year 8	2008	348,920			-		-	348,920
Year 9	2009	323,392			-		-	323,392
Year 10	2010	307,969			-		-	307,969
10 - 15 year baseline average gross water use								**364,821**
5 Year Baseline - Gross Water Use								
Year 1	2006	367,959			-		-	367,959
Year 2	2007	388,579			-		-	388,579
Year 3	2008	348,920			-		-	348,920
Year 4	2009	323,392			-		-	323,392
Year 5	2010	307,969			-		-	307,969
5 year baseline average gross water use								**347,364**
2015 Compliance Year - Gross Water Use								
2015		265,873	-		-		-	**265,873**
* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3								
NOTES:								

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)
Complete one table for each source.

Name of Source		Water purchased from CLAWA		
This water source is:				
☐	The supplier's own water source			
☑	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2001	212,582		212,582
Year 2	2002	268,619		268,619
Year 3	2003	259,788		259,788
Year 4	2004	244,889		244,889
Year 5	2005	77,055		77,055
Year 6	2006	107,503		107,503
Year 7	2007	203,416		203,416
Year 8	2008	143,983		143,983
Year 9	2009	144,677		144,677
Year 10	2010	94,616		94,616
5 Year Baseline - Water into Distribution System				
Year 1	2006	107,503		107,503
Year 2	2007	203,416		203,416
Year 3	2008	143,983		143,983
Year 4	2009	144,677		144,677
Year 5	2010	94,616		94,616
2015 Compliance Year - Water into Distribution System				
2015		154,756		154,756

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source		CVWD Wells		
This water source is:				
☑	The supplier's own water source			
☐	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,001	155152		155,152
Year 2	2,002	115503		115,503
Year 3	2,003	131688		131,688
Year 4	2,004	154629		154,629
Year 5	2,005	291483		291,483
Year 6	2,006	260456		260,456
Year 7	2,007	185163		185,163
Year 8	2,008	204937		204,937
Year 9	2,009	178715		178,715
Year 10	2,010	213353		213,353
5 Year Baseline - Water into Distribution System				
Year 1	2,006	260456		260,456
Year 2	2,007	185163		185,163
Year 3	2,008	204937		204,937
Year 4	2,009	178715		178,715
Year 5	2,010	213353		213,353
2015 Compliance Year - Water into Distribution System				
2015		111,117		111,117

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

☐

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

Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2001	7,176	367,734	105
Year 2	2002	7,276	384,122	108
Year 3	2003	7,363	391,476	109
Year 4	2004	7,506	399,518	109
Year 5	2005	7,503	368,538	101
Year 6	2006	7,645	367,959	99
Year 7	2007	7,615	388,579	105
Year 8	2008	7,519	348,920	95
Year 9	2009	7,339	323,392	90
Year 10	2010	7,277	307,969	87
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**101**

5 Year Baseline GPCD

Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2006	7,645	367,959	99
Year 2	2007	7,615	388,579	105
Year 3	2008	7,519	348,920	95
Year 4	2009	7,339	323,392	90
Year 5	2010	7,277	307,969	87
5 Year Average Baseline GPCD				**95**

2015 Compliance Year GPCD

2015	7,588	265,873	**72**

NOTES:

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	101
5 Year Baseline GPCD	95
2015 Compliance Year GPCD	72
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☐	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☑	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator

NOTES:

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐	94%	South Lahontan	170	162
☐	6%	South Coast	149	142
☐		Colorado River	211	200
Target *(If more than one region is selected, this value is calculated.)*				**161**
NOTES:				

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
95	N/A	161	**161**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.

[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.

NOTES: Volumes in GPCD.

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
161	101	**131**
NOTES: Volumes in GPCD.		

SB X7-7 Table 9: 2015 Compliance

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments *(in GPCD)*					2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
		Enter "0" if Adjustment Not Used			TOTAL Adjustments	Adjusted 2015 GPCD		
		Extraordinary Events	Weather Normalization	Economic Adjustment				
72	131	-	-	-	-	72	72	**YES**

NOTES:

SB X7-7 2020 Compliance Form

The SB X7-7 2020 Compliance Form is for the calculation of 2020 compliance only. All retail suppliers must complete the SB X7-7 Compliance Form. Baseline and target calculations are done in the SB X 7-7 Verification Form.

The SB X7-7 Verification Form is for the calculation of baselines and targets and is a separate workbook from the SB X7-7 2020 Compliance Form. Most Suppliers will have completed the SB X7-7 Verification Form with their 2015 UWMP and do not need to complete this form again in 2020. See Chapter 5 Section 5.3 of the UWMP Guidebook for more information regarding which Suppliers must, or may, complete the SB X7-7 Verification Form for their 2020 UWMP. 2020 compliance calculations are done in the SB X7-7 2020 Compliance Form.

Process Water Deduction tables will not be entered into WUE Data Portal tables.
SB X7-7 tables 4-C, 4-C.1, 4-C.2, 4-C.3, 4-C.4 and 4-D
A supplier that will use the process water deduction will complete the appropriate tables in Excel, submit them as a separate upload to the WUE Data Portal, and include them in its UWMP.

Where to submit? Suppliers submit the completed table data and UWMPs (including the Water Shortage Contingency Plan) electronically through the WUE Data Portal (https://wuedata.water.ca.gov/). The portal will be updated in Spring 2021 and will be announced to the urban listserv, DWR webpage and WUE Data Portal opening page when it is available for plan and table submittals.

Unlocking templates (use with caution): The templates provided in this workbook are formated to mirror the structure of information that is submitted through the WUE Data Portal for the electronic submission of Submittal Tables in the UWMP. The tables are offered in a protected (locked) version to maintain the structure of the templates. However, for those needing to adjust the tables for their own planning needs beyond the Submittal Tables, the password to 'unprotect' each worksheet is 'dwr' (no quotes). To unprotect the worksheet, go to the Review tab, select Unprotect Sheet, and enter the password 'dwr' in the pop-up (no quotes). Preparers will still need to submit the information using the original template structure provided. To redownload the templates in their original format, visit https://wuedata.water.ca.gov in the Resources button of the Urban Water Management Plan section (no login necessary).

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Hundred Cubic Feet
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 1 pertains to baselines and targets and is not used in the SB X7-7 2020 Compliance Form.

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:	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	8,215
NOTES: From DWR Population Tool.	

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	2020 Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	2020 Deductions					2020 Gross Water Use
		Exported Water *	Change in Dist. System Storage* (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use*	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	309,927			-		-	**309,927**

*** 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	Crestline Lake Arrowhead Water Agency		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☑	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	100,090	-	100,090

[1] ***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.* [2] ***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	Crestline Village Water District Wells		
This water source is *(check one)* **:**			
☑	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
	209,837		209,837

[1] ***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.* [2] ***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	Enter Name of Source 3		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 4		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 5		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 6		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 7		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 8		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 9		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 10		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 11		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 12		
This water source is *(check one)* **:**			
☐	The supplier's own water source		
☐	A purchased or imported source		
Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 13
This water source is *(check one)* **:**	
☐	The supplier's own water source

☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 14
This water source is *(check one)* **:**	
☐	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***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	Enter Name of Source 15
This water source is *(check one)* **:**	
☐	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional* *(+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***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.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-B: 2020 Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*									
2020 Compliance Year	**2020 Surface Reservoir Augmentation**					**2020 Groundwater Recharge**			**Total Deductible Volume of Indirect Recycled Water Entering the Distribution System**
	Volume Discharged from Reservoir for Distribution System Delivery[1]	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss[1]	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility[1,2]	Transmission/ Treatment Losses[1]	Recycled Volume Entering Distribution System from Groundwater Recharge	
			-		-			-	-

[1] ***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.*

[2] *Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.*

Data from this table will not be entered into WUEdata.
Instead, the entire table will be uploaded to WUEdata as a separate upload in Excel format.

SB X7-7 Table 4-C: 2020 Process Water Deduction Eligibility (For use only by agencies that are deducting process water) Choose Only One	
☐	**Criteria 1**- Industrial water use is equal to or greater than 12% of gross water use. Complete SB X7-7 Table 4-C.1
☐	**Criteria 2** - Industrial water use is equal to or greater than 15 GPCD. Complete SB X7-7 Table 4-C.2
☐	**Criteria 3** - Non-industrial use is equal to or less than 120 GPCD. Complete SB X7-7 Table 4-C.3
☐	**Criteria 4** - Disadvantaged Community. Complete SB x7-7 Table 4-C.4
NOTES:	

Data from this table will not be entered into WUEdata.
Instead, the entire table will be uploaded to WUEdata as a separate upload in Excel format.

SB X7-7 Table 4-C.1: 2020 Process Water Deduction Eligibility *(For use only by agencies that are deducting process water using Criteria 1)*

Criteria 1
Industrial water use is equal to or greater than 12% of gross water use

2020 Compliance Year	2020 Gross Water Use Without Process Water Deduction	2020 Industrial Water Use	Percent Industrial Water	**Eligible for Exclusion Y/N**
	309,927		0%	NO

NOTES:

Data from this table will not be entered into WUEdata.
Instead, the entire table will be uploaded to WUEdata as a separate upload in Excel format.

SB X7-7 Table 4-C.2: 2020 Process Water Deduction Eligibility *(For use only by agencies that are deducting process water using Criteria 2)*

Criteria 2
Industrial water use is equal to or greater than 15 GPCD

2020 Compliance Year	2020 Industrial Water Use	2020 Population	2020 Industrial GPCD	**Eligible for Exclusion Y/N**
		8,215	-	NO

NOTES:

Data from this table will not be entered into WUEdata.
Instead, the entire table will be uploaded to WUEdata as a separate upload in Excel format.

SB X7-7 Table 4-C.3: 2020 Process Water Deduction Eligibility *(For use only by agencies that are deducting process water using Criteria 3)*

Criteria 3
Non-industrial use is equal to or less than 120 GPCD

2020 Compliance Year	2020 Gross Water Use Without Process Water Deduction *Fm SB X7-7 Table 4*	2020 Industrial Water Use	2020 Non-industrial Water Use	2020 Population *Fm SB X7-7 Table 3*	Non-Industrial GPCD	**Eligible for Exclusion Y/N**
	309,927		309,927	8,215	77	YES

NOTES:

Data from this table will not be entered into WUEdata.
Instead, the entire table will be uploaded to WUEdata as a separate upload in Excel format.

SB X7-7 Table 4-C.4: 2020 Process Water Deduction Eligibility *(For use only by agencies that are deducting process water using Criteria 4)*

Criteria 4

Disadvantaged Community. A "Disadvantaged Community" (DAC) is a community with a median household income less than 80 percent of the statewide average.

SELECT ONE

"Disadvantaged Community" status was determined using one of the methods listed below:

1. IRWM DAC Mapping tool https://gis.water.ca.gov/app/dacs/

☐ If using the IRWM DAC Mapping Tool, include a screen shot from the tool showing that the service area is considered a DAC.

2. 2020 Median Income

	California Median Household Income*		Service Area Median Household Income	Percentage of Statewide Average	**Eligible for Exclusion? Y/N**
☐	**2020**	**$75,235**		0%	YES

*California median household income 2015 -2019 as reported in US Census Bureau QuickFacts.

NOTES

Data from these tables will not be entered into WUEdata. Instead, the entire tables will be uploaded to WUEdata as a separate upload in Excel format.

This table(s) is only for Suppliers that deduct process water from their 2020 gross water use.

SB X7-7 Table 4-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer	*Enter Name of Industrial Customer 1*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-

* **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-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer	*Enter Name of Industrial Customer 2*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-

* **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-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer	*Enter Name of Industrial Customer 3*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-

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NOTES:

SB X7-7 Table 4-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*					
Name of Industrial Customer	*Enter Name of Industrial Customer 4*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-
* **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-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*					
Name of Industrial Customer	*Enter Name of Industrial Customer 5*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-
* **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-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*					
Name of Industrial Customer	*Enter Name of Industrial Customer 6*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-
* **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-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*					
Name of Industrial Customer	*Enter Name of Industrial Customer 7*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-
* **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-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*					
Name of Industrial Customer	*Enter Name of Industrial Customer 8*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-
* **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-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*					
Name of Industrial Customer	*Enter Name of Industrial Customer 9*				
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-
* **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-D: 2020 Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*					
Name of Industrial Customer		*Enter Name of Industrial Customer 10*			
Compliance Year 2020	Industrial Customer's Total Water Use *	Total Volume Provided by Supplier*	% of Water Provided by Supplier	Customer's Total Process Water Use*	Volume of Process Water Eligible for Exclusion for this Customer
					-
* **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 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**
309,927	8,215	**77**
NOTES:		

SB X 7-7 Table 6 pertains to baselines and targets and is not used in the SB X7-7 2020 Compliance Form.

SB X7-7 Table 7 applies to baseline and target calculations and is not included in the SB X7-7 2020 Compliance Form.

SB X7-7 Table 8 was used for the 2015 Interim Target and is not used in the 2020 UWMP.

SB X7-7 Table 9: 2020 Compliance

Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD					2020 Confirmed Target GPCD [1, 2]	Did Supplier Achieve Targeted Reduction for 2020?
	Enter "0" if Adjustment Not Used			TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*		
	Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]				
77	-	-	-	-	77	161	**YES**

[1] *All values are reported in GPCD*

[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*

NOTES:

APPENDIX J

crestline village WATER DISTRICT

2015 Consumer Confidence Report

June 2016

We test the drinking water quality for many constituents as required by State and Federal Regulations. This report shows the results of our monitoring for the period of January 1 - December 31, 2015.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

Water Sources and Drinking Water Source Assessment information: Crestline Village Water District gets its water from two types of sources: **1) Local Ground Water**: A limited amount of ground water is obtained from 17 separate wells within the District. **2) Imported Surface Water**: Imported surface water is purchased from the Crestline-Lake Arrowhead Water Agency. Crestline-Lake Arrowhead Water Agency buys surface water at Silverwood Lake, treats it and then pumps it up the mountain for use by the District and other water users. Depending on the location of your property, you may receive a blend of local and imported water, or 100% local or imported water.

The District has prepared Drinking Water Source Assessments for all of its local ground water sources. The source assessments were completed in 2002 and are available for review at the District's office.

Board Meetings: The District is governed by a locally elected Board of Directors, which meets in a public meeting on the third Tuesday of each month at 3:00 pm at the District's office located at 777 Cottonwood Drive, Crestline, California.

Terms Used in this Report:

MCL or Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

PDWS or Primary Drinking Water Standards: MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

SDWS or Secondary Drinking Water Standards: MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.

PHG or Public Health Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

MCLG or Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).

MRDL or Maximum Residual Disinfection Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG or Maximum Residential Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NTU or Nephelometric Turbidity Units: A measurement of the clarity of water. Turbidity is the measurement of particles suspended in water. Turbidity results that meet performance standards are considered to be in compliance with filtration requirements.

AL or Regulatory Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

ND = Not detectable at testing limit.

ppm = Parts per million or milligrams per liter (mg/L)   **ppt** = Parts per trillion or nanograms per liter (ng/L)
ppb = Parts per billion or micrograms per liter (ug/L)   **pCi/L** = Picocuries per liter (a measure of radiation)

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

In order to ensure that tap water is safe to drink, USEPA and the State Water Resources Control Board (State Board), Division of Drinking Water prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, that can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agricultural application, and septic systems.
- *Radioactive contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities.

Additional Drinking Water Information:

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Crestline Village Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking and cooking. If you do so, you may wish to collect the flushed water and reuse it for another beneficial purpose, such as watering plants. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/lead.

For more information, please contact **David Sale** at **(909) 338-1727 Ext. 235**
or write to us at: **Crestline Village Water District**
PO Box 3347, Crestline, CA 92325-3347
E-mail: **cvwater@cvwater.com**   Website: **www.cvwater.com**

Crestline Village Water District ♦ 2015 Consumer Confidence Report

The following tables list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The State Board requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

SAMPLING RESULTS SHOWING THE DETECTION OF COLIFORM BACTERIA

Microbiological Contaminants	Highest No. of Detections	Violation	MCL	MCLG	Typical Source of Contaminant
Total Coliform Bacteria	(In a Month) 1	No	More than 1 sample in a month with a detection	0	Naturally present in the environment.
Fecal Coliform or *E. coli* *(at the ground water source)*	(In a year) 0	No	A routine sample and a repeat sample detect total coliform and either sample also detects fecal coliform or *E. coli*	0	Human or animal fecal waste..

SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER

Lead and Copper	No. of samples collected	90th percentile level detected	No. Sites exceeding AL	AL	MCLG	Typical Source of Contaminant
Lead (ppb)	20	ND	0	15	0.2	Internal corrosion of household plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.
Copper (ppm)	20	0.21	0	1.3	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

SAMPLING RESULTS FOR SODUIM AND HARDNESS

Chemical or Constituent	Ground Water		Surface Water		MCL	PHG or MCLG	Typical Source of Contaminant
	Level Detected	Range of Detections	Level Detected	Range of Detections			
Sodium (ppm)	12.33	9.30 – 18	84.31	75 – 96	N/A	N/A	"Sodium" refers to the salt present in the water and is generally naturally occurring.
Hardness (ppm)	86.67	57 - 130	112.50	100 – 120	N/A	N/A	"Hardness" is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.

CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD

Chemical or Constituent	Ground Water Level Detected	Ground Water Range of Detections	Surface Water Level Detected	Surface Water Range of Detections	MCL	PHG or MCLG	Typical Source of Contaminant
Fluoride (ppm)	0.05	ND - 0.22	0.16	0.12 - 0.18	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
Lead (ppb)	See Above	See Above	-	-	15	0.2	Internal corrosion of household plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.
Nitrate (ppm)	5.37	1.51 – 6.23	1.56	0 – 3.7	45	45	Erosion of natural deposits; runoff and leaching from septic tanks and sewage.
Gross Alpha (pCi/L)	4.03	1.55 – 10.43	-	-	15	None	Erosion of natural deposits.
Uranium (pCi/L)	11.83	4.65 – 19.50	-	-	20	0.5	Erosion of natural deposits.
TTHM (Total Trihalomethanes) (ppb) **	27.61	7.30 – 47.50	51	11.5 – 85.7	80	N/A	By-product of drinking water disinfection.
Haloacetic Acids (ppb) **	5.85	1.60 – 10.80	8	1.3 – 13.4	60	N/A	By-product of drinking water disinfection.
Turbidity (NTU) *	See below		0.11	0 – 0.3	5	N/A	Soil runoff.

*Turbidity Performance Standard: at least 95% of samples must be less than 0.3 NTU; Not exceed 1.0 NTU for more than eight consecutive hours; Not exceed 5.0 NTU at any time.

CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Chemical or Constituent	Ground Water Level Detected	Ground Water Range of Detections	Surface Water Level Detected	Surface Water Range of Detections	MCL	Typical Source of Contaminant
Chloride (ppm)	13.09	5.30 – 43.30	96.38	78 - 110	500	Leaching from natural deposits; seawater influence.
Manganese (ppb)	ND	ND	-	-	50	Leaching from natural deposits.
Sulfate (ppm)	8.67	2.50 - 21.0	87.06	63 – 93	500	Leaching from natural deposits.
Specific Conductance (uS/cm)	236.67	180 – 320	-	-	1600	Substances that form ions when in water.
Total Dissolved Solids (ppm)	179	134 – 333	363.13	340 – 400	1000	Erosion of natural deposits.
Foaming Agents (MBAS) (ppm)	-	-	-	-	500	Municipal and industrial waste discharges.
Odor – Threshold (Ton)	1.02	1 – 2.33	1	1 – 1	3	Naturally-occurring organic materials.
Iron (ppb)	-	-			300	Leaching from natural deposits; industrial wastes.
Zinc (ppb)	18.33	ND – 220	-	-	5000	Leaching from natural deposits.
Turbidity (NTU)*	0.24	<0.1 – 2.50	See above		5	Soil runoff.

UNREGULATED CONTAMINANTS

Chemical or Constituent	Ground Water Level Detected	Ground Water Range of Detections	Surface Water Level Detected	Surface Water Range of Detections	MCL	Typical Source of Contaminant
Boron (ppb)	ND	ND	250	200 - 270	1,000	Erosion of natural deposits.
Vanadium (ppb)	0.25	ND – 3.20	2.78	0 – 8.1	50	Erosion of natural deposits.
pH	6.95	6.90 – 7.1	7.85	7.2 – 8.2	6.5 - 8.5	

****Turbidity** is a measure of the cloudiness of the water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.*

*****Total Trihalomethanes** and **Haloacetic Acids** are reported as the Highest Locational Running Annual Average.*

2016 Consumer Confidence Report

June 2017

We test the drinking water quality for many constituents as required by State and Federal Regulations. This report shows the results of our monitoring for the period of January 1 - December 31, 2016.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

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- *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agricultural application, and septic systems.
- *Radioactive contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities.

Additional Drinking Water Information:

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If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Crestline Village Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking and cooking. If you do so, you may wish to collect the flushed water and reuse it for another beneficial purpose, such as watering plants. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/lead.

For more information, please contact **David Sale** at **(909) 338-1727 Ext. 235**
Or write to us at: **Crestline Village Water District**
PO Box 3347, Crestline, CA 92325-3347
E-mail: **cvwater@cvwater.com** Website: **www.cvwater.com**

Crestline Village Water District 💧 2016 Consumer Confidence Report

The following tables list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The State Board requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

SAMPLING RESULTS SHOWING THE DETECTION OF COLIFORM BACTERIA

Microbiological Contaminants	Highest No. of Detections	Violation	MCL	MCLG	Typical Source of Contaminant
Total Coliform Bacteria	(In a Month) 0	No	More than 1 sample in a month with a detection	0	Naturally present in the environment.
Fecal Coliform or *E. coli* *(at the ground water source)*	(In a year) 0	No	A routine sample and a repeat sample detect total coliform and either sample also detects fecal coliform or *E. coli*	0	Human or animal fecal waste.

SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER

Lead and Copper	No. of samples collected	90th percentile level detected	No. Sites exceeding AL	AL	MCLG	Typical Source of Contaminant
Lead (ppb)	20	ND	0	15	0.2	Internal corrosion of household plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.
Copper (ppm)	20	0.21	0	1.3	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

SAMPLING RESULTS FOR SODUIM AND HARDNESS

Chemical or Constituent	Ground Water		Surface Water		MCL	PHG or MCLG	Typical Source of Contaminant
	Level Detected	Range of Detections	Level Detected	Range of Detections			
Sodium (ppm)	12.33	9.30 – 18	81.44	69 – 98	N/A	N/A	“Sodium” refers to the salt present in the water and is generally naturally occurring.
Hardness (ppm)	86.67	57 - 130	103.00	87 – 110	N/A	N/A	“Hardness” is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.

CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD

Chemical or Constituent	Ground Water Level Detected	Ground Water Range of Detections	Surface Water Level Detected	Surface Water Range of Detections	MCL	PHG or MCLG	Typical Source of Contaminant
Fluoride (ppm)	0.05	ND - 0.22	0.08	0.0 - 0.17	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
Lead (ppb)	See Above	See Above	-	-	15	0.2	Internal corrosion of household plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.
Nitrate (ppm)	6.83	ND – 31.0	0.33	0 – .75	45	45	Erosion of natural deposits; runoff and leaching from septic tanks and sewage.
Gross Alpha (pCi/L)	4.03	1.55 – 10.43	-	-	15	None	Erosion of natural deposits.
Uranium (pCi/L)	11.82	4.65 – 19.00	-	-	20	0.5	Erosion of natural deposits.
TTHM (Total Trihalomethanes) (ppb) **	23.14	17.10 – 29.18	46.00**	6.6 – 40.2	80	N/A	By-product of drinking water disinfection.
Haloacetic Acids (ppb) **	5.08	3.48 – 6.68	7**	1.3 – 6.8	60	N/A	By-product of drinking water disinfection.
Turbidity (NTU) *	See below		0.07	0 – 0.07	5	N/A	Soil runoff.

*Turbidity Performance Standard: at least 95% of samples must be less than 0.3 NTU; Not exceed 1.0 NTU for more than eight consecutive hours; Not exceed 5.0 NTU at any time.

CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Chemical or Constituent	Ground Water Level Detected	Ground Water Range of Detections	Surface Water Level Detected	Surface Water Range of Detections	MCL	Typical Source of Contaminant
Chloride (ppm)	18.24	15.10 – 22.25	95.00	72 – 120	500	Leaching from natural deposits; seawater influence.
Manganese (ppb)	ND	ND	-	-	50	Leaching from natural deposits.
Sulfate (ppm)	8.67	2.50 - 21.0	66.94	39 – 93	500	Leaching from natural deposits.
Specific Conductance (uS/cm)	236.67	180 – 320	-	-	1600	Substances that form ions when in water.
Total Dissolved Solids (ppm)	176	145 – 255	337.50	290 – 410	1000	Erosion of natural deposits.
Foaming Agents (MBAS) (ppm)	-	-	-	-	500	Municipal and industrial waste discharges.
Odor – Threshold (Ton)	1.0	1.0 – 1.0	1	1 – 1	3	Naturally-occurring organic materials.
Iron (ppb)	-	-			300	Leaching from natural deposits; industrial wastes.
Zinc (ppb)	18.33	ND – 220	-	-	5000	Leaching from natural deposits.
Turbidity (NTU)*	0.25	<0.1 – 1.65	See above		5	Soil runoff.

UNREGULATED CONTAMINANTS

Chemical or Constituent	Ground Water Level Detected	Ground Water Range of Detections	Surface Water Level Detected	Surface Water Range of Detections	MCL	Typical Source of Contaminant
Boron (ppb)	ND	ND	188	0 – 250	1,000	Erosion of natural deposits.
Vanadium (ppb)	0.25	ND – 3.20	1.30	0 – 4.7	50	Erosion of natural deposits.
pH	6.95	6.95 – 6.95	8.04	7.8 – 8.3	6.5 - 8.5	

****Turbidity*** *is a measure of the cloudiness of the water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.*

****Total Trihalomethanes*** *and* ***Haloacetic Acids*** *are reported as the Highest Locational Running Annual Average.*

2017 Consumer Confidence Report

June 2018

We test the drinking water quality for many constituents as required by State and Federal Regulations. This report shows the results of our monitoring for the period of January 1 - December 31, 2017.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

Water Sources and Drinking Water Source Assessment information: Crestline Village Water District gets its water from two types of sources: **1) Local Ground Water**: A limited amount of ground water is obtained from 17 separate wells within the District. **2) Imported Surface Water**: Imported surface water is purchased from the Crestline-Lake Arrowhead Water Agency. Crestline-Lake Arrowhead Water Agency buys surface water at Silverwood Lake, treats it and then pumps it up the mountain for use by the District and other water users. Depending on the location of your property, you may receive a blend of local and imported water, or 100% local or imported water.

The District has prepared Drinking Water Source Assessments for all of its local ground water sources. The source assessments were completed in 2002 and are available for review at the District's office.

Board Meetings: The District is governed by a locally elected Board of Directors, which meets in a public meeting on the third Tuesday of each month at 3:00 pm at the District's office located at 777 Cottonwood Drive, Crestline, California.

Terms Used in this Report:

MCL or Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

PDWS or Primary Drinking Water Standards: MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

SDWS or Secondary Drinking Water Standards: MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.

PHG or Public Health Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

MCLG or Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).

MRDL or Maximum Residual Disinfection Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG or Maximum Residential Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NTU or Nephelometric Turbidity Units: A measurement of the clarity of water. Turbidity is the measurement of particles suspended in water. Turbidity results that meet performance standards are considered to be in compliance with filtration requirements.

AL or Regulatory Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

TT or Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

ND = Not detectable at testing limit.

ppm = Parts per million or milligrams per liter (mg/L) **ppt** = Parts per trillion or nanograms per liter (ng/L)
ppb = Parts per billion or micrograms per liter (ug/L) **pCi/L** = Picocuries per liter (a measure of radiation)

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

In order to ensure that tap water is safe to drink, U.S. EPA and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- *Radioactive contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities.

Additional Drinking Water Information:

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Crestline Village Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking and cooking. If you do so, you may wish to collect the flushed water and reuse it for another beneficial purpose, such as watering plants. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/lead.

For more information, please contact **David Sale** at **(909) 338-1727 Ext. 235**
Or write to us at: **Crestline Village Water District; PO Box 3347, Crestline, CA 92325-3347**
E-mail: **cvwater@cvwater.com** Website: **www.cvwater.com**

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER Este informe contiene informacion muy importante sobre su agua potable. Por favor hable con alguien que 10 pueda traducir.

Bacteriological Monitoring and Reporting Requirements Not Met for Crestline Village Water District During October 2017

Our water system recently violated a drinking water standard. Although this is not an emergency, as our customers, you have a right to know what happened, what you should do, and what we did to correct the situation.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During October 2017 we did not meet all monitoring or reporting requirements for bacteria and therefore cannot be sure of the quality of our drinking water during that time.

What should I do?

- You <u>do not</u> need to boil your water or take other corrective actions.

- The table below lists the contaminant we did not properly test for during the October 2017, how many samples we are required to take and how often, how many samples we took, when samples should have been taken, and the date on which follow-up samples were taken.

- If you have health issues concerning the consumption of this water, you may wish to consult your doctor.

What happened? What is being done?

Crestline Village Water District failed to take the required number of repeat samples following a positive sample. The repeat samples taken in the required timeframe were found to be negative.

Crestline Village Water District has reviewed and updated the District Groundwater Monitoring Plan which has been approved by the State Water Resources Control Board. District Water Operations Personnel have undergone sampling technique and sample frequency specialty training.

Contaminant	Required sampling frequency	Number of samples taken	Number of samples that should have been taken	When all samples should have been taken	When samples were taken
Total Coliform Repeat Sample Set	3 samples for every total coliform positive sample	2	6	October 2017	October 2017

Citation No. 05-13-17C-027: Crestline Village Water District resolved the cause of the citation immediately upon notification of violation. All requirements to satisfy the conditions of this citation will be resolved July 01, 2018 upon posting this report.

For more information, please contact: Crestline Village Water District at (909) 338-1727 or cvwater@cvwater.com

P.O. Box 3347, 777 Cottonwood Drive, Crestline, Ca 92325

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this public notice in a *public place* or *distributing copies by hand* or *mail.*

State Water System 10: 3610015. Date distributed: July 01, 2018

Crestline Village Water District ♦ 2017 Consumer Confidence Report

The following tables list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The State Board requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Microbiological Contaminants	**Highest No. of Detections**	**Violation**	**MCL**	**MCLG**	**Typical Source of Contaminant**	**Health Effects Language**
Total Coliform Bacteria (state Total Coliform Rule)	(In a Month) 1	No	More than 1 sample in a month with detection.	0	Naturally present in the environment.	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
Fecal Coliform or *E. coli* *(at the ground water source)*	(In a year) 0	No	Routine samples are total coliform positive, and one of these is also fecal coliform or *E. coli positive.*	0	Human or animal fecal waste.	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER

Lead and Copper	**No. of samples collected**	**90th percentile level detected**	**No. Sites exceeding AL**	**AL**	**MCLG**	**Typical Source of Contaminant**	**Health Effects Language**
Lead (ppb)	20	0.0052	0	15	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.
Copper (ppm)	20	0.31	0	1.3	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.

The number of schools requesting lead sampling: Zero (0)

SAMPLING RESULTS FOR SODIUM AND HARDNESS								
Chemical or Constituent	**Crestline Village Water District Ground Water**		**Crestline-Lake Arrowhead Water Agency Purchased Surface Water**		**MCL**	**PHG CLG**	**Typical Source of Contaminant**	**Health Effects Language**
	Level Detected	**Range of Detections**	**Level Detected**	**Range of Detections**				
Sodium (ppm)	13.42	9.30 – 18	47.44	34 – 73	N/A	N/A	"Sodium" refers to the salt present in the water and is generally naturally occurring.	
Hardness (ppm)	86.67	57 - 130	67.25	47 – 92	N/A	N/A	"Hardness" is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.	

CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD								
Chemical or Constituent	**Crestline Village Water District Ground Water**		**Crestline-Lake Arrowhead Water Agency Purchased Surface Water**		**MCL**	**PHG CLG**	**Typical Source of Contaminant**	**Health Effects Language**
	Level Detected	**Range of Detections**	**Level Detected**	**Range of Detections**				
Fluoride (ppm)	0.05	ND - 0.22	0.04	0.0 - 0.59	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.	Some people who drink water containing fluoride in excess of the federal MCL of 4 mg/L over many years may get bone disease, including pain and tenderness of the bones. Children who drink water containing fluoride in excess of the state MCL of 2 mg/L may get mottled teeth.
Lead (ppb)	See Above	See Above	-	-	15	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.

Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	PHG CLG	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections				
Nitrate (ppm) (as N)	2.18	ND – 9.0	0.26	0 – 0.58	45 (as N)	45 (as N)	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits.	Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the oxygen-carrying ability of the blood of pregnant women.
Gross Alpha (pCi/L) Reported Levels are before blending and entering the distribution system.	14.0 Reported Levels are after blending and entering the distribution system.	11 – *17 *Reported Levels are before blending and entering the distribution system.	_	_	15	(0)	Erosion of natural deposits.	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium (pCi/L)	5.28 Reported Levels are after blending and entering the distribution system.	2 –* 22 *Reported Levels are before blending and entering the distribution system.	_	_	20	0.43	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer.

DISINFECTION BYPRODUCTS, DISINFECTANT RESIDUALS, and DISINFECTION BYPRODUCT PRECURSORS

Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	PHG CLG	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections				
TTHM (Total Trihalomethanes) (ppb) **	10.41	0.0 – 21.20	44.00**	12.5 – 56.1	80	N/A	Byproduct of drinking water disinfection.	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience liver, kidney, or central nervous system problems, and may have an increased risk of getting cancer.
Haloacetic Acids (ppb) **	1.5	0.0 – 3.10	10**	0 – 8.3	60	N/A	Byproduct of drinking water disinfection.	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

TURBIDITY

Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	PHG CLG	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections				
Turbidity (NTU) * Crestline-Lake Arrowhead Water Agency	See below		0.07	0 – 0.07		N/A	Soil runoff.	Turbidity has no health effects. However, high levels of turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
Turbidity (NTU) * Crestline Village Water District	0.20	0.00 – 2.93	See Below		5	_	Soil runoff.	

* **Turbidity** is the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye, similar to smoke in air. The measurement of turbidity is part of a treatment process and is a key test of water quality. Turbidity Performance Standard: at least 95% of samples must be less than 0.3 Nephelometric Turbidity Units (**NTU**); Not exceed 1.0 NTU for more than eight consecutive hours; Not exceed 5.0 NTU at any time. Please refer to Crestline-Lake Arrowhead Water Agency Consumer Confidence Report for surface water treatment turbidity.

*****Total Trihalomethanes** and **Haloacetic Acids** are reported as the Highest Locational Running Annual Average.*

CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections			
Chloride (ppm)	12.28	4.80 – 43.30	52.44	27 – 110	500	Runoff/leaching from natural deposits; seawater influence.	
Sulfate (ppm)	9.11	2.50 - 21.0	37.75	28 – 47	500	Runoff/leaching from natural deposits; industrial wastes.	
Specific Conductance (uS/cm)	255.00	180 – 320	_	_	1600	Substances that form ions when in water; seawater influence.	
Total Dissolved Solids (ppm)	145	120 – 193	225	130 – 320	1000	Runoff/leaching from natural deposits.	
Foaming Agents (MBAS)	<0.10	<0.10			500	Municipal and industrial waste discharges.	
Odor – Threshold (Ton)	1.10	1 – 3.5	1	1 – 1	3	Naturally-occurring organic materials.	
Zinc (ppb)	16.92	ND – 220	_	_	5000	Runoff/leaching from natural deposits; industrial wastes.	

UNREGULATED CONTAMINANTS

Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections			
Boron (ppb)	ND	ND	81.25	0 – 140	1000	Erosion of natural deposits.	The babies of some pregnant women who drink water containing boron in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.
Vanadium (ppb)	0.25	ND – 3.20	1.30	0 – 4.7	50	Erosion of natural deposits.	The babies of some pregnant women who drink water containing vanadium in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.
pH	6.6	6.0 – 7.20	7.85	7.4 – 8.1	6.5 -8.5		

2018 Consumer Confidence Report

June 2019

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Or write to us at: **Crestline Village Water District; PO Box 3347, Crestline, CA 92325-3347**
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IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER Este informe contiene informacion muy importante sobre su agua potable. Por favor hable con alguien que l0 pueda traducir.

CCR violation: Reporting Requirements Not Met for

Crestline Village Water District

Notice of Citation No. **05-13-17C-023**

Our water system failed to report the 2011-2016 Consumer Confidence Reports and certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the State Water Resources Control Board on time and, therefore, was in violation of the regulations. Even though this failure was not an emergency, as our customers, you have a right to know what you should do, what happened, and what we did to correct this situation.

We are required to distribute the Consumer Confidence Report to our customers each year by July 1 and submit a copy of the report with certification that the report has been distributed to customers within three months. During 2011-2016 we did not submit our consumer confidence reports and certificates to the State Water Resources Control Board. Crestline Village Water District will comply with this requirement in future Consumer Confidence Report submittals.

What should I do?

- There is nothing you need to do at this time.
- The table below lists the Consumer Confidence Reports we did not properly submit to the State Water Resources Control Board with the appropriate dates.

Consumer Confidence Reporting Year	*Consumer Confidence Report Date Due to the State Water Resources Control Board*	*Date Submitted*	*Consumer Confidence Report Certification Date Due to the State Water Resources Control Board*	*Date Submitted*
2016	07/01/2017	07/01/2017	10/01/2017	11/01/2017
2015	07/01/2016	07/01/2017	10/01/2016	11/01/2017
2014	07/01/2015	07/01/2017	10/01/2015	11/01/2017
2013	07/01/2014	07/01/2017	10/01/2014	11/01/2017
2012	07/01/2013	07/01/2017	10/01/2013	11/01/2017
2011	07/01/2012	06/01/2017	10/01/2012	11/01/2017

Notice of Citation No. **05-13-17C-023**: Crestline Village Water District resolved the cause of the citation immediately upon notification of citation. All requirements to satisfy the conditions of this will be resolved July 01, 2019 upon posting this report.

123-TCP violation: 1,2,3-Trichloropropane Monitoring Requirements Not Met for Crestline Village CWD – Division 10 During Third Quarter of 2018

Notice of Violation No. **05-13-1SN-015**

Our water system recently violated a drinking water standard. Although this is not an emergency, as our customers, you have a right to know what happened, what you should do, and what we did to correct the situation.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During the calendar year 2018, we did not monitor for 1,2,3-trichloropropane from all the sources required during the third calendar quarter and therefore, cannot be sure of the quality of your drinking water during that time.

What should I do?

- The table below lists the contaminant we did not properly test for during the October 2018 quarter, how many samples we are required to take and how often, how many samples we took, when samples should have been taken, and the date on which follow-up samples were taken.

- If you have health issues concerning the consumption of this water, you may wish to consult your doctor.

What happened? Crestline Village Water District failed to take the required number of samples for each quarter.

What is being done? District Water Operations Personnel have undergone sample frequency specialty training. The samples missed in the third quarter of 2018 will be re-sampled during the third quarter of 2019.

The table found here specifies that there are 4 initial monitoring samples required for each quarter. The third quarter was missed and needs to be taken during the **3rd quarter of 2019**.

Contaminant	Required sampling frequency	Number of quarters sampled	Number of quarters that should have been taken	Quarter when sample should have been taken	When sample was taken
1,2,3-TRICHLOROPROPANE	4 Quarterly	3	4	October 2018	December 2018

Notice of Violation No. **05-13-1SN-015**: Crestline Village Water District resolved the cause of the violation immediately upon notification of violation. All requirements to satisfy the conditions of this will be resolved July 01, 2019 upon posting this report.

For more information, please contact: Crestline Village Water District at (909) 338-1727 or cvwater@cvwater.com

P.O. Box 3347, 777 Cottonwood Drive, Crestline, Ca 92325

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this public notice in a *public place* or *distributing copies by hand* or *mail.*

State Water System 10: 3610015. Date distributed: July 01, 2019

Crestline Village Water District ♦ 2018 Consumer Confidence Report

The following tables list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The State Board requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Microbiological Contaminants	Highest No. of Detections	Violation	MCL	MCLG	Typical Source of Contaminant	Health Effects Language
Total Coliform Bacteria (state Total Coliform Rule)	(In a Month) 1	No	More than 1 sample in a month with detection.	0	Naturally present in the environment.	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
Fecal Coliform or *E. coli* *(at the ground water source)*	(In a year) 0	No	Routine samples are total coliform positive, and one of these is also fecal coliform or *E. coli positive.*	0	Human or animal fecal waste.	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER							
Lead and Copper	**No. of samples collected**	**90th percentile level detected**	**No. Sites exceeding AL**	**AL**	**MCLG**	**Typical Source of Contaminant**	**Health Effects Language**
Lead (ppb)	20	0.0052	0	15	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.
Copper (ppm)	20	0.31	0	1.3	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.

The number of schools requesting lead sampling: Zero (0)

SAMPLING RESULTS FOR SODIUM AND HARDNESS								
Chemical or Constituent	**Crestline Village Water District Ground Water**		**Crestline-Lake Arrowhead Water Agency Purchased Surface Water**		**MCL**	**PHG CLG**	**Typical Source of Contaminant**	**Health Effects Language**
	Level Detected	**Range of Detections**	**Level Detected**	**Range of Detections**				
Sodium (ppm)	14.66	9.70 – 58.00	68.75	59 – 79	N/A	N/A	"Sodium" refers to the salt present in the water and is generally naturally occurring.	
Hardness (ppm)	86.67	57 - 130	95.06	89 – 100	N/A	N/A	"Hardness" is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.	
CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD								
Chemical or Constituent	**Crestline Village Water District Ground Water**		**Crestline-Lake Arrowhead Water Agency Purchased Surface Water**		**MCL**	**PHG CLG**	**Typical Source of Contaminant**	**Health Effects Language**
	Level Detected	**Range of Detections**	**Level Detected**	**Range of Detections**				
Fluoride (ppm)	0.03	ND - 0.21	0.0	0.0 - 0.0	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.	Some people who drink water containing fluoride in excess of the federal MCL of 4 mg/L over many years may get bone disease, including pain and tenderness of the bones. Children who drink water containing fluoride in excess of the state MCL of 2 mg/L may get mottled teeth.

Lead (ppb)	See Above	See Above	-	-	15	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.

Chemical or Constituent	**Crestline Village Water District Ground Water**		**Crestline-Lake Arrowhead Water Agency Purchased Surface Water**		**MCL**	**PHG CLG**	**Typical Source of Contaminant**	**Health Effects Language**
	Level Detected	**Range of Detections**	**Level Detected**	**Range of Detections**				
Nitrate (ppm) (as N)	1.87	ND – 7.40	0.18	0 – 0.68	10 (as N)	10 (as N)	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits.	Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the oxygen-carrying ability of the blood of pregnant women.
Gross Alpha (pCi/L) Reported Levels are before blending and entering the distribution system.	18.5 Reported Levels are after blending and entering the distribution system.	16 – *23 *Reported Levels are before blending and entering the distribution system.	–	–	15	(0)	Erosion of natural deposits.	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	PHG CLG	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections				
Uranium (pCi/L)	6.30 Reported Levels are after blending and entering the distribution system.	2.0 –* 29 *Reported Levels are before blending and entering the distribution system.	_	_	20	0.43	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer.
DISINFECTION BYPRODUCTS, DISINFECTANT RESIDUALS, and DISINFECTION BYPRODUCT PRECURSORS								
Chemical or Constituent	**Crestline Village Water District Ground Water**		**Crestline-Lake Arrowhead Water Agency Purchased Surface Water**		**MCL**	**PHG CLG**	**Typical Source of Contaminant**	**Health Effects Language**
	Level Detected	**Range of Detections**	**Level Detected**	**Range of Detections**				
TTHM (Total Trihalomethanes) (ppb) **	27.30	14.6 – 33.8	44.2**	12.9 – 68.1	80	N/A	Byproduct of drinking water disinfection.	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience liver, kidney, or central nervous system problems, and may have an increased risk of getting cancer.
Haloacetic Acids (ppb) **	3.66	2.0 – 5.5	5**	1.4 – 6.8	60	N/A	Byproduct of drinking water disinfection.	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
TURBIDITY								
Chemical or Constituent	**Crestline Village Water District Ground Water**		**Crestline-Lake Arrowhead Water Agency Purchased Surface Water**		**MCL**	**PHG CLG**	**Typical Source of Contaminant**	**Health Effects Language**
	Level Detected	**Range of Detections**	**Level Detected**	**Range of Detections**				

Turbidity (NTU) * Crestline-Lake Arrowhead Water Agency	See below		0.5	0 – 0.5		N/A	Soil runoff.	Turbidity has no health effects. However, high levels of turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
Turbidity (NTU) * Crestline Village Water District	0.15	<0.00–1.65	See Below		5	–	Soil runoff.	

* **Turbidity** is the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye, similar to smoke in air. The measurement of turbidity is part of a treatment process and is a key test of water quality. Turbidity Performance Standard: at least 95% of samples must be less than 0.3 Nephelometric Turbidity Units (**NTU**); Not exceed 1.0 NTU for more than eight consecutive hours; Not exceed 5.0 NTU at any time. Please refer to Crestline-Lake Arrowhead Water Agency Consumer Confidence Report for surface water treatment turbidity.

*****Total Trihalomethanes** and **Haloacetic Acids** are reported as the Highest Locational Running Annual Average.*

CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections			
Chloride (ppm)	8.74	5.30 – 21.00	85.44	74 – 110	500	Runoff/leaching from natural deposits; seawater influence.	
Sulfate (ppm)	8.54	2.60 - 22.0	49.00	39 – 60	500	Runoff/leaching from natural deposits; industrial wastes.	
Specific Conductance (uS/cm)	244.12	180 – 490	–	–	1600	Substances that form ions when in water; seawater influence.	
Total Dissolved Solids (ppm)	142	145 – 255	299.38	280 – 320	1000	Runoff/leaching from natural deposits.	
Foaming Agents (MBAS)	<0.10	<0.10			500	Municipal and industrial waste discharges.	
Odor – Threshold (Ton)	1.11	1 – 2	1	1 – 1	3	Naturally-occurring organic materials.	
Zinc (ppb)	ND	ND	–	–	5000	Runoff/leaching from natural deposits; industrial wastes.	

UNREGULATED CONTAMINANTS

Chemical or Constituent	Crestline Village Water District Ground Water	Crestline-Lake Arrowhead Water Agency Purchased Surface Water	MCL	Typical Source of Contaminant	Health Effects Language

	Level Detected	Range of Detections	Level Detected	Range of Detections			
Boron (ppb)	10	ND-170	144.38	0 – 170	1000	Erosion of natural deposits.	The babies of some pregnant women who drink water containing boron in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.
Vanadium (ppb)	0.51	ND – 5.10	1.30	0 – 4.7	50	Erosion of natural deposits.	The babies of some pregnant women who drink water containing vanadium in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.
pH	6.6	6.0 – 7.20	8.10	7.8 – 8.5	6.5 -8.5		

2019 Consumer Confidence Report

June 2020

We test the drinking water quality for many constituents as required by State and Federal Regulations. This report shows the results of our monitoring for the period of January 1 - December 31, 2019.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien.

Water Sources and Drinking Water Source Assessment information: Crestline Village Water District gets its water from two types of sources: **1) Local Ground Water**: A limited amount of ground water is obtained from 17 separate wells within the District. **2) Imported Surface Water**: Imported surface water is purchased from the Crestline-Lake Arrowhead Water Agency. Crestline-Lake Arrowhead Water Agency buys surface water at Silverwood Lake, treats it and then pumps it up the mountain for use by the District and other water users. Depending on the location of your property, you may receive a blend of local and imported water, or 100% local or imported water.

The District has prepared Drinking Water Source Assessments for all of its local ground water sources. The source assessments were completed in 2002 and are available for review at the District's office.

Board Meetings: The District is governed by a locally elected Board of Directors, which meets in a public meeting on the third Tuesday of each month at 3:00 pm at the District's office located at 777 Cottonwood Drive, Crestline, California.

Terms Used in this Report:

MCL or Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

PDWS or Primary Drinking Water Standards: MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

SDWS or Secondary Drinking Water Standards: MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.

PHG or Public Health Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

MCLG or Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).

MRDL or Maximum Residual Disinfection Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG or Maximum Residential Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NTU or Nephelometric Turbidity Units: A measurement of the clarity of water. Turbidity is the measurement of particles suspended in water. Turbidity results that meet performance standards are considered to be in compliance with filtration requirements.

AL or Regulatory Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

TT or Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

ND = Not detectable at testing limit.

ppm = Parts per million or milligrams per liter (mg/L) **ppt** = Parts per trillion or nanograms per liter (ng/L)
ppb = Parts per billion or micrograms per liter (ug/L) **pCi/L** = Picocuries per liter (a measure of radiation)

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

In order to ensure that tap water is safe to drink, U.S. EPA and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- *Radioactive contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities.

Additional Drinking Water Information:

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Crestline Village Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking and cooking. If you do so, you may wish to collect the flushed water and reuse it for another beneficial purpose, such as watering plants. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/lead.

For more information, please contact **David Sale** at **(909) 338-1727 Ext. 235**
Or write to us at: **Crestline Village Water District; PO Box 3347, Crestline, CA 92325-3347**
E-mail: **cvwater@cvwater.com** Website: **www.cvwater.com**

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER Este informe contiene informacion muy importante sobre su agua potable. Por favor hable con alguien que l0 pueda traducir.

Nitrate Monitoring Requirements

Not Met for Crestline Village CWD - Division 10 During 2019

We are required to distribute the Consumer Confidence Report to our customers each year by July 1 and submit a copy of the report with certification that the report has been distributed to customers within three months.

Our water system failed to monitor as required for drinking water standards during 2019 and, therefore was in violation of the regulations. Although this is not an emergency, as our customers, you have a right to know what happened, what you should do, and what we did to correct the situation.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During calendar year 2019, we did not collect nitrate samples from the sources listed in the table below and therefore, cannot be sure of the quality of our drinking water during that time.

What should I do?

- There is nothing you need to do at this time.
- The table below lists the contaminant we did not properly test for during the calendar year 2019, how many samples we are required to take and how often, how many samples we took, when samples should have been taken, and the date on which follow-up samples will be taken.

Contaminant	Required sampling frequency	Number of samples taken	When all samples should have been taken	When samples will be taken
Nitrate	Minimum is one sample annually from CHAMOIS VERTICAL WELL	None	During calendar year 2019	03/17/2020

- If you have health issues concerning the consumption of this water, you may wish to consult your doctor.

What happened? *The minimum (1) required nitrate sample was not taken by 12/31/2019.*

What is being done? *A replacement sample has been taken 03/17/2020.*

The citation was posted at;

- *Goodwins Market.*
- *The U.S. Post Office.*
- *California Bank & Trust.*
- *The Public was notified by a billing alert message on the monthly water bill to see Water System Citations on our website www.cvwater.com. and will be emailed to those customers with an email address on file.*
- *A copy was sent directly to the Principal of Valley of Enchantment Elementary School.*

Notice of Citation No. **05-13-20C-012**: Crestline Village Water District resolved the cause of the citation immediately upon notification of citation. All requirements to satisfy the conditions of this will be resolved July 01, 2020 upon posting this report.

Crestline Village Water District ♦ 2019 Consumer Confidence Report

The following tables list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The State Board requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Microbiological Contaminants	Highest No. of Detections	Violation	MCL	MCLG	Typical Source of Contaminant	Health Effects Language
Total Coliform Bacteria (state Total Coliform Rule)	(In a Month) 0	No	More than 1 sample in a month with detection.	0	Naturally present in the environment.	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
Fecal Coliform or *E. coli* *(at the ground water source)*	(In a year) 0	No	Routine samples are total coliform positive, and one of these is also fecal coliform or *E. coli positive.*	0	Human or animal fecal waste.	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER							
Lead and Copper	**No. of samples collected**	**90th percentile level detected**	**No. Sites exceeding AL**	**AL**	**MCLG**	**Typical Source of Contaminant**	**Health Effects Language**
Lead (ppb)	20	0.0052	0	15	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.
Copper (ppm)	20	0.31	0	1.3	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.

The number of schools requesting lead sampling in 2019: One (1). Lead and Copper Samples were taken in 2018 and were not required to be sampled in 2019.

SAMPLING RESULTS FOR SODIUM AND HARDNESS								
Chemical or Constituent	**Crestline Village Water District Ground Water**		**Crestline-Lake Arrowhead Water Agency Purchased Surface Water**		**MCL**	**PHG CLG**	**Typical Source of Contaminant**	**Health Effects Language**
	Level Detected	**Range of Detections**	**Level Detected**	**Range of Detections**				
**Sodium (ppm)	14.66	9.70 – 58.00	61.38	40 – 87	N/A	N/A	"Sodium" refers to the salt present in the water and is generally naturally occurring.	
**Hardness (ppm)	86.67	57 - 130	83.88	59 – 110	N/A	N/A	"Hardness" is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.	

CONTAMINANTS WITH A <u>PRIMARY</u> DRINKING WATER STANDARD								
Chemical or Constituent	**Crestline Village Water District Ground Water**		**Crestline-Lake Arrowhead Water Agency Purchased Surface Water**		**MCL**	**PHG CLG**	**Typical Source of Contaminant**	**Health Effects Language**
	Level Detected	**Range of Detections**	**Level Detected**	**Range of Detections**				
**Fluoride (ppm)	0.03	ND - 0.21	0.0	0.0 - 0.0	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.	Some people who drink water containing fluoride in excess of the federal MCL of 4 mg/L over many years may get bone disease, including pain and tenderness of the bones. Children who drink water containing fluoride in excess of the state MCL of 2 mg/L may get mottled teeth.
Lead (ppb)	See Above	See Above	-	-	15	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.	Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure.

	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	PHG CLG	Typical Source of Contaminant	Health Effects Language
	Level Detected	**Range of Detections**	**Level Detected**	**Range of Detections**				
**Nitrate (ppm) (as N)	1.51	ND – 7.40	0.03	0 – 0.40	10 (as N)	10 (as N)	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits.	Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the oxygen-carrying ability of the blood of pregnant women.
Gross Alpha (pCi/L) Reported Levels are before blending and entering the distribution system.	18.5 Reported Levels are after blending and entering the distribution system.	16 – *23 Reported Levels are before blending and entering the distribution system.	–	–	15	(0)	Erosion of natural deposits.	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium (pCi/L)	8.06 Reported Levels are after blending and entering the distribution system.	2.0 –* 20.0 *Reported Levels are before blending and entering the distribution system.	–	–	20	0.43	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer.

DISINFECTION BYPRODUCTS, DISINFECTANT RESIDUALS, and DISINFECTION BYPRODUCT PRECURSORS

Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	PHG CLG	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections				
**TTHM (Total Trihalomethanes) (ppb) **	27.30	14.6 – 33.8	44.2**	12.9 – 68.1	80	N/A	Byproduct of drinking water disinfection.	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience liver, kidney, or central nervous system problems, and may have an increased risk of getting cancer.
**Haloacetic Acids (ppb) *	3.66	2.0 – 5.5	5**	1.4 – 6.8	60	N/A	Byproduct of drinking water disinfection.	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

TURBIDITY

Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	PHG CLG	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections				
Turbidity (NTU) * Crestline-Lake Arrowhead Water Agency	See below		0.5	0 – 0.5		N/A	Soil runoff.	Turbidity has no health effects. However, high levels of turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
Turbidity (NTU) * Crestline Village Water District	0.15	<0.00–1.65	See Below		5	_	Soil runoff.	

* **Turbidity** is the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye, similar to smoke in air. The measurement of turbidity is part of a treatment process and is a key test of water quality. Turbidity Performance Standard: at least 95% of samples must be less than 0.3 Nephelometric Turbidity Units (**NTU**); Not exceed 1.0 NTU for more than eight consecutive hours; Not exceed 5.0 NTU at any time. Please refer to Crestline-Lake Arrowhead Water Agency Consumer Confidence Report for surface water treatment turbidity.

***Total Trihalomethanes and Haloacetic Acids are reported as the Highest Locational Running Annual Average.*

CONTAINANTS WITH A SECONDARY DRINKING WATER STANDARD							
Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections			
Chloride (ppm)	7.08	5.30 – 21.00	85.44	74 – 110	500	Runoff/leaching from natural deposits; seawater influence.	
Sulfate (ppm)	6.91	2.60 - 22.0	49.00	39 – 60	500	Runoff/leaching from natural deposits; industrial wastes.	
*Specific Conductance (uS/cm)	244.12	180 – 490	_	_	1600	Substances that form ions when in water; seawater influence.	
Total Dissolved Solids (ppm)	142	120 – 280	299.38	280 – 320	1000	Runoff/leaching from natural deposits.	
Foaming Agents (MBAS)	<0.10	<0.10			500	Municipal and industrial waste discharges.	
Odor – Threshold (Ton)	1.10	1 – 2	1	1 – 1	3	Naturally-occurring organic materials.	
Zinc (ppb)	ND	ND	_	_	5000	Runoff/leaching from natural deposits; industrial wastes.	

UNREGULATED CONTAMINANTS							
Chemical or Constituent	Crestline Village Water District Ground Water		Crestline-Lake Arrowhead Water Agency Purchased Surface Water		MCL	Typical Source of Contaminant	Health Effects Language
	Level Detected	Range of Detections	Level Detected	Range of Detections			
Boron (ppb)	8.10	ND-170	144.38	0 – 170	1000	Erosion of natural deposits.	The babies of some pregnant women who drink water containing boron in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.
Vanadium (ppb)	0.41	ND – 3.50	1.30	0 – 4.7	50	Erosion of natural deposits.	The babies of some pregnant women who drink water containing vanadium in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.
pH	6.6	6.0 – 7.20	8.10	7.8 – 8.5	6.5 -8.5		

Crestline-Lake Arrowhead Water Agency (CLAWA)
2015 Water Quality Report

We are pleased to present CLAWA's Annual Water Quality Report for 2015. This report is designed to inform you about the quality of water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to protect your water supply. We are committed to ensuring the quality of your water.

Last year, as in years past, your tap water met all USEPA and State drinking Water health standards. CLAWA vigilantly safeguards its water supplies, and once again we are proud to report that our system did not violate any water quality standard. This brochure is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards. We are committed to providing you with information because informed customers are our best allies.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

Drinking Water Contaminants
The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:
- *Microbial contaminants,* such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides*, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- *Radioactive contaminants,* that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to insure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

CLAWA's Water Supply
All of CLAWA's water supply is surface water from Silverwood Lake, a reservoir of the State Water Project which is operated by the California Department of Water Resources. Silverwood Lake is fed by streams which carry runoff from the local mountains, and also contains imported water which is diverted from the San Francisco-San Joaquin Delta and transported to Southern California in man-made canals. Contamination of the imported water supply can occur at any point along its journey to Silverwood Lake, or from sources within the Silverwood Lake watershed itself. In 2011, DWR published an updated Sanitary Survey Report of all watersheds tributary to the State Water Project, including the Silverwood Lake watershed. Copies of that report can be obtained by contacting the State Water Contractors at (916) 447-7357.

CLAWA pumps surface water from Silverwood Lake, treats and disinfects the water at a "multi-barrier" treatment plant located near the south shore of the Lake, then pumps the treated water uphill to CLAWA's storage and pipeline distribution system which extends from Job's Peak, near Cedarpines Park, eastward to Green Valley Lake.

Water Conservation
Water conservation remains a high priority throughout the State. Please continue to implement the following measures: (1) Protect against frozen pipes. Install and utilize shut-off valves on your side of the meter, and then drain your on-site water system as appropriate. Insulate water pipes outside the structure and in the crawl space beneath the structure. (2) Install low-flow showerheads and toilet tank displacement devices. (3) Repair leaky faucets and valves. A leaky faucet can waste 1,500 gallons per month. (4) Use buckets instead of running hoses to wash vehicles, equipment and structures. (5) Use brooms rather than hoses to clean sidewalks and driveways. (6) Minimize landscape irrigation, especially during hot summer days to reduce evaporation.

Additional Information
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to

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If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. CLAWA is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

CLAWA does not add fluoride to the water it supplies. Additional information regarding fluoridation of water, oral health, and current issues is available from http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml

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- **PHG**: Public Health Goal – The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
- **PDWS**: Primary Drinking Water Standard – MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.
- **MRDL**: Maximum Residual Disinfectant Level – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
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Questions

If you have any questions regarding the information contained in this report, please contact Stephen Taylor II at (909) 338-1779. We want our customers to be informed about the water system that serves them. If you want to learn more, please attend any of our regularly scheduled Board meetings, which are held the first Thursday of every month at 2:00 p.m.

Water Quality Data

CLAWA routinely monitors for contaminants in your drinking water according to State and Federal laws. In 2015, CLAWA monitored the source and treated water continuously and had analyses performed by State certified laboratories for all regulated and many unregulated constituents. Of the many constituents that can be present in a water supply, CLAWA's test results reveal that only a few were detected in CLAWA's treated water.

The tables on the next pages show the results of our monitoring for the period of January 1 to December 31, 2015.

*Total Trihalomethanes and Haloacetic Acids are reported as the Highest Locational Running Annual Average.

**Turbidity is monitored continuously because it is a good indicator of the effectiveness of our treatment system. Turbidity measures the cloudiness of water. The Agency uses a conventional treatment process to reduce turbidity.

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TEST RESULTS							
Contaminant	**Violation Y/N**	**Average Level Detected**	**Range of Levels Detected**	**Units**	**MCL**	**PHG (MCLG)**	**Major Sources in Drinking Water**
PRIMARY STANDARDS							
Total Trihalomethanes*	N	51*	11.5-85.7	uG/l	80	N/A	By-product of drinking water disinfection
Haloacetic Acids*	N	8*	1.3-13.4	uG/l	60	N/A	By-product of drinking water disinfection
Inorganic Chemicals							
Fluoride (naturally occurring)	N	.16	.12-.18	mg/l	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as NO3)	N	1.56	0-3.7	mg/l	45	45	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
SECONDARY STANDARDS							
Chloride	N	96.38	78-110	mg/l	500	N/A	Runoff/leaching from natural deposits; seawater influence
Sulfate	N	87.06	63-93	mg/l	500	N/A	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	N	363.13	340-400	mg/l	1000	N/A	Erosion of natural deposits
Turbidity**	N	0.23	0-1	NTU	5	N/A	Soil Runoff
OTHER CONSTITUENTS							
Sodium	N	84.31	75-96	mg/l	N/A	N/A	"Sodium" refers to the salt present in the water and is generally naturally occurring
Total Hardness	N	112.50	100-120	mg/l	N/A	N/A	"Hardness" is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.
Odor - Threshold	N	1	1-1	TON	3	N/A	Naturally occurring organic materials
Unregulated Contaminants* **							
Boron	N	250	200-270	uG/l	1000	N/A	Erosion of natural deposits
Vanadium	N	2.78	0-8.1	uG/l	50	N/A	Erosion of natural deposits
pH	N	7.85	7.2-8.2	Unit	6.5-8.5	N/A	
Lead and Copper		No. of Samples Collected	90th Percentile Level Detected	No. Sites Exceeding AL	AL	MCLG	
Lead (uG/l)	N	11	0 ug/L	0	15	2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.
Copper (uG/l)	N	11	73 ug/L	0	1300	170	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

SAMPLING RESULTS SHOWING TREATMENT OF SURFACE WATER SOURCES	
Treatment Technique [a] (Type of approved filtration technology used)	Conventional Treatment with multimedia pressure filters
Turbidity Performance Standards [b] (that must be met through the water treatment process)	Turbidity of the filtered water must: 1 – Be less than or equal to _0.3__ NTU in 95% of measurements in a month. 2 – Not exceed _1.0_ NTU for more than eight consecutive hours. 3 – Not exceed _5.0_ NTU at any time.
Lowest monthly percentage of samples that met Turbidity Performance Standard No. 1.	100%
Highest single turbidity measurement during the year	0.12 NTU
Number of violations of any surface water treatment requirements	0

(a) A required process intended to reduce the level of a contaminant in drinking water.

(b) Turbidity (measured in NTU) is a measurement of the cloudiness of water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.

Drought Conditions Continue in California

Please be aware that the following practices are ***prohibited*** by Agency Ordinance Number 59 during this severe drought:

- Running water into streets or gutters.
- Washing automobiles or equipment with running water (as opposed to use of a bucket, other container or a commercial wash establishment using recycled or reclaimed water).
- Washing down buildings (except windows), walks, driveways or streets.
- Sprinkling for dust control.
- Water displays or ornamental water use, except when the display uses reclaimed or recycled water.
- Dripping faucets, or other leaks, or unattended or excessively running hoses.
- Watering lawns, parks, playgrounds or ball fields ***more than twice per week***, which **watering must occur after 9:00 p.m. and before 3:00 a.m.**; provided there shall be no prohibition against watering with reclaimed water.

The State Water Resources Control Board has also adopted its own regulations which make it an infraction to waste water, including fines of $500 per day for violations. Until further notice, all California residents are subject to the following:

- Washing down driveways and sidewalks is a violation of state law.
- Watering outdoor landscapes that cause excessive runoff is also a violation.
- Using a hose to wash a vehicle is a violation, unless the hose is fitted with a shut-off nozzle.
- Using potable water in a fountain or decorative water feature is a violation, unless the water is recirculated.
- Outdoor irrigation is limited to **twice per week**.
- Indoor water use should be limited to no more than 55 gallons per day, per person.
- Water use should be reduced a minimum of 25%, compared to 2013 usage.
- It is a violation to irrigate outdoors within 48 hours following measureable rainfall.
- Restaurants shall not serve water to customers, unless it is requested.
- Hotels and motels must offer their guests the option to not have their linens and towels laundered daily. This option must be prominently displayed in each guest room.

Please be aware that the State Water Resources Control Board can issue cease and desist orders to water suppliers for failure to meet conservation standards. Water agencies that violate cease and desist orders are subject to a civil liability of up to $10,000 a day. If the Agency cannot meet conservation standards and is fined, those fines will be passed on to the Agency's customers in the form of added fees or increased water rates.

Remember, the water you save this year will allow the Agency to continue serving drinking water and water for fire protection in the future.

Crestline-Lake Arrowhead Water Agency (CLAWA)
2016 Water Quality Report

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PRIMARY STANDARDS							
Total Trihalomethanes*	N	46*	6.6-40.2	uG/l	80	N/A	By-product of drinking water disinfection
Haloacetic Acids*	N	7*	1.3-6.8	uG/l	60	N/A	By-product of drinking water disinfection
Inorganic Chemicals							
Fluoride (naturally occurring)	N	.08	0-.17	mg/l	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as NO3)	N	.33	0-.75	mg/l	45	45	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
SECONDARY STANDARDS							
Chloride	N	95.00	72-120	mg/l	500	N/A	Runoff/leaching from natural deposits; seawater influence
Sulfate	N	66.94	39-93	mg/l	500	N/A	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	N	337.50	290-410	mg/l	1000	N/A	Erosion of natural deposits
Turbidity**	N	<.10	<.10 -.30	NTU	5	N/A	Soil Runoff
OTHER CONSTITUENTS							
Sodium	N	81.44	69-98	mg/l	N/A	N/A	"Sodium" refers to the salt present in the water and is generally naturally occurring
Total Hardness	N	103.00	87-110	mg/l	N/A	N/A	"Hardness" is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.
Iron	N	ND	ND	ug/l	300	N/A	Leaching from natural deposits; industrial wastes
Odor - Threshold	N	1	1-1	TON	3	N/A	Naturally occurring organic materials
Unregulated Contaminants* **							
Boron	N	188.13	0-250	uG/l	1000	N/A	Erosion of natural deposits
Vanadium	N	1.30	0-4.7	uG/l	50	N/A	Erosion of natural deposits
pH	N	8.04	7.8-8.3	Unit	6.5-8.5	N/A	
Lead and Copper		Number of Samples Collected	90th Percentile Level Detected	Number of Sites Exceeding AL	AL	PHG (MCLG)	
Lead (uG/l)	N	11	0 ug/L	0	15	.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.
Copper (uG/l)	N	11	.073 mg/L	0	1.3	.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

SAMPLING RESULTS SHOWING TREATMENT OF SURFACE WATER SOURCES	
Treatment Technique [a] (Type of approved filtration technology used)	Conventional Treatment with multimedia pressure filters
Turbidity Performance Standards [b] (that must be met through the water treatment process)	Turbidity of the filtered water must: 1 – Be less than or equal to _0.3__ NTU in 95% of measurements in a month. 2 – Not exceed _1.0_ NTU for more than eight consecutive hours. 3 – Not exceed _5.0_ NTU at any time.
Lowest monthly percentage of samples that met Turbidity Performance Standard No. 1.	100%
Highest single turbidity measurement during the year	0.07 NTU
Number of violations of any surface water treatment requirements	0

(a) A required process intended to reduce the level of a contaminant in drinking water.

(b) Turbidity (measured in NTU) is a measurement of the cloudiness of water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.

Drought Update

The Governor has lifted the drought status within most of California; however, the following activities are still prohibited:

- Running water into streets or gutters.
- Dripping faucets, or other leaks, or unattended or excessively running hoses.
- Watering outdoor landscapes that cause excessive runoff.

Remember, the water you save this year will allow the Agency to continue serving drinking water and water for fire protection in the future.

Crestline-Lake Arrowhead Water Agency (CLAWA)
2017 Water Quality Report

We are pleased to present CLAWA's Annual Water Quality Report for 2016. This report is designed to inform you about the quality of water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to protect your water supply. We are committed to ensuring the quality of your water.

Last year, as in years past, your tap water met all USEPA and State Drinking Water health standards. CLAWA vigilantly safeguards its water supplies, and once again we are proud to report that our system did not violate any water quality standard. This brochure is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards. We are committed to providing you with information because informed customers are our best allies.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

Drinking Water Contaminants
The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:
- *Microbial contaminants,* such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- *Radioactive contaminants, which* can be naturally-occurring, or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

CLAWA's Water Supply
All of CLAWA's water supply is surface water from Silverwood Lake, a reservoir of the State Water Project which is operated by the California Department of Water Resources. Silverwood Lake is fed by streams which carry runoff from the local mountains, and also contains imported water which is diverted from the San Francisco-San Joaquin Delta and transported to Southern California in man-made canals. Contamination of the imported water supply can occur at any point along its journey to Silverwood Lake, or from sources within the Silverwood Lake watershed itself. In 2011, DWR published an updated Sanitary Survey Report of all watersheds tributary to the State Water Project, including the Silverwood Lake watershed. Copies of that report can be obtained by contacting the State Water Contractors at (916) 447-7357.

CLAWA pumps surface water from Silverwood Lake, treats and disinfects the water at a "multi-barrier" treatment plant located near the south shore of the Lake, then pumps the treated water uphill to CLAWA's storage and pipeline distribution system which extends from Job's Peak, near Cedarpines Park, eastward to Green Valley Lake.

Water Conservation
Water conservation remains a high priority throughout the State. Please continue to implement the following measures: (1) Protect against frozen pipes. Install and utilize shut-off valves on your side of the meter, and then drain your on-site water system as appropriate. Insulate water pipes outside the structure and in the crawl space beneath the structure. (2) Install low-flow showerheads and toilet tank displacement devices. (3) Repair leaky faucets and valves. A leaky faucet can waste 1,500 gallons per month. (4) Use buckets instead of running hoses to wash vehicles, equipment and structures. (5) Use brooms rather than hoses to clean sidewalks and driveways. (6) Minimize landscape irrigation, especially during hot summer days to reduce evaporation.

Additional Information
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to

lessen the risk of infection by Cryptosporidium and other microbial contaminants are also available from the Safe Drinking Water Hotline (1-800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. CLAWA is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

CLAWA does not add fluoride to the water it supplies. Additional information regarding fluoridation of water, oral health, and current issues is available from http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml

Water Quality Definitions:

The water quality data table on the following page contains several terms and abbreviations which may be unfamiliar to you. To help you better understand these terms we've provided the following definitions:

- **MCL**: Maximum Contaminant Level – The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.
- **MCLG**: Maximum Contaminant Level Goal – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.
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- **mg/l**: Milligrams per liter (parts per million)
- **uG/l**: Micrograms per liter (parts per billion)
- **NTU**: Nephelometric Turbidity Units – a measure of the clarity of water. Turbidity is the measure of particles suspended in water. Higher quality water has low turbidity.
- **N/A:** Not Applicable
- **ND**: Non-Detected
- **TT**: Treatment Technique – A required process intended to reduce the level of a contaminant in drinking water
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CLAWA routinely monitors for contaminants in your drinking water according to State and Federal laws. In 2016, CLAWA monitored the source and treated water continuously and had analyses performed by State certified laboratories for all regulated and many unregulated constituents. Of the many constituents that can be present in a water supply, CLAWA's test results reveal that only a few were detected in CLAWA's treated water.

The tables on the next pages show the results of our monitoring for the period of January 1 to December 31, 2016.

*Total Trihalomethanes and Haloacetic Acids are reported as the Highest Locational Running Annual Average.

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TEST RESULTS							
Contaminant	**Violation Y/N**	**Average Level Detected**	**Range of Levels Detected**	**Units**	**MCL**	**PHG (MCLG)**	**Major Sources in Drinking Water**
PRIMARY STANDARDS							
Total Trihalomethanes*	N	44.0*	12.5-56.1	uG/l	80	N/A	By-product of drinking water disinfection
Haloacetic Acids*	N	10.0*	0-8.3	uG/l	60	N/A	By-product of drinking water disinfection
Inorganic Chemicals							
Fluoride (naturally occurring)	N	.04	0-.59	mg/l	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as NO3)	N	..26	0-..58	mg/l	45	45	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
SECONDARY STANDARDS							
Chloride	N	52.44	27-110	mg/l	500	N/A	Runoff/leaching from natural deposits; seawater influence
Sulfate	N	37.75	28-47	mg/l	500	N/A	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	N	225	130-320	mg/l	1000	N/A	Erosion of natural deposits
Turbidity**	N	<.10	<.10 -.11	NTU	5	N/A	Soil Runoff
OTHER CONSTITUENTS							
Sodium	N	47.44	34-73	mg/l	N/A	N/A	"Sodium" refers to the salt present in the water and is generally naturally occurring
Total Hardness	N	67.25	47-92	mg/l	N/A	N/A	"Hardness" is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.
Iron	N	ND	ND	ug/l	300	N/A	Leaching from natural deposits; industrial wastes
Odor - Threshold	N	1	1-1	TON	3	N/A	Naturally occurring organic materials
Unregulated Contaminants* **							
Boron	N	81.25	0-140	uG/l	1000	N/A	Erosion of natural deposits
Vanadium	N	1.30	0-4.7	uG/l	50	N/A	Erosion of natural deposits
pH	N	7.85	7.4-8.1	Unit	6.5-8.5	N/A	
Lead and Copper		Number of Samples Collected	90th Percentile Level Detected	Number of Sites Exceeding AL	AL	PHG (MCLG)	
Lead (uG/l)	N	10	0 ug/L	0	15	.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.
Copper (uG/l)	N	10	0 mg/L	0	1.3	.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

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TEST RESULTS							
Contaminant	**Violation Y/N**	**Average Level Detected**	**Range of Levels Detected**	**Units**	**MCL**	**PHG (MCLG)**	**Major Sources in Drinking Water**
PRIMARY STANDARDS							
Total Trihalomethanes*	N	44.2*	12.9-68.1	uG/l	80	N/A	By-product of drinking water disinfection
Haloacetic Acids*	N	5*	1.4-6.8	uG/l	60	N/A	By-product of drinking water disinfection
Inorganic Chemicals							
Fluoride (naturally occurring)	N	0	0-.0	mg/l	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as N)	N	.18	0-.68	mg/l	10	410	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
SECONDARY STANDARDS							
Chloride	N	85.44	74-110	mg/l	500	N/A	Runoff/leaching from natural deposits; seawater influence
Sulfate	N	49.00	39-60	mg/l	500	N/A	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	N	299.38	280-320	mg/l	1000	N/A	Erosion of natural deposits
Turbidity**	N	<.10	<.10 -.50	NTU	5	N/A	Soil Runoff
OTHER CONSTITUENTS							
Sodium	N	68.75	59-79	mg/l	N/A	N/A	"Sodium" refers to the salt present in the water and is generally naturally occurring
Total Hardness	N	95.06	89-100	mg/l	N/A	N/A	"Hardness" is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.
Iron	N	ND	ND	ug/l	300	N/A	Leaching from natural deposits; industrial wastes
Odor - Threshold	N	1	1-1	TON	3	N/A	Naturally occurring organic materials
Unregulated Contaminants* **							
Boron	N	144.38	0-170	uG/l	1000	N/A	Erosion of natural deposits
Vanadium	N	1.30	0-4.7	uG/l	50	N/A	Erosion of natural deposits
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CLAWA's Water Supply
All of CLAWA's water supply is surface water from Silverwood Lake, a reservoir of the State Water Project which is operated by the California Department of Water Resources. Silverwood Lake is fed by streams which carry runoff from the local mountains, and also contains imported water which is diverted from the San Francisco-San Joaquin Delta and transported to Southern California in man-made canals. Contamination of the imported water supply can occur at any point along its journey to Silverwood Lake, or from sources within the Silverwood Lake watershed itself. In 2011, DWR published an updated Sanitary Survey Report of all watersheds tributary to the State Water Project, including the Silverwood Lake watershed. Copies of that report can be obtained by contacting the State Water Contractors at (916) 447-7357.

CLAWA pumps surface water from Silverwood Lake, treats and disinfects the water at a "multi-barrier" treatment plant located near the south shore of the Lake, then pumps the treated water uphill to CLAWA's storage and pipeline distribution system, which extends from Job's Peak (near Cedarpines Park) eastward to Green Valley Lake.

Water Conservation
Water conservation remains a high priority throughout the State. Please continue to implement the following measures: (1) Protect against frozen pipes. Install and utilize shut-off valves on your side of the meter, and then drain your on-site water system as appropriate. Insulate water pipes outside the structure and in the crawl space beneath the structure. (2) Install low-flow showerheads and toilet tank displacement devices. (3) Repair leaky faucets and valves. A leaky faucet can waste 1,500 gallons per month. (4) Use buckets instead of running hoses to wash vehicles, equipment and structures. (5) Use brooms rather than hoses to clean sidewalks and driveways. (6) Minimize landscape irrigation, especially during hot summer days to reduce evaporation.

Additional Information
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to

lessen the risk of infection by Cryptosporidium and other microbial contaminants are also available from the Safe Drinking Water Hotline (1-800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. CLAWA is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

CLAWA does not add fluoride to the water it supplies. Additional information regarding fluoridation of water, oral health, and current issues is available from http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml

Water Quality Definitions:

The water quality data table on the following page contains several terms and abbreviations which may be unfamiliar to you. To help you better understand these terms we've provided the following definitions:

- **MCL**: Maximum Contaminant Level – The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.
- **MCLG**: Maximum Contaminant Level Goal – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.
- **PHG**: Public Health Goal – The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
- **PDWS**: Primary Drinking Water Standard – MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.
- **MRDL**: Maximum Residual Disinfectant Level – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG**: Maximum Residual Disinfectant Level Goal – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **Range**: Lowest to highest
- **mg/l**: Milligrams per liter (parts per million)
- **uG/l**: Micrograms per liter (parts per billion)
- **NTU**: Nephelometric Turbidity Units – a measure of the clarity of water. Turbidity is the measure of particles suspended in water. Higher quality water has low turbidity.
- **N/A:** Not Applicable
- **ND**: Non-Detected
- **TT**: Treatment Technique – A required process intended to reduce the level of a contaminant in drinking water
- **AL**: Regulatory Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **USEPA**: United States Environmental Protection Agency

Questions

If you have any questions regarding the information contained in this report, please contact Stephen Taylor II at (909) 338-1779. We want our customers to be informed about the water system that serves them. If you want to learn more, please attend any of our regularly scheduled Board meetings, which are held the first Thursday of every month at 2:00 p.m.

Water Quality Data

CLAWA routinely monitors for contaminants in your drinking water according to State and Federal laws. In 2019, CLAWA monitored the source and treated water continuously and had analyses performed by State certified laboratories for all regulated and many unregulated constituents. Of the many constituents that can be present in a water supply, CLAWA's test results reveal that only a few were detected in CLAWA's treated water.

The tables on the next pages show the results of our monitoring for the period of January 1 to December 31, 2019.

*Total Trihalomethanes and Haloacetic Acids are reported as the Highest Locational Running Annual Average.

**Turbidity is monitored continuously because it is a good indicator of the effectiveness of our treatment system. Turbidity measures the cloudiness of water. The Agency uses a conventional treatment process to reduce turbidity.

***Unregulated contaminant monitoring helps USEPA and the State Water Resources Control Board to determine where certain contaminants occur and whether the contaminants need to be regulated.

TEST RESULTS							
Contaminant	**Violation Y/N**	**Average Level Detected**	**Range of Levels Detected**	**Units**	**MCL**	**PHG (MCLG)**	**Major Sources in Drinking Water**
PRIMARY STANDARDS							
Total Trihalomethanes*	N	46.9*	24.6-68.6	uG/l	80	N/A	By-product of drinking water disinfection
Haloacetic Acids*	N	4.6*	0-9.0	uG/l	60	N/A	By-product of drinking water disinfection
Inorganic Chemicals							
Fluoride (naturally occurring)	N	ND	ND	mg/l	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as N)	N	.03	0-.40	mg/l	10	410	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
SECONDARY STANDARDS							
Chloride	N	71.00	36-110	mg/l	500	N/A	Runoff/leaching from natural deposits; seawater influence
Sulfate	N	39.25	31-48	mg/l	500	N/A	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	N	251.88	170-330	mg/l	1000	N/A	Erosion of natural deposits
Turbidity**	N	.03	0-.20	NTU	5	N/A	Soil Runoff
OTHER CONSTITUENTS							
Sodium	N	58.63	40-87	mg/l	N/A	N/A	"Sodium" refers to the salt present in the water and is generally naturally occurring
Total Hardness	N	83.88	59-110	mg/l	N/A	N/A	"Hardness" is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.
Iron	N	ND	ND	ug/l	300	N/A	Leaching from natural deposits; industrial wastes
Odor - Threshold	N	1	1-1	TON	3	N/A	Naturally occurring organic materials
Unregulated Contaminants* **							
Boron	N	90.00	0-160	uG/l	1000	N/A	Erosion of natural deposits
Vanadium	N	ND	ND	uG/l	50	N/A	Erosion of natural deposits
pH	N	8.14	7.7-8.4	Unit	6.5-8.5	N/A	
Lead and Copper		Number of Samples Collected	90th Percentile Level Detected	Number of Sites Exceeding AL	AL	PHG (MCLG)	
Lead (uG/l)	N	0	0 ug/L	0	15	.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.
Copper (uG/l)	N	0	0 mg/L	0	1.3	.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

SAMPLING RESULTS SHOWING TREATMENT OF SURFACE WATER SOURCES	
Treatment Technique [a] (Type of approved filtration technology used)	Conventional Treatment with multimedia pressure filters
Turbidity Performance Standards [b] (that must be met through the water treatment process)	Turbidity of the filtered water must: 1 – Be less than or equal to _0.3__ NTU in 95% of measurements in a month. 2 – Not exceed _1.0_ NTU for more than eight consecutive hours. 3 – Not exceed _5.0_ NTU at any time.
Lowest monthly percentage of samples that met Turbidity Performance Standard No. 1.	100%
Highest single turbidity measurement during the year	0.5 NTU
Number of violations of any surface water treatment requirements	0

(a) A required process intended to reduce the level of a contaminant in drinking water.

(b) Turbidity (measured in NTU) is a measurement of the cloudiness of water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.

APPENDIX K

RESOLUTION NO. 421

RESOLUTION OF THE BOARD OF DIRECTORS OF
CRESTLINE VILLAGE WATER DISTRICT
AMENDING THE DISTRICT'S WATER
CONSERVATION PROGRAM TO INCLUDE TEMPORARY
RESTRICTIONS ESTABLISHED BY THE STATE WATER
RESOURCES CONTROL BOARD

WHEREAS, the Board of Directors of Crestline Village Water District adopted Ordinance No. 29 on February 21, 1991, which Ordinance first established the District's Water Use Reduction Plan (this Program is more commonly referred to as the “District’s Water Conservation Program” and also serves as the District’s water shortage contingency plan); and

WHEREAS, the District Board of Directors adopted Ordinance No. 30 on August 27, 1992, which Ordinance modified the basic monthly allocations of water for the water conservation phases set forth in Ordinance No. 29; and

WHEREAS, the District Board of Directors adopted Ordinance No. 32 on November 17, 1998, which Ordinance established the Administrative Code of Crestline Village Water District and placed the Water Conservation Program in Section 3.3 of the Administrative Code; and

WHEREAS, the District Board of Directors adopted Ordinance No. 35 on August 19, 2014, which Ordinance amended Section 3.3 of the Administrative Code; and

WHEREAS, by Resolution No. 414 adopted August 19, 2014, the District Board of Directors ordered that Phase I.a of the District’s Water Conservation Plan be implemented; and

WHEREAS, this Resolution supplements, but does not change, the action taken in Resolution No. 414; and

WHEREAS, Drought Emergency Water Conservation regulations adopted by the State Water Resources Control Board imposed temporary restrictions that became effective on March 27, 2015; and

WHEREAS, these temporary restrictions were not previously included in the District’s Water Conservation Program; and

WHEREAS, the Board of Directors of Crestline Village Water District desires to conform to the provisions of the Drought Emergency Water Conservation regulations by amending the District’s Water Conservation Program to include these temporary restrictions;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Crestline Village Water District as follows:

<u>Section 1.</u> The following temporary drought emergency restrictions are imposed throughout the District’s service area. These restrictions will become effective May 10, 2015 and will expire on December 23, 2015.

(1) Lawn or garden watering, or any other outdoor irrigation is limited to no more than three (3) days per week;

(2) The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall is prohibited:

(3) The serving of drinking water is prohibited, other than upon request, in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased

(4) To promote water conservation, operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.

<u>Section 2.</u> The enforcement provisions of Section 3.3.6.2 of the District's Administrative Code shall apply to any violations of these temporary restrictions.

<u>Section 3.</u> This Board finds and determines that the adoption of this Resolution and implementation of the measures set forth herein are exempt from requirements of the California Environmental Quality Act because of the necessity to mitigate an emergency.

ADOPTED, SIGNED and APPROVED this 21st day of April 2015.

____
President, Crestline Village Water District

ATTEST:

____
Secretary, Crestline Village Water District

ORDINANCE NO. 35

AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE CRESTLINE VILLAGE WATER DISTRICT MODIFYING THE DISTRICT'S WATER CONSERVATION PROGRAM AND AMENDING SECTION 3.3 OF THE DISTRICT'S ADMINISTRATIVE CODE

WHEREAS, Crestline Village Water District receives more than 50% of its water supply from Crestline-Lake Arrowhead Water Agency (the "Agency") and depends on said water supply; and

WHEREAS, rainfall has been substantially below normal in the watershed supplying the Agency and there is a serious drought which is causing water shortages in many communities of the State; and

WHEREAS, the production of the wells and springs that supply the balance of the District's water supply have also decreased due to the extended drought conditions; and

WHEREAS, these shortages have and will cause this District, its residents, businesses and industries to suffer adversely, such that an active water conservation program is essential to protect against drought and help alleviate against Statewide shortages; and

WHEREAS, the District Board of Directors adopted Ordinance No. 29 on February 21, 1991, establishing a Water Conservation Program for the District in order to (1) protect the health, safety and welfare of the customers of the District, (2) assure the maximum beneficial use of the water supplies of the District, and (3) ensure that there will be sufficient water supplies to meet the basic needs of human consumption, sanitation and fire protection; and

WHEREAS, the District Board of Directors adopted Ordinance No. 30 on August 27, 1992, which ordinance modified the basic monthly allocations of water for the water conservation phases set forth in Ordinance No. 29; and

WHEREAS, the District Board of Directors adopted Ordinance No. 32 on November 17, 1998, which ordinance established the Administrative Code of Crestline Village Water District and placed the Water Conservation Program in Section 3.3 of the Administrative Code; and

WHEREAS, the State Water Resources Control Board adopted Resolution No. 2014-0038 adopting an Emergency Regulation for Statewide Urban Water Conservation; and

WHEREAS, based on information provided by the District staff regarding the water conservation efforts of the District customers generally, and in order to more efficiently implement the District's Water Conservation Program, the District Board of Directors desires to modify the District's Water Conservation Program; and

WHEREAS, this Ordinance is enacted in conformity with Section 350, et seq., and Section

31026 of the Water Code,

NOW, THEREFORE, BE IT ORDAINED by the Board of Directors of Crestline Village Water District as follows:

Section l. Purpose and Findings:
Based upon information submitted and testimony received at the Public Hearing held on August 19, 2014, this Board of Directors finds that a drought emergency and water shortage exists which requires modification of the District's Water Conservation Program through the enactment of this Ordinance No. 35. The current drought conditions impose a threat to the public health, safety, and welfare of the District customers because of the potential of a reduced water supply for human consumption, sanitation and fire protection. In order to conserve the water supply for the greatest public benefit, it is necessary to modify the District's Water Conservation Program.

Section 2. Modification of the District's Water Conservation Program:
The District hereby adopts the modifications to the District's Water Conservation Program as shown in Exhibit "A" attached hereto and incorporated herein.

Section 3. No Other Change to District Rules and Regulations:
The provisions of this Ordinance No. 35 are in addition to all other District Rules and Regulations for Water Service, and in the event of a conflict between this Ordinance and other rules and regulations relating to the same subject matter, the conflict shall, insofar as practical, be resolved to implement the purpose of this Ordinance.

Section 4. Severability:
If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or invalid by a court of competent jurisdiction, such decision shall not affect the remaining portions of this ordinance and those shall remain in full force and effect.

Section 5. CEOA Exemption:
This Board finds and determines that the adoption of this Ordinance and implementation of the measures set forth herein are exempt from requirements of the California Environmental Quality Act because of the necessity to mitigate an emergency.

Section 6. Effective Date:
This Ordinance shall take effect as of September 1, 2014. Before the expiration of 10 days after its passage, this Ordinance shall be published and posted as required by law.

PASSED AND ADOPTED at a Regular Meeting of the Board of Directors of Crestline Village Water District held the 19th day of August, 2014.

By: ________________________________
President

ATTEST: __________________________
Secretary

3.3 Water Conservation.

3.3.1 Water Waste Prohibited.

No customer shall knowingly permit leaks or waste of water. Where water is wastefully or negligently used on a customer's premises, and such waste seriously affects the general service, the District may discontinue the service if such conditions are not corrected within five (5) days after giving the customer written notice.

(Res. 200, March 11, 1982.)

3.3.2 Customer Responsibility to Prevent Water Loss.

Each customer of the District is required to install a shut-off valve on the customer's side of the meter, outside the meter box, to allow on-site plumbing to be drained as necessary to prevent loss of water from frozen or broken pipes. It shall be the customers' responsibility to maintain their on-site plumbing and operate these valves as necessary to prevent water loss, especially during periods of freezing conditions when the premises are unoccupied.

(Ord. 29, Section 2, February 21, 1991.)

3.3.3 Water Use Reduction Program.

No customer of the District shall make, cause, use or permit the use of water received from the District for any purpose in a manner contrary to any provision of this Section 3.3.3 or in an amount in excess of that use permitted by the conservation phase then in effect pursuant to this Section 3.3.3 or pursuant to action taken by the Board in accordance to the provisions herein.

(Ord. 29, Section 2, February 21, 1991.)

3.3.3.1 Phase I - General Water Use Reduction Program.

(1) Consumer Curtailment. The District has established a Surcharge for Excess Consumption which establishes 1,300 cubic feet per month as the basic allocation for each single family residential customer. The customer of record may request an increase in this basic allocation as provided in Section 3.3.4 below. Multi-Family, Commercial and Political Entity accounts may request an increase in this basic allocation based upon the number of units served and/or uses of water as provided in Section 3.3.4 below. Every consumer shall eliminate the waste of potable water from the District in an effort to conserve District water supplies.

(2) Surcharge for Excess Consumption. The rate for water used in excess of the basic allocation shall be one and one half times the rate for the basic allocation.

(Ord. 29, Section 2, February 21, 1991; amended by Ord. 30, Section 1, August 27, 1992.)

3.3.3.2 Phase I.a – 5 Percent Water Use Reduction Program

(1) Consumer Curtailment. The basic allocation shall remain at 1,300 cubic feet per month. Every consumer shall eliminate the waste and non-essential use of potable water from the District in an effort to aid the District in achieving a five percent reduction of the amount of water used by all consumers during the base calendar year as determined by the provisions of Section 3.3.5.

(2) Prohibited Uses. It shall be unlawful for any consumer to use potable water from the District for the following uses:

(a) The washing of sidewalks, walkways, driveways, parking lots and all other hard-surfaced areas by direct hosing, except as may be necessary to properly dispose of flammable or otherwise dangerous liquids or substances, or as otherwise necessary to prevent or eliminate materials dangerous to the public health and safety;

(b) The escape of water through breaks, leaks or dripping faucets within the consumer's plumbing or private distribution system for any substantial period of time within which such break or leak should reasonably have been discovered or corrected. It shall be presumed that a period of forty-eight hours after the consumer discovers such a leak or break, or receives notice from the District of such leak or break, whichever occurs first, is reasonable time within which to correct such leak or break;

(c) The use of running water during freezing weather to prevent the freezing of water lines. Water lines should be protected by other means.

(d) Using a hose to wash cars, trucks, boats, trailers or other vehicles unless it has a spring-release shut-off nozzle;

(e) Lawn or garden watering, or any other irrigation or other water use, in a manner which results in water runoff or over spray of the areas being watered. Every consumer is deemed to have under control at all times its water distribution lines and facilities, and to know the manner and extent of its water use and any runoff;

(f) Sprinkling for dust control;

(g) Any water use that results in the runoff of water in street, gutters, driveways, or other waterways;

(h) Lawn or garden watering, or any other irrigation, beyond what is needed to sustain plant life;

(i) In a fountain or other decorative water feature except where the water is part of a recirculating system.

(Ord. 35, Section 2, August 19, 2014)

3.3.3.3 Phase II - 10 Percent Water Use Reduction Program.

(1) Consumer Curtailment. The basic allocation is reduced to 1,200 cubic feet per month. Every consumer shall eliminate the waste and non-essential use of potable water from the District in an effort to aid the District in achieving a ten percent reduction of the amount of water used by all consumers during the base calendar year as determined by the provisions of Section 3.3.5.

(2) Surcharge for Excess Consumption. The rate for water used in excess of the basic allocation shall be two (2) times the rate for the basic allowance.

(3) Prohibited Uses. It shall be unlawful for any consumer to use potable water from the District contrary to the provisions of Section 3.3.3.2 (2), or for the following uses:

(a) Any irrigation, of landscaping installed after the date upon which this subsection has been activated, is prohibited.

(Ord. 29, Section 2, February 21, 1991; amended by Ord. 30, Section 1, August 27, 1992; amended by Ord. 35, Section 2, August 19, 2014.)

3.3.3.4 Phase III - 20 Percent Water Use Reduction Program.

(1) Consumer Curtailment. The basic allocation is reduced to 1,100 cubic feet per month. Every consumer shall eliminate the waste and non-essential use of potable water from the District in an effort to aid the District in achieving a twenty percent reduction of the amount of water used by all consumers during the base calendar year as determined by the provisions of Section 3.3.5.

(2) Surcharge for Excess Consumption. The rate for water used in excess of the basic allocation shall be two and one half (2 1/2) times the rate for the basic allowance.

(3) Prohibited Uses. It shall be unlawful for any consumer to use potable water from the District contrary to the provisions of Section 3.3.3.3 (3), or for the following uses:

(a) Using potable water for decorative fountains or the filling of pools, spas, decorative lakes or ponds.

(Ord. 29, Section 2, February 21, 1991; amended by Ord. 30, Section 1, August 27, 1992; amended by Ord. 35, Section 2, August 19, 2014.)

3.3.3.5 Phase IV - 30 Percent Water Use Reduction Program.

(1) Consumer Curtailment. The basic allocation is reduced to 900 cubic feet per month. Every consumer shall eliminate the waste and non-essential use of potable water from the District in an effort to aid the District in achieving a thirty percent reduction of the amount of water used by all consumers during the base calendar year as determined by the provisions of Section 3.3.5.

(2) Surcharge for Excess Consumption. The rate for water used in excess of the basic allocation shall be three (3) times the rate for the basic allowance.

(3) Prohibited Uses. It shall be unlawful for any consumer to use potable water from the District contrary to the provisions of Section 3.3.3.4 (3), or for the following uses:

(a) Sewer or storm system flushing for normal maintenance, and fire department training, except as approved in writing by the District;

(b) Use of potable water for construction;

(c) The washing of motor vehicles, trailers, boats or other vehicles by hosing, or by use of water directly from faucets or other outlets, except: it shall be lawful to wash such vehicles from water contained in a bucket or container not exceeding three (3) gallon capacity; and this prohibition shall not be applicable to the washing of such vehicles at commercial vehicle washing facilities operated at fixed locations which employ water recycling equipment.

(Ord. 29, Section 2, February 21, 1991; amended by Ord. 30, Section 1, August 27, 1992; amended by Ord. 35, Section 2, August 19, 2014.)

3.3.3.6 Phase V - 40 Percent Water Use Reduction Program.

(1) Consumer Curtailment. The basic allocation is reduced to 800 cubic feet

per month. Every consumer shall eliminate the waste and non-essential use of potable water from the District in an effort to aid the District in achieving a forty percent reduction of the amount of water used by all consumers during the base calendar year as determined by the provisions of Section 3.3.5.

(2) Surcharge for Excess Consumption. The rate for water used in excess of the basic allocation shall be three and one half (3 1/2) times the rate for the basic allowance.

(3) Prohibited Uses. It shall be unlawful for any consumer to use potable water from the District contrary to the provisions of Section 3.3.3.5 (3), or for the following uses:

(a) The use of potable water for any non-essential outdoor use. Essential uses of potable water are uses necessary for the health, sanitation, fire protection or safety of the consumer or public.

(Ord. 29, Section 2, February 21, 1991; amended by Ord. 30, Section 1, August 27, 1992; amended by Ord. 35, Section 2, August 19, 2014.)

3.3.3.7 Phase VI - 50 Percent Water Use Reduction Program

(1) Consumer Curtailment. The basic allocation is reduced to 700 cubic feet per month. Every consumer shall eliminate the waste and non-essential use of potable water from the District in an effort to aid the District in achieving a fifty percent reduction of the amount of water used by all consumers during the base calendar year as determined by the provisions of Section 3.3.5.

(2) Surcharge for Excess Consumption. The rate for water used in excess of the basic allocation shall be four (4) times the rate for the basic allowance.

(3) Prohibited Uses. It shall be unlawful for any consumer to use potable water from the District contrary to the provisions of Section 3.3.3.6 (3), or for any non-essential use. Essential uses of potable water are uses necessary for the health, sanitation, fire protection or safety of the consumer or public.

(Ord. 29, Section 2, February 21, 1991; amended by Ord. 30, Section 1, August 27, 1992; amended by Ord. 35, Section 2, August 19, 2014.)

3.3.4 Exceptions to Water Use Reduction Program.

3.3.4.1 Exceptions to Basic Allocation.

Exceptions to increase the amount of water which may be used without exceeding the basic allotment may be granted by the District Manager or his designee, upon written request for the following reasons:

(1) Substantiated medical requirements.
(2) Multiple family units served by a single meter.
(3) A single family residential household exceeding six (6) residents.
(4) Unnecessary and undue hardship to the consumer or the public, including but not limited to, adverse economic impacts.

(Ord. 29, Section 3, February 21, 1991.)

3.3.4.2 Exceptions to Prohibited Uses.

Exceptions to prohibited uses may be granted by the General Manager or his designee, upon written request if it is found and determined that failure to do so would cause an unnecessary and undue hardship to the consumer or the public, including, but not limited to, adverse economic impacts.

(Ord. 29, Section 3, February 21, 1991.)

3.3.4.3 Further Exceptions to Prohibited Uses.

Exceptions to prohibited uses shall be granted by the General Manager or his designee, upon written request if it is found and determined that failure to do so would cause an emergency condition affecting the health, sanitation, fire protection or safety of the consumer or the public.

(Ord. 29, Section 3, February 21, 1991.)

3.3.5 Water Use Reduction Program Phase Implementation.

The District shall monitor and evaluate the projected supply and demand for water by its customers, and shall recommend to the Board of Directors any change in customer curtailment as indicated in the respective phases of Section 3.3.3. The Board of Directors shall, by resolution, determine the base calendar year from which the amount of water reduction shall be calculated and order that the appropriate phase of water use reduction be implemented. The effective date of said phase change shall be published once in a local newspaper and a notice shall be mailed to all property owners and customers of record within 10 days after the adoption date of the resolution changing the phase of water use reduction. Said phase shall remain in effect until a different phase is initiated and made effective pursuant to the provisions of this section. The District can, by resolution, order a more stringent phase be implemented, and it need not order one phase at a time.

(Ord. 29, Section 4, February 21, 1991; amended by Ord. 35, Section 2, August 19, 2014.)

3.3.6 Enforcement of Water Use Reduction Program.

Any consumer who violates the provisions of Section 3.3.3 herein may be cited by the District or its representative.

(Ord. 29, Section 5, February 21, 1991.)

3.3.6.1 Excess Use.
When the requirements of Sections 3.3.3.2, 3.3.3.3, 3.3.3.4, 3.3.3.5, 3.3.3.6 or 3.3.3.7 are in effect, any customer using more than 125% of the basic allocation, for any billing period, may be warned that such use is considered waste of water, and that a reduction in use is required to avoid being subject to the enforcement provisions of Section 3.3.6.2.

(Ord. 29, Section 5, February 21, 1991; amended by Ord. 35, Section 2, August 19, 2014.)

3.3.6.2 Enforcement Provisions.

(1) First Violation. Any consumer found by the District to be violating the regulations and restrictions on water use set forth in Section 3.3.3 shall receive a written warning, which describes the penalty for subsequent violations.

(2) Second Violation. In the event that a second violation is found by the District, the District may add a single $50 charge to the next water bill of the premises for which or upon which the violation has occurred.

(3) Third Violation. In the event that a third violation is found by the District, the District may add a fine to the next water bill for up to $500 for each day in which the violation occurs and may discontinue the water service pursuant to Section 3.1.8 and the appropriate reinstatement charge will apply. Installation of a flow restrictor may be required before service is reinstated. If the installation of a flow restrictor is required, the District may add a charge to the next water bill of the premises that covers the cost of said installation.

(Ord. 29, Section 5, February 21, 1991; amended by Ord. 35, Section 2, August 19, 2014.)

3.3.7 Property Owner Responsibility to Provide Notification of Water Use Reduction Program.
It is the responsibility of each property owner to notify any person or persons that use their premises, including, but not limited to weekend rentals, multi-unit apartments, motels and commercial buildings, of any water use restrictions currently in effect. The District will mail a notice to all property owners and customers of record within 10 days of the adoption date of a water use reduction phase change.

(Ord. 29, Section 7, February 21, 1991.)

3.3.8 Use of Surcharge and Other Charges.
The revenues collected by the District as a result of consumer use of water in excess of the basic allocation set forth in Section 3.3.3 and the charges to be added to consumer bills set forth in Section 3.3.6.2 (2) shall be deposited into the operating fund as reimbursement for the District's costs and expenses of administration and enforcement of the Water Use Reduction Program, and to provide funding to promote, encourage and implement water conservation programs.

(Ord. 29, Section 9, February 21, 1991.)

3.3.9 Restrictions on New Connections.
The Board, by resolution, may from time-to-time restrict new service commitments and connections based on current and future water availability projections.

(Ord. 29, Section 6, February 21, 1991; amended by Ord. 35, Section 2, August 19, 2014.)

ORDINANCE NO. 59

AN ORDINANCE OF THE BOARD OF DIRECTORS OF CRESTLINE-LAKE ARROWHEAD WATER AGENCY DECLARING A WATER SHORTAGE EMERGENCY AND ADOPTING RULES, REGULATIONS AND RESTRICTIONS ON THE USE OF AGENCY WATER

WHEREAS, Crestline-Lake Arrowhead Water Agency (hereinafter "Agency"), a public agency created by legislation codified as Act 9099a of Deering's Water Code - Uncodified Acts (hereinafter the "Crestline-Lake Arrowhead Water Agency Law"), provides water service on a retail basis directly to certain customers within its boundaries, and also provides supplemental water on a wholesale basis to other water purveyors, also located within the Agency's boundaries, for retail delivery to their own customers; and

WHEREAS, the Agency is one of twenty-nine State Water Contractors in the State of California which obtain water from the State Water Project, and all of the water which the Agency delivers comes from Silverwood Lake, a facility of the State Water Project; and

WHEREAS, due to extraordinarily low precipitation state-wide, the Governor of the State of California has declared a state-wide water shortage emergency; and

WHEREAS, the Agency has been advised by the California Department of Water Resources ("DWR"), which operates the State Water Project, that due to water shortage conditions, the Agency's allocation of water from the State Water Project for calendar year 2014 will be 0%, leaving the Agency to rely on its own stored water supplies within the State Water Project, and DWR cannot confirm that it will even be able to deliver the Agency's stored water to the Agency in 2014; and

WHEREAS, even if DWR is able to deliver enough stored water to the Agency in 2014 to satisfy the needs of the Agency's customers in 2014, continued dry conditions must be anticipated at this time, such that the ordinary demands and requirements of the Agency's customers cannot continue to be satisfied without depleting the Agency's water supply to the extent that a number of the Agency's customers would have insufficient water for human consumption, sanitation, and fire protection; and

WHEREAS, the Agency is authorized by Section 11, subsections (13) and (14), of the Crestline-Lake Arrowhead Water Agency Law to restrict the use of Agency water during a threatened or existing water shortage, and to prohibit the waste or the use of Agency water during such periods for any purpose other than domestic uses or such other uses as may be determined by the Agency to be necessary; and

WHEREAS, the Agency is further authorized by Water Code Sections 350, et seq., to declare a water shortage emergency and to impose such rules, regulations and restrictions on the use of Agency water as may be appropriate or necessary; and

WHEREAS, this Board of Directors determines that the adoption of rules, regulations and restrictions on the use of Agency water is necessary in order to (1) protect the health, safety, and welfare of the inhabitants and customers of the Agency, (2) assure the maximum beneficial use of the water supplies of the Agency, and (3) ensure that there will be sufficient water supplies to meet the basic needs of human consumption, sanitation and fire protection; and

WHEREAS, the Board of Directors further determines that the specific rules, regulations and restrictions established herein are necessary as emergency measures to cope with an existing water supply shortage which could become even worse in the future;

NOW, THEREFORE, BE IT ORDAINED by the Board of Directors of Crestline-Lake Arrowhead Water Agency as follows:

Section 1. Findings.

This Board of Directors finds that a water shortage emergency exists which requires the adoption and enforcement of this Ordinance. The Agency has received notice from DWR that its allocation of water from the State Water Project during calendar year 2014 will be 0%, and that DWR may not even be able to deliver carryover water not used by the Agency in previous years, that normally would be available for use by the Agency during a period of shortage. This unavailability of water will directly impact the wholesale and retail customers of the Agency, many of whom rely exclusively upon the Agency for their water supply. If such dry conditions continue, the ordinary demands and requirements of the Agency's customers cannot be satisfied without depleting the Agency's water supply to the extent that a number of the Agency's customers would have insufficient water for human consumption, sanitation, and fire protection. Therefore, the Agency must impose rules, regulations and restrictions on the use of Agency water designed to reduce consumption within the Agency's service area in order to preserve a supply of water necessary to protect the health, safety and welfare of the customers within the Agency's service area. The Agency's first priority in the implementation of these regulations and restrictions will be preservation of sufficient water to satisfy minimum domestic consumptive needs, ensure adequate fire protection, and preserve the health and safety of the inhabitants and customers of the Agency.

Section 2. Definitions.

"Agency" -- Crestline-Lake Arrowhead Water Agency.

"Board" -- Board of Directors of the Agency.

"Retail customer" -- A customer receiving water service directly from the Agency, through a service connection, for his own use and not for resale or delivery to others.

"Waste" -- Any unreasonable or non-beneficial use of water or any unreasonable method of use of water, including, but not limited to, the specific uses prohibited and restricted by this Ordinance as hereinafter set forth.

“Water users” -- Any person, firm, partnership, association, corporation or entity using water obtained from the water system of Crestline-Lake Arrowhead Water Agency.

“Wholesale customer” -- A customer having a connection to the Agency’s water system which purchases water from the Agency for resale or delivery to its own users, customers, or shareholders through its own water system; the term “wholesale customer” shall include camps.

Section 3. Water Supply Allocation Plan – Wholesale Customers.

During the pendency of the existing water shortage emergency, the Board will monitor the quantity of water available to the Agency from storage arrangements, exchange arrangements or other sources, and in its discretion may limit water deliveries to its customers in stages as hereafter set forth. Using 2013 as a base year, the Agency will determine the quantity of water which the Agency delivered to each wholesale customer during each month of 2013. Each such customer shall then be allowed to receive from the Agency, each month, at the Agency’s standard rate for wholesale water then in effect, no more than the following percentage of the quantity of water which the Agency delivered to that wholesale customer during the corresponding month of the base year, subject to such further limitations as may apply to any specific customer. The percentage shall depend upon the stage of allocation declared by the Board, as follows:

STAGE OF ALLOCATION DECLARED BY BOARD	PERCENTAGE OF WATER DELIVERED DURING CORRESPONDING MONTH OF BASE YEAR
STAGE 1 ALLOCATION	95%
STAGE 2 ALLOCATION	90%
STAGE 3 ALLOCATION	80%
STAGE 4 ALLOCATION	70%
STAGE 5 ALLOCATION	60%

During a Stage 1 Allocation, water taken for any month in excess of the applicable percentage shall be charged at twice the Agency’s standard rate for wholesale water in effect at the time of delivery. For Stage 2 through Stage 5 Allocations, water taken for any month in excess of the applicable percentage shall be subject to such surcharges as the Board may establish by resolution, at the time each such stage of allocation is declared by the Board.

Section 4. Water Supply Allocation Plan -- Retail Customers.

A. Allowable Consumption. Using 2013 as a base year, the Agency will determine the quantity of water that the Agency delivered to each retail customer during each month of 2013. When a stage of allocation is declared by the Board as set forth in Section

3 above, each such customer shall then be allowed to receive from the Agency, each month, a percentage of the quantity of water which the Agency delivered to that retail customer during the corresponding month of the base year, provided that a retail customer using water for residential purposes shall not be restricted to less than a quantity equal to 55 gallons per person per day to satisfy minimum health and safety needs. The percentage shall equal the same percentage set forth in Section 3 above, for each such stage of allocation declared by the Board. Whenever a stage of allocation is declared by the Board, the Agency shall inform each retail customer in writing of the percentage of base year consumption that each customer is allowed to use each month in order to comply with this restriction.

B. Prohibited Uses. This Board finds the following uses constitute waste, and therefore retail customers are urged to avoid the following practices at all times, and such practices shall be prohibited for the Agency's retail customers during all phases of allocation declared by this Board:

(i) Running water into streets or gutters.

(ii) Washing automobiles or equipment with running water (as opposed to use of a bucket, other container or a commercial wash establishment using recycled or reclaimed water).

(iii) Washing down buildings (except windows), walks, driveways or streets.

(iv) Sprinkling for dust control.

(v) Water displays or ornamental water use (fountains, etc.) except when the display uses reclaimed or recycled water.

(vi) Dripping faucets, or other leaks, or unattended or excessively running hoses.

(vii) Watering lawns, parks, playgrounds or ball fields more than twice per week, which watering must occur after 9:00 p.m. and before 3:00 a.m.; provided there shall be no prohibition against watering with reclaimed water.

C. Installation and Use of Shut-off Valves. Each retail customer of the Agency is hereby required to install a shut-off valve on the customer's side of the meter, outside of the meter box, to allow on-site plumbing to be drained as necessary to prevent loss of water from frozen or broken pipes. It shall be the customer's responsibility to turn off the shut-off valve upon leaving the premises, and to insulate exposed pipes and valves to protect the pipes and valves against breaks when freezing conditions occur.

D. Construction Water Use. Whenever the Board declares a stage of allocation pursuant to this ordinance, the Board shall also establish the rates and charges to be imposed for the use of water at construction sites or in aid of construction. The rates and charges shall be established in amounts designed to discourage the use of water for construction purposes, as determined by the Board to be appropriate under the circumstances.

Section 5. Adjustment of Base Quantities.

The base quantities established for wholesale and retail customers pursuant to Section 3 and Section 4 of this ordinance may be adjusted by the Board, as the Board in its discretion deems necessary, in order to equitably apply the provisions of this Ordinance and to achieve the purposes and objectives set forth herein. Customers seeking an adjustment must apply to the Board in writing and provide documentation to demonstrate that the adjustment is necessary in order to avoid inequitable application of this Ordinance. Upon granting or denying a requested adjustment, the decision of the Board shall be final.

Section 6. Use of Surcharge Revenues.

The surcharge revenues collected by the Agency as a result of customer consumption in excess of the base quantities set forth in Section 3 of this ordinance shall be used by the Agency to assist in defraying the cost of measures employed by the Agency to cope with the water shortage emergency which necessitates the adoption of this Ordinance.

Section 7. Moratorium on Service Commitments and Connections.

Until the Board determines that a water shortage emergency no longer exists, the Agency shall not make any oral or written commitments to provide any new retail service and shall not approve the installation of a new or additional turnout to a wholesale customer. Any such commitment shall be without authority from this Board and, therefore, shall be void and unenforceable.

Section 8. Use of Water Saving Kits.

The Agency shall provide a water saving kit, free of charge, to each retail customer of the Agency who needs and requests one, so long as the Agency has a stockpile of kits. Retail customers are urged to use such kits. Furthermore, the Agency's wholesale customers are urged to assist their own retail customers in obtaining and installing water saving devices to minimize water consumption within their service areas.

Section 9. Lawns, Parks, Playgrounds and Ballfields.

Retail customers, schools and camps which receive water directly from the Agency are urged at all times to refrain from, and during any stage of allocation shall be prohibited from, watering lawns, parks, playgrounds or ballfields more than twice per week, with such watering to occur after 9:00 p.m. and before 3:00 a.m. There shall be no prohibition against watering with reclaimed water.

Section 10. Compliance.

Failure to comply with the provisions of this Ordinance shall constitute a misdemeanor punishable under Section 13 of the Crestline-Lake Arrowhead Water Agency Law. Upon conviction of such a misdemeanor, that person shall be punished by imprisonment in the county jail for not more than thirty (30) days or by a fine of not more than Three Hundred Dollars ($300), or by both fine and imprisonment. The Agency reserves the right to take such civil enforcement action or other action as may be available or appropriate to compel compliance with the provisions of this Ordinance, including the right to discontinue service to customers who violate the provisions of this Ordinance.

Section 11. Rules and Regulations.

This Ordinance shall augment, and not supersede, the provisions set forth in the Agency's Rules and Regulations. Customers are urged to pay particular attention to Section 3.13(d) of the Agency's Rules and Regulations, which specifically prohibits the waste of water by causing or permitting the overflow of water storage reservoirs.

Section 12. Severability.

If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or invalid by a court of competent jurisdiction, such decision shall not affect the remaining portions of this Ordinance and those shall remain in full force and effect.

Section 13. Supersession..

This Ordinance shall supersede Ordinance No. 44, adopted by the Board in 1991.

Section 14. CEQA Exemption.

This Board finds and determines that the adoption of this Ordinance and implementation of the measures set forth herein are exempt from environmental assessment pursuant to Section 15269(c) of Title 14 of the California Code of Regulations, which sets forth the State Guidelines for Implementing the California Environmental Quality Act, and directs the Agency's General Manager to file a Notice of Exemption with the County Clerk for the County of San Bernardino.

Section 15. Publication and Notice.

A copy of this Ordinance shall be published one time in a newspaper of general circulation within the Agency within ten (10) days after the adoption hereof pursuant to Government Code Section 6061. In addition, copies shall be mailed to each wholesale customer of the Agency.

ADOPTED this 3rd day of April, 2014.

President of the Board of Directors
CRESTLINE-LAKE ARROWHEAD WATER AGENCY

ATTEST:

Secretary of the Board of Directors
CRESTLINE-LAKE ARROWHEAD WATER AGENCY

CERTIFICATION

I, Jennifer Spindler, Secretary of the Board of Directors of the Crestline-Lake Arrowhead Water Agency, hereby certify that the foregoing is a full, true and correct copy of the Ordinance adopted by the Board of Directors of said Agency at the regular meeting of said Board held on the 3rd day of April, 2014, by the following vote:

AYES: Directors Pleasant, Risher, Sutton, Eaton & Wood
NOES:
ABSENT:
ABSTAIN:

Jennifer Spindler, Secretary

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RESOLUTION NO. 414

RESOLUTION OF THE BOARD OF DIRECTORS OF
CRESTLINE VILLAGE WATER DISTRICT
CHANGING THE EXISTING PHASE OF WATER
CONSERVATION UNDER THE DISTRICT'S
WATER CONSERVATION PROGRAM

WHEREAS, the Board of Directors of Crestline Village Water District adopted Ordinance No. 29 on February 21, 1991, which Ordinance established the District's Water Conservation Program; and

WHEREAS, the District Board of Directors adopted Ordinance No. 30 on August 27, 1992, which ordinance modified the basic monthly allocations of water for the water conservation phases set forth in Ordinance No. 29; and

WHEREAS, the District Board of Directors adopted Ordinance No. 32 on November 17, 1998, which ordinance established the Administrative Code of Crestline Village Water District and placed the Water Conservation Program in Section 3.3 of the Administrative Code; and

WHEREAS, the District Board of Directors adopted Ordinance No. 35 on August 19, 2014, which ordinance modified Section 3.3 of the Administrative Code; and

WHEREAS, pursuant to Section 3.3.5 of the Administrative Code, the District Board of Directors may, by resolution, establish the base calendar year from which the amount of water use reduction is calculated and order that the appropriate phase of water use reduction be implemented; and

WHEREAS, the District is presently operating under Phase I, a General Water Use Reduction Program; and

WHEREAS, based on the recommendation and report of District Staff, the projected supply and demand for water throughout the District is such that Phase I.a provides for more appropriate conservation of water within the District;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Crestline Village Water District as follows:

Section 1. Based on the report and recommendation of the District Staff, the projected water supply and demand for water in the District is such that water conservation efforts as provided in Phase I.a of the District's Water Conservation Program, implemented pursuant to Section 3.3.5 of the Administrative Code is necessary to encourage the conservation of water within the District's service area.

Section 2. Effective with the September 2014 billing period for the District's service areas, the conservation phase of the District's Water Conservation Program shall be changed from Phase I to Phase I.a.

Section 3. Effective with the September 2014 billing period for the District's service areas, the base calendar year from which the amount of water use reduction is calculated is determined to be calendar year 2013.

Section 4. This Board finds and determines that the change to Phase I.a is exempt from the requirements of the California Environmental Quality Act because it can be seen with certainty that there is no possibility that this activity may have a significant effect on the environment and the decision relates only to ongoing operation of District facilities.

Section 5. In accordance with Section 3.3.5 of the Administrative Code, within 10 days after the adoption date of this Resolution, the Secretary of the District shall publish the effective date of this phase change once in a local newspaper and shall mail notice of the phase change to all property owners and customers of record.

ADOPTED, SIGNED and APPROVED this 19th day of August 2014.

____
President, Crestline Village Water District

ATTEST:

____
Secretary, Crestline Village Water District

PUBLIC NOTICE

NOTICE OF CHANGE IN THE EXISTING STAGE OF
WATER CONSERVATION UNDER THE
CRESTLINE VILLAGE WATER DISTRICT'S
WATER CONSERVATION PROGRAM

Effective as of the September 2014 billing period, the Board of Directors of Crestline Village Water District adopted Resolution No. 414 and, thereby, changed the existing phase of water conservation under the District's Water Conservation Program. The District was operating under Phase I, a General Water Use Reduction Program. Pursuant to Resolution No. 414, the District will be operating under Phase I.a requiring a 5% reduction in water use.

August 19, 2014

Karl B. Drew
Secretary, Board of Directors
CRESTLINE VILLAGE WATER DISTRICT

STATE OF CALIFORNIA)
) SS.
COUNTY OF SAN BERNARDINO)

I, KARL B. DREW, Secretary of the Board of Directors of the Crestline Village Water District, do hereby certify that the foregoing Resolution was duly adopted by the Board of Directors of said District at a regular meeting of said Board held on the 19th day of August, 2014, and that it was adopted by the following roll call vote:

AYES:	Directors Davis, Stone, Farrell, Clanin and Bracher
NOES:	None
ABSENT:	None
ABSTAINED:	None

____
Secretary of the Board of Directors
of Crestline Village Water District

(SEAL)

STATE OF CALIFORNIA)
) SS.
COUNTY OF SAN BERNARDINO)

I, ______________________________, Secretary of the Board of Directors of the Crestline Village Water District, do hereby certify that the above and foregoing is a full, true and correct copy of Resolution No. 414 of said Board, and that the same has not been amended or repealed.

DATED: _________________

____
Secretary of the Board of Directors
of Crestline Village Water District

(SEAL)

APPENDIX L

RESOLUTION NO. 460

RESOLUTION OF THE BOARD OF DIRECTORS OF CRESTLINE VILLAGE WATER DISTRICT ADOPTING NEW WATER RATE SCHEDULE

WHEREAS, Crestline Village Water District is duly organized and exists under and pursuant to the provisions of the County Water District Law, and serves the community of Crestline in the County of San Bernardino, State of California; and

WHEREAS, the Board of Directors of Crestline Village Water District set the existing water rate schedule over three (3) years ago, at their meeting on December 20, 2016; and

WHEREAS, in the three (3) years since the existing water rate schedules were last increased, the District has incurred significant increased operational costs including, without limitation, increases in cost of living adjustments and salary increases to District employees and increases in insurance costs, all without increasing water rates for its customers; and

WHEREAS, it has been, and continues to be, the policy of the Board of Directors of Crestline Village Water District to impose on their customers only such rates and charges as are necessary and proper; and

WHEREAS, based on the reports and studies of the Crestline Village Water District staff, including without limitation the financial forecast and water rate study presented to this Board of Directors on March 17, 2020, budget information for the current and future fiscal years, and the studies and actions taken by the Rate Study Committee, all of which have been made available to this Board of Directors and to the public, and all of which have been reviewed and considered by this Board of Directors, it appears that an increase in the Monthly Minimum Charge as shown in the new water rate schedule imposed by this Resolution are necessary and proper; and

WHEREAS, the increase to the Monthly Minimum Charge and Basic Allocation in the District's water rate will help ensure the health and safety of the community, while protecting the District's financial health; and

WHEREAS, the procedures required by Proposition 218, Article XIII D, Section 6 of the California Constitution and Sections 53750 - 53758 of the Government Code, have been followed, including without limitation the provision of proper notice and the holding of a public hearing; and

WHEREAS, the Board of Directors of Crestline Village Water District has the legal authority to impose the rates and charges set forth in this Resolution and, pursuant to Water Code section 31007, has the legal obligation to fix a rate or rates for water that will result in revenue which, together with other revenues, will pay the operating expenses of the District, provide for repairs and depreciation of works owned or operated by the District, pay the interest on any bonded debt and, so far as possible, provide a fund for the payment of the principal of the bonded debt as it becomes due;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Crestline Village Water District as follows:

Section 1. The following water rate schedule is hereby set for the Crestline Village Water District:

The District hereby adopts an annual increase over a five-year period of $5.00 per month for all meter sizes to the Monthly Minimum Charge in the District's water rate beginning July 01, 2020. An increase of $1.00 per month for all meter sizes to the Monthly Minimum Charge in the District's water rate beginning May 01, 2021. An increase of $1.00 per month for all meter sizes to the Monthly Minimum Charge in the District's water rate beginning May 01, 2022. An increase of $1.00 per month for all meter sizes to the Monthly Minimum Charge in the District's water rate beginning May 01, 2023. An increase of $2.00 per month for all meter sizes to the Monthly Minimum Charge in the District's water rate beginning May 01, 2024. The Basic Allocation Rate is to be increased to $5.10 per one hundred cubic foot (CCF) of water for the 0-1300 CF consumption range July 01, 2020. Consequently, the Excess Consumption Rate becomes $7.65 per 100 CF for 1301 CF or greater as recommended by the Study.

Water Rate Schedule – July 01, 2020
Water Conservation Program - Phase I general conservation measures in effect

Monthly Minimum Charge:

5/8 X 3/4	inch meter	$30.50*
3/4	inch meter	31.50
1	inch meter	32.50
1	inch meter (Residential fire service)	34.75
1-1/2	inch meter	36.50
2	inch meter	41.50
3	inch meter	47.50
4	inch meter	70.50

* 5/8 X 3/4 inch meter is standard for most residential accounts.

Quantity Rates:

Basic Allocation - 0 to 1300 cubic feet	$5.10 per 100 cubic ft
Quantity in excess of 1300 cubic feet	$7.65 per 100 cubic ft

Water Rate Schedule - Commercial Fire Services: Commercial Fire Services have detector check meters to detect any water that passes through the fire service water line. The detector check meter is a 5/8 X 3/4 inch meter.

Monthly Minimum Charge:

5/8 X 3/4 inch meter	$34.00

Quantity Rates:

Basic Allocation	$5.10 per 100 cubic ft
Quantity in excess of 1300 cubic feet	$7.65 per 100 cubic ft

Water Rate Schedule – May 01, 2021
Water Conservation Program - Phase I general conservation measures in effect

Monthly Minimum Charge:

5/8 X 3/4	inch meter	$31.50*
3/4	inch meter	32.50
1	inch meter	33.50
1	inch meter (Residential fire service)	35.75
1-1/2	inch meter	37.50
2	inch meter	42.50
3	inch meter	48.50
4	inch meter	71.50

* 5/8 X 3/4 inch meter is standard for most residential accounts.

Quantity Rates:

Basic Allocation - 0 to 1300 cubic feet	$5.10 per 100 cubic ft
Quantity in excess of 1300 cubic feet	$7.65 per 100 cubic ft

Water Rate Schedule - Commercial Fire Services: Commercial Fire Services have detector check meters to detect any water that passes through the fire service water line. The detector check meter is a 5/8 X 3/4 inch meter.

Monthly Minimum Charge:

5/8 X 3/4 inch meter	$35.00

Quantity Rates:

Basic Allocation	$5.10 per 100 cubic ft
Quantity in excess of 1300 cubic feet	$7.65 per 100 cubic ft

Water Rate Schedule – May 01, 2022
Water Conservation Program - Phase I general conservation measures in effect

Monthly Minimum Charge:

5/8 X 3/4	inch meter	$32.50*
3/4	inch meter	33.50
1	inch meter	34.50
1	inch meter (Residential fire service)	36.75
1-1/2	inch meter	38.50
2	inch meter	43.50
3	inch meter	49.50
4	inch meter	72.50

* 5/8 X 3/4 inch meter is standard for most residential accounts.

Quantity Rates:

Basic Allocation - 0 to 1300 cubic feet	$5.10 per 100 cubic ft
Quantity in excess of 1300 cubic feet	$7.65 per 100 cubic ft

Water Rate Schedule - Commercial Fire Services: Commercial Fire Services have detector check meters to detect any water that passes through the fire service water line. The detector check meter is a 5/8 X 3/4 inch meter.

Monthly Minimum Charge:

5/8 X 3/4 inch meter	$36.00

Quantity Rates:

Basic Allocation	$5.10 per 100 cubic ft
Quantity in excess of 1300 cubic feet	$7.65 per 100 cubic ft

Water Rate Schedule – May 01, 2023

Water Conservation Program - Phase I general conservation measures in effect

Monthly Minimum Charge:

5/8 X 3/4	inch meter	$33.50*
3/4	inch meter	34.50
1	inch meter	35.50
1	inch meter (Residential fire service)	37.75
1-1/2	inch meter	39.50
2	inch meter	44.50
3	inch meter	50.50
4	inch meter	73.50

* 5/8 X 3/4 inch meter is standard for most residential accounts.

Quantity Rates:

Basic Allocation - 0 to 1300 cubic feet	$5.10 per 100 cubic ft
Quantity in excess of 1300 cubic feet	$7.65 per 100 cubic ft

Water Rate Schedule - Commercial Fire Services: Commercial Fire Services have detector check meters to detect any water that passes through the fire service water line. The detector check meter is a 5/8 X 3/4 inch meter.

Monthly Minimum Charge:

5/8 X 3/4 inch meter	$37.00

Quantity Rates:

Basic Allocation	$5.10 per 100 cubic ft
Quantity in excess of 1300 cubic feet	$7.65 per 100 cubic ft

Water Rate Schedule – May 01, 2024
Water Conservation Program - Phase I general conservation measures in effect

Monthly Minimum Charge:

5/8 X 3/4	inch meter	$35.50*
3/4	inch meter	36.50
1	inch meter	37.50
1	inch meter (Residential fire service)	39.75
1-1/2	inch meter	41.50
2	inch meter	46.50
3	inch meter	52.50
4	inch meter	75.50

* 5/8 X 3/4 inch meter is standard for most residential accounts.

Quantity Rates:

Basic Allocation - 0 to 1300 cubic feet	$5.10 per 100 cubic ft
Quantity in excess of 1300 cubic feet	$7.65 per 100 cubic ft

Water Rate Schedule - Commercial Fire Services: Commercial Fire Services have detector check meters to detect any water that passes through the fire service water line. The detector check meter is a 5/8 X 3/4 inch meter.

Monthly Minimum Charge:

5/8 X 3/4 inch meter	$39.00

Quantity Rates:

Basic Allocation	$5.10 per 100 cubic ft
Quantity in excess of 1300 cubic feet	$7.65 per 100 cubic ft

Section 2. Exemption from the California Environmental Quality Act. The Board of Directors finds that the imposition of rates and charges pursuant to this Resolution No. 460 is exempt from the provisions of the California Environmental Quality Act (CEQA) since the rates and other charges have been imposed for the purposes of meeting operating expenses, purchasing or leasing supplies, equipment or materials, meeting financial reserve needs and requirements, and obtaining funds for capital projects necessary to maintain service within existing service areas, and, additionally, since the imposition of these rates and charges constitutes the creation of government funding mechanisms which do not involve commitment to any specific project which may result in a potentially significant physical impact on the environment or which will be used to fund projects which have CEQA documentation or will have CEQA documentation in place prior to construction of any facility or facilities.

Section 3. Repeal of Prior Water Rate Schedule. The water rate schedule for Crestline Village Water District as set by Board action on December 20, 2016, and any other motions or resolutions of Crestline Village Water District inconsistent with the new water rate schedules established in Section 1 of this Resolution No. 460, are hereby repealed effective as of the effective date specified in Section 4 below.

Section 4. Effective Date. This Resolution and the water rate schedule imposed pursuant hereto shall become effective for all billing periods that begin in July 2020.

Dated: June 16, 2020 CRESTLINE VILLAGE WATER DISTRICT

By: ______________________________
President

ATTEST:

____
Secretary

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, ALAN E. CLANIN, Secretary of the Board of Directors of the Crestline Village Water District, do hereby certify that the foregoing Resolution was duly adopted by the Board of Directors of said District at a regular meeting of said Board held on the 16th day of June 2020, and that it was adopted by the following roll call vote:

AYES: Directors
NOES: None
ABSENT: None
ABSTAINED: None

____
Secretary of the Board of Directors
of Crestline Village Water District

(SEAL)

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, ____________________________, Secretary of the Board of Directors of the Crestline Village Water District, do hereby certify that the above and foregoing is a full, true and correct copy of Resolution No. 460 of said Board, and that the same has not been amended or repealed.

DATED: ________________

____
Secretary of the Board of Directors
of Crestline Village Water District

(SEAL)

APPENDIX M

(To be completed when all of the required submittals are completed)