Mammoth Community Water District

2020 URBAN WATER MANAGEMENT PLAN
May 2021

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1.1 Background and Purpose

The Mammoth Community Water District's (MCWD) 2020 Urban Water Management Plan (UWMP or Plan) has been prepared to comply with the Urban Water Management Planning Act (Act), as required by the California Water Code (CWC). The purpose of the Act is to ensure water suppliers assess resources and plan for current and future water demands to avoid future emergency shortfalls of water supplies. Information is presented in five-year planning intervals for the next 20 years, until 2040. Local water purveyors are tasked with developing their own UWMP as they are considered to have the most knowledge about resource planning for their unique location and circumstances.

The Act has gone through significant expansion and revision since 2015 in response to prolonged droughts, groundwater overdraft, regulatory revisions and changing climatic conditions.

MCWD's 2020 UMWP will serve as a guide for District strategic planning to ensure long-term water supply reliability for the Town of Mammoth Lakes (Town). It is a resource for the public, MCWD staff, and elected officials to understand MCWD's past, current, and future water supply conditions and management. This Plan is an update of the District's 2015 UWMP and serves as an independent and complete document.

In 2009, the Act was modified by the Water Conservation Bill of 2009 (SB X7-7) which requires a statewide 20 percent reduction in urban per capita water use by December 31, 2020. To meet this goal in the 2015 UWMP, every urban retail water supplier had to establish and report a baseline daily per capita water use and establish 2020 and 2025 targets. In the 2020 UWMP, MCWD must demonstrate MCWD's compliance with the target. State grants and loans are not available to water purveyors that do not comply with the requirements of SB X7-7.

For ease of reading and clarification, Appendix A contains a list of definitions and abbreviations used in this document.

1.2 UWMP and the California Water Code

The Act was enacted by the California legislature in 1983 (AB 797; Water Code, Division 6, Part 2.6, §10610-§10656). Lawmakers recognized state waters as a limited and renewable resource that are continuously subject to increasing demands. To ensure a reliable, long-term and safe water supply for California, the Act requires water suppliers providing water for municipal purposes to more than 3,000 customers, or supplying more than 3,000 acre-feet of water annually, to pursue efficient use of water for urban water demands through policies and management planning.

The Plan is required to include a description of the various components that affect the water supply and demands in a supplier's service area. For example, information about the available and potential future water resources; climate, legal and environmental supply restrictions; plans for water shortages; and implementation of measures to reduce water demand are required for inclusion in UWMPs. Urban water suppliers must prepare and submit to the California Department of Water Resources (DWR) an updated UWMP every five years.

1.2.1 Water Conservation Act of 2009 (SB X7-7)

In November 2009, Senate Bill SB X7-7 was adopted requiring a 20 percent statewide average reduction of per capita water use by December 31, 2020. To achieve this mandate, water suppliers were required to report on baseline water use and develop an interim 2015 target and 2020 target. Urban water suppliers that do not meet the provisions of the Water Conservation Act of 2009 will not be eligible for state water grants or loans, effective in 2016. Chapter 5 of this UWMP demonstrates that MCWD met its 2020 target pertaining to SB X7-7.

1.2.2 Applicable Changes to the CWC since 2015 UWMPs

Several changes to the CWC have been enacted since the 2015 UWMP. The major changes that affect 2020 UWMPs are summarized below:

1. Dry-year water reliability planning has been changed from a "multiyear" time period to a "drought lasting five consecutive water years".
2. The Plan must include a drought risk assessment for water supply reliability.
3. Suppliers must specifically address their seismic risk and have a mitigation plan.
4. The Plan must include a Water Shortage Contingency Plan, with specific elements.
5. 2020 UWMP must be consistent with Groundwater Sustainability Plans (does not affect MCWD).
6. The Plan must include a lay description.

1.3 Urban Water Management Plans in Relation to Other Planning Efforts

Development of the UWMP required collaboration with the Town of Mammoth Lakes to estimate future water demand based on buildout scenarios and policies that affect water use efficiency. In addition to oral and e-mail communication with Town Community and Economic Development Department (CEDD) staff, the following Town documents were relied on:

- Town of Mammoth Lakes Housing Element 2019 – 2027, TOML 2019
- Town of Mammoth Lakes General Plan Update, TOML Sept 2019
- Resilient Mammoth Lakes – Vulnerability Assessment, TOML Aug 2019
- Mammoth Lakes Tourism Occupancy Reports

The reliability of local water supply resources includes consideration of the expansion of the Casa Diablo Geothermal Plant. MCWD continues to work closely with the U.S. Bureau of Land Management and the plant owner, Ormat Technologies, Inc., to ensure protection of groundwater resources. A Monitoring and Response Plan that includes additional monitoring wells was adopted; this will serve to protect MCWD's water resources from potential geothermal production and injection impacts.

1.4 UWMPs and Grant or Loan Eligibility

Acceptance of a completed UWMP by DWR is required to be eligible for water management grants and loans administered by DWR. Urban water suppliers must also maintain a current, DWR approved UWMP throughout the term of any grant or loan administered by DWR. The Water Code has provisions for Urban Suppliers that do not meet the SB X7-7 required per capita reductions and desire to receive DWR administered grants and loans. These provisions are specified in CWC §10608.56 (a) – (f) and require the urban water supplier to submit a schedule, financing plan, and budget for achieving the per capita

reductions; or demonstrate that the service area qualifies as a disadvantaged community or meets both criteria. MCWD has met its SB X7-7 targets, so is eligible for state grants and loans.

1.5 Lay Description

The Mammoth Community Water District was formed in 1957 to provide water and wastewater services to the community of Mammoth Lakes in Mono County, California. The District supplies water for municipal purposes only. Potable treated water is stored in ten distribution system storage reservoirs with a total storage capacity of 8.2 million gallons (MG) or 25.2 acre-feet. Approximately 2 million gallons of storage is available for reclaimed water stored prior to distribution for irrigation. The water distribution system also includes 81 miles of pipelines, seven booster pump stations, five pressure zones within an elevation range between 7,520 and 8,620 feet, and 21 monitoring wells in the Mammoth Basin. All of MCWD's water resources are located in the Mammoth Basin. Sources of water include surface water, groundwater, and recycled water. There is no water imported into the service area.

Each year, winter precipitation received and stored as snow in the Lakes Basin provides MCWD's surface water resources as the weather warms. Surface water supply is stored and diverted from Mammoth Creek at Lake Mary. Lake Mary is relatively small with a storage capacity of about 606 acre-feet. Because of this storage limitation, high spring runoff flows typically cannot be fully utilized as allowed under MCWD's water right permit and licenses. MCWD utilizes groundwater from nine production wells in the Mammoth Basin to supplement its primary surface water supply. Groundwater supply can be limited by the capacity of the District's nine wells, groundwater level drawdown impacts on well production, and the ability of the two groundwater treatment plants (GWTPs) to effectively treat and remove naturally occurring drinking water contaminants such as arsenic, iron and manganese. The groundwater aquifer is recharged by the same snowpack supplying surface water. MCWD also reclaims and treats wastewater to Title 22 standards. Recycled water is used for golf course irrigation and for construction water.

The District's service area has a large transient population composed mainly of out-of-town visitors and seasonal employees. Future population estimates are challenging in a transient community, where visitation can be easily impacted by weather/snow conditions and economic conditions. In response, the District prepared its analysis assuming Town Buildout is achieved in 2040, which is unlikely. With a heavy reliance on snowpack for water supply, the District remains flexible and dynamic to adapt to the potential impacts of climate change. MCWD has developed effective demand management measures to be prepared in times of water supply shortage. In addition, the District continues to ensure protection of its water resources, as well as exploring options for expansion of its groundwater capacity.

2.1 Basis for Preparing a Plan

The CWC requires every urban water supplier to adopt an Urban Water Management Plan and to update the plan every five years. An Urban Water Supplier is defined as "a supplier, either 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 of water annually" (CWC §10617). MCWD serves approximately 3,797 connections and supplies, based on a ten-year average, 2,300 acre-feet of water annually.

2.2.1 Public Water Systems

The state defines a Public Water System (PWS) as a "system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days of the year." These systems are regulated by the State Water Resources Control Board (SWRCB), Division of Drinking Water. The SWRCB utilizes Public Water System data to determine whether a supplier meets the Urban Water Supplier criteria and requirement to adopt and submit a UWMP to Department of Water Resources (DWR). MCWD's PWS data provided to DWR for 2020 is shown in Table 2-1 Public Water Systems below.

Table 2-1 Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 (ac/ft)
2610001	Mammoth CWD	3,797	2,274

(DWR Table 2-1)

2.2 Individual or Regional Planning and Compliance

MCWD's 2020 UWMP is an Individual rather than a Regional Urban Water Supplier report. Agencies may choose to develop a Regional UWMP in cooperation with other groups, wholesalers or other regional entities.

2.3 Fiscal or Calendar Year and Units of Measure

Calendar year and acre-feet are used as units of measurement in this UWMP unless noted otherwise.

2.4 Coordination and Outreach

The CWC mandates that Urban Water Suppliers coordinate plan development with other appropriate agencies in the region. MCWD notified the Town of Mammoth Lakes (Town or TOML), Mono County, the local United States Forest Service (USFS) offices, the Los Angeles Department of Water and Power (LADWP) and the Inyo – Mono Regional Water Management Group Program Office in December 2020 that the 2020 UWMP would be updated and comments would be accepted. The list of agencies and organizations that received notification are included in Table 2-2 Agencies/Organizations Notified of UWMP Update and a copy of the notification letter is provided in Appendix B.

Table 2-2 Agencies/Organizations Notified of UWMP Update

Coordinating agencies	Received Notice of Preparation	Contacted for assistance
Town of Mammoth Lakes	Mailed 01/06/21	X
Mono County	Mailed 01/06/21	
LADWP	Mailed 01/06/21	
Inyo National Forest Service – Mammoth Lakes Ranger Station	Mailed 01/06/21	
Inyo – Mono Regional Water Management Group Program Office	Mailed 01/06/21	

The development of the UWMP relies heavily on the Town to supply development data and population and occupancy estimates. Estimates of future water demand are based on future buildout scenarios contained in Town planning documents. MCWD staff collaborated with Town CEDD staff to ensure buildout scenarios were interpreted correctly for use in estimating future water demand.

3.1 General Description

The Mammoth Community Water District was formed in 1957 to provide water and wastewater services to the community of Mammoth Lakes in Mono County, California. The Town of Mammoth Lakes has a resident population of 7,859 people (CA DOF 2019) and a varying transient population mainly composed of tourist visitors and seasonal employees. MCWD is a public agency formed under the County Water District Law (CWC §§ 30000 et seq.), and is governed by a publicly-elected five member Board of Directors.

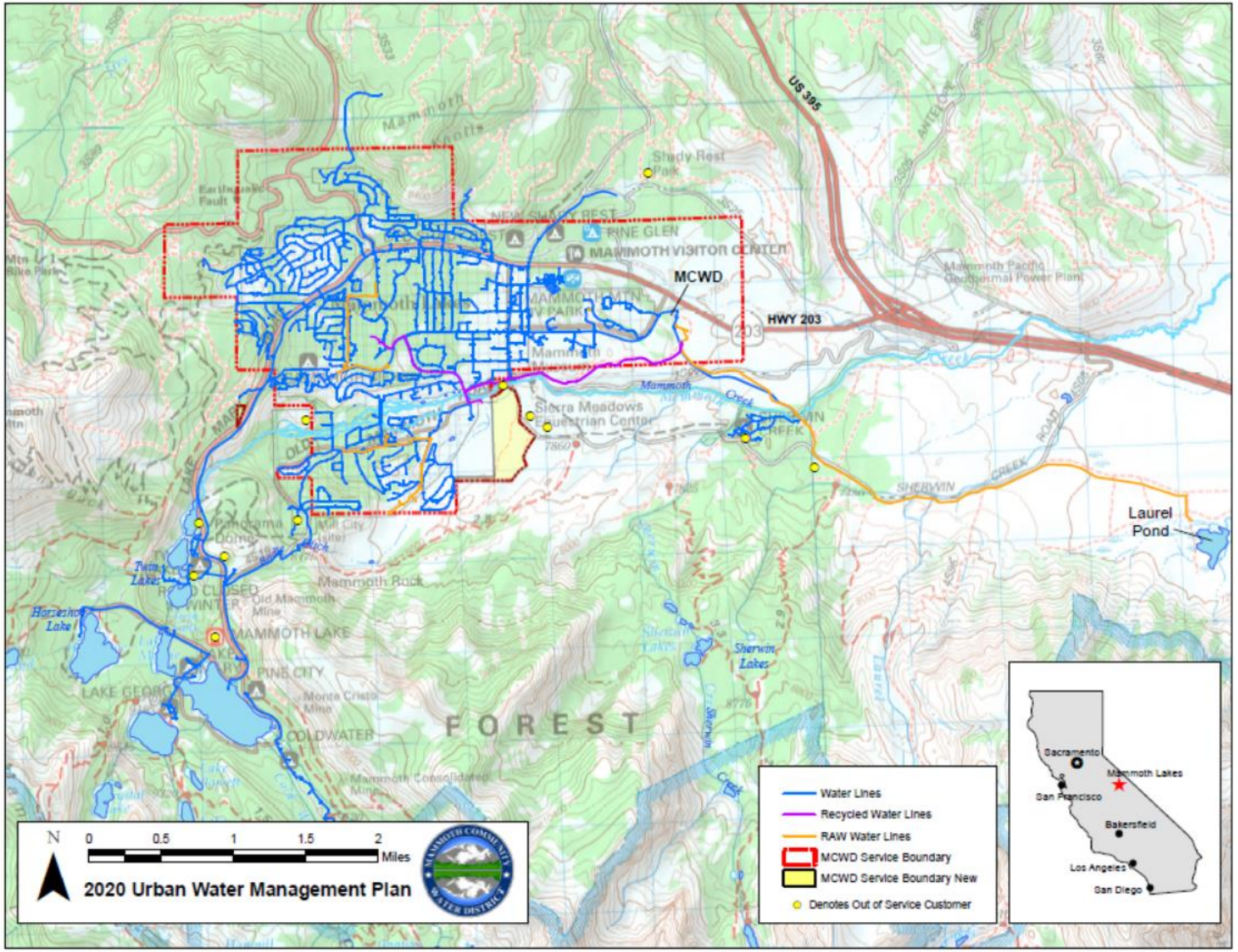
MCWD has 3,797-metered connections and relies on a mix of water supplies from Mammoth Creek (Lake Mary), the Mammoth groundwater basin, and reclaimed water. The District has four water treatment facilities; one plant receives surface water from Lake Mary, two treat water from the nine groundwater production wells, and the wastewater treatment plant provides treated reclaimed water to distribute for irrigation. Potable treated water is stored in ten distribution system storage reservoirs with a total storage capacity of 8.2 million gallons (MG) or 25.2 acre-feet. Approximately 2 million gallons of storage is available for reclaimed water stored prior to distribution for irrigation. The water distribution system also includes 81 miles of pipelines, seven booster pump stations, five pressure zones within an elevation range between 7,520 and 8,620 feet, and 21 monitoring wells in the Mammoth Basin. MCWD also provides wastewater collection and treatment, which includes wastewater recycling for golf course irrigation within its service area.

The Town is located in a vast scenic natural landscape that attracts large numbers of visitors. At an elevation of approximately 7,800 feet, the Town is just east of the 12,500-foot peaks on the Sierra Nevada crest. Further east, the elevation drops to the 7,000-foot terrain of the Great Basin region. In 1993, the Town adopted an Urban Growth Boundary (UGB) within the 25 square mile Municipal Boundary to delineate the urban landscape from the surrounding natural landscape. The UGB encompasses approximately 4 square miles (TOML 2019b). There are 2,500 acres of privately owned land in the developed portion of the Town's Municipal Boundary, with the remaining lands publicly owned and managed by the Inyo National Forest unit of the United States Forest Service.

3.2 Service Area Boundary

MCWD's service area is approximately 3,828 acres and aligns closely with the Town's UGB. Since the 2015 UWMP, MCWD added 93.84 acres of land to its service area to accommodate a planned development, Snowcreek VIII, shown in Figure 3-1 as "MCWD Service Boundary New". MCWD also supplies water to several small entities outside the service area by agreement. These entities are USFS Twin Lakes Campgrounds and Cabins, USFS Sherwin Creek Campground, Camp High Sierra, YMCA Campground, Mammoth Lakes Pack Station, USFS Pack Station, Sierra Meadows Ranch, Tamarack Lodge and Resort, Twin Lakes Art Gallery, Mill City Cabins, a private parcel, Shady Rest Park, and Mammoth Creek Park. Figure 3-1 MCWD Service Area, Out of Service Area Customers, and MCWD Facilities displays the District's Service Boundary, the newly added Service Area, the Raw Water Lines, Recycled Water Lines, Potable Water Lines, and notes locations of the Out-of-Service Area Customers.

Figure 3-1 MCWD Service Area, Out of Service Area Customers, and MCWD Facilities



3.3 Service Area Climate and Climate Change

Mammoth Lakes is located in the rain shadow of the Sierra Nevada mountain range; however, Mammoth Pass provides a low spot in the crest that allows some moisture from the west to flow into the region, helping to mitigate the rain shadow effect. Mammoth Mountain Ski Area, located just east of the crest, captures a significant amount of snowfall each winter. Annual precipitation varies considerably within the service area, depending on elevation and distance from Mammoth Pass. To demonstrate the elevation gradient of precipitation extremes, average annual precipitation ranges from about 42.5 inches at Mammoth Pass (9,300 ft.) at the western boundary of the Mammoth basin watershed to 10 inches at the Crowley Lake Dam (6,900 ft.) (CDEC, LADWP records) in the easternmost part of the basin. Average annual precipitation in the Town is approximately 23 inches. See Table 3-1 Average Temperature and Precipitation for average monthly climate data. In Town, the winter season, December through February, is characterized by mostly sunny skies and high temperatures averaging about 40°F and low temperatures averaging about 16°F. In contrast, summers are mild with average temperatures about 75°F for a high and 44°F for a minimum.

Table 3-1 Average Temperature and Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg. Max. Temperature (F)	40.5	39.2	44.9	49.3	60.2	69.7	78.1	77.1	71	60.0	48.2	41.1	56.6
Avg. Min. Temperature (F)	16.3	15.9	20.7	24.8	33.1	40.4	46.5	45.0	37.9	28.5	21.8	15.9	28.9
Avg. Total Precipitation (in.)	4.60	3.77	2.40	1.54	1.17	0.56	0.51	0.31	0.37	1.51	2.09	4.13	22.95
Avg. Total Snowfall (in.)	43.1	44.0	30.2	17.0	4.4	0.5	0.0	0.0	0.0	6.7	14.9	45.3	206.0
Avg. Snow Depth (in.)	20	25	20	7	0	0	0	0	0	1	2	10	7

Period of Record from USFS Station in Mammoth Lakes 12/1/1993 to 6/10/2016. Data source: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5280. Accessed 12/28/2020.

3.3.1 Climate Change

In 2008, the State of California moved to become better informed about climate change impacts and to prepare for the resulting effects. State agencies were asked to develop strategies to identify and plan for expected impacts of climate change. The initial result of these efforts was the 2009 California Climate Adaptation Strategy report (CNRA 2009). In 2018, the Safeguarding California Plan was completed as an update to the CNRA. The update is the State's roadmap for everything state agencies are doing and will do to protect communities, infrastructure, services, and the natural environment from climate change impacts (CNRA, 2018)

Changes in hydrology identified in the Safeguarding California Plan include:

- ◊ Declining snowpack, earlier snow melt, more precipitation as rain than snow
- ◊ More frequent and longer droughts
- ◊ More frequent and more severe flooding
- ◊ Changes in the timing and volume of peak runoff, and consequent impacts on water quality and availability

Vulnerabilities of water resources identified in the Safeguarding California Plan include:

- ◊ Changes to water supplies
- ◊ Land Subsidence
- ◊ Increased water pollution

- ◊ Erosion
- ◊ Flooding
- ◊ Risks to water infrastructure and operations
- ◊ Degradation of watersheds

The CNRA recommended the State develop a website to "synthesize existing climate change scenarios and climate impact research and to encourage its use in a way that is beneficial for local decision-makers." This website, www.Cal-Adapt.org, is now available to the public. The data in Cal-Adapt "is taken from a selection of global climate models, and downscaled to about 7-kilometer resolution" to make it more useful for California regions. Furthermore, agencies are able to delineate an area based on a specific watershed. Analysis is provided under two separate climate scenarios utilizing Representative Concentration Pathways (RCPs). Data is analyzed for RCP 4.5, which assumes that greenhouse gas emissions (GHG) peak around 2040 and then start to decline due to changes in society's behavior, and in RCP 8.5, which assume that GHG emissions continue to rise significantly through 2050 and then plateau around 2100.

Figure 3-2 Modeled Temperature Changes for the Mono County Area from the Cal-Adapt website shows modeled changes to average temperatures in the Mono County region. The temperature model for Mono County shows a range of temperature increases in Mid-Century (2035-2064), from +4.3°F to +5.9°F for the low and high emissions scenarios, respectively, and increases in End-Century (2070-2099), from 6.2°F to 9.9°F. "On average, the projections show little change in the total annual precipitation in California" (Cal-Adapt, 2018). However, the models indicate a decrease in snowpack water content, due to more precipitation falling as rain instead of snow. Figure 3-3 Modeled Snowpack Changes for the Hot Creeks-Owens Watershed (RCP 4.5) shows changes to snow water equivalence in the Hot Creek-Owens River Watershed under 4 models in the RCP 4.5 scenario. The model indicates a decrease in snow water equivalence from an annual mean for 1961-1990 of 8.9 inches to an annual mean for 2070-2099 of 6.8 inches. Under the RCP 8.5 scenario the annual mean for 2070-2099 decreases to 4.9 inches.

In 2019, The Town of Mammoth Lakes completed a Vulnerability Assessment to assess climate change impacts. The assessment considered 10 exposures faced by Mammoth Lakes:

- ◊ Drought
- ◊ Extreme heat
- ◊ Flooding
- ◊ Forestry pests and diseases
- ◊ Human health hazards
- ◊ Landslides and mudflows
- ◊ Severe weather
- ◊ Severe winter weather
- ◊ Smoke and ash
- ◊ Wildfire

The Drought assessment included in the Vulnerability Assessment includes a discussion regarding future snow conditions. "Overall precipitation levels are not expected to change much, but the snowline around Mammoth Lakes is expected to change significantly because more precipitation is expected to fall as rain rather than snow, reducing the amount of snow that builds up over winter." (Placeworks, 2019). The Vulnerability Assessment also found that floods are projected to increase and, while climate

change does not directly cause more frequent landslides and mudslides, it is projected to increase conditions that can cause them.

Accelerated timing of snowpack melting and runoff is expected due to increased temperatures, as well as potential increased water demands due to longer irrigation seasons and higher temperatures. MCWD's surface and groundwater supply is reliant on winter precipitation, as well as the rate of runoff within the snowpack. Sediment loads from flood events and higher temperatures may have adverse effects of MCWD water quality.

Figure 3-2 Modeled Temperature Changes for the Mono County Area

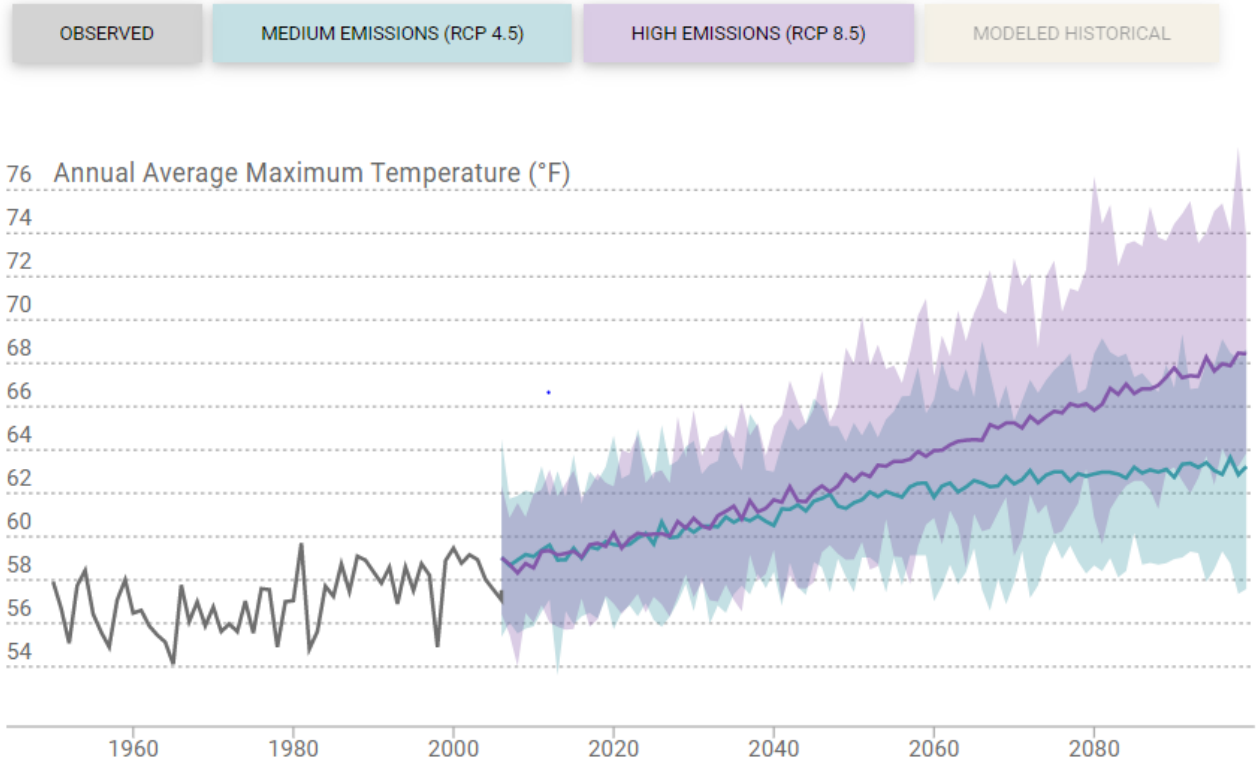
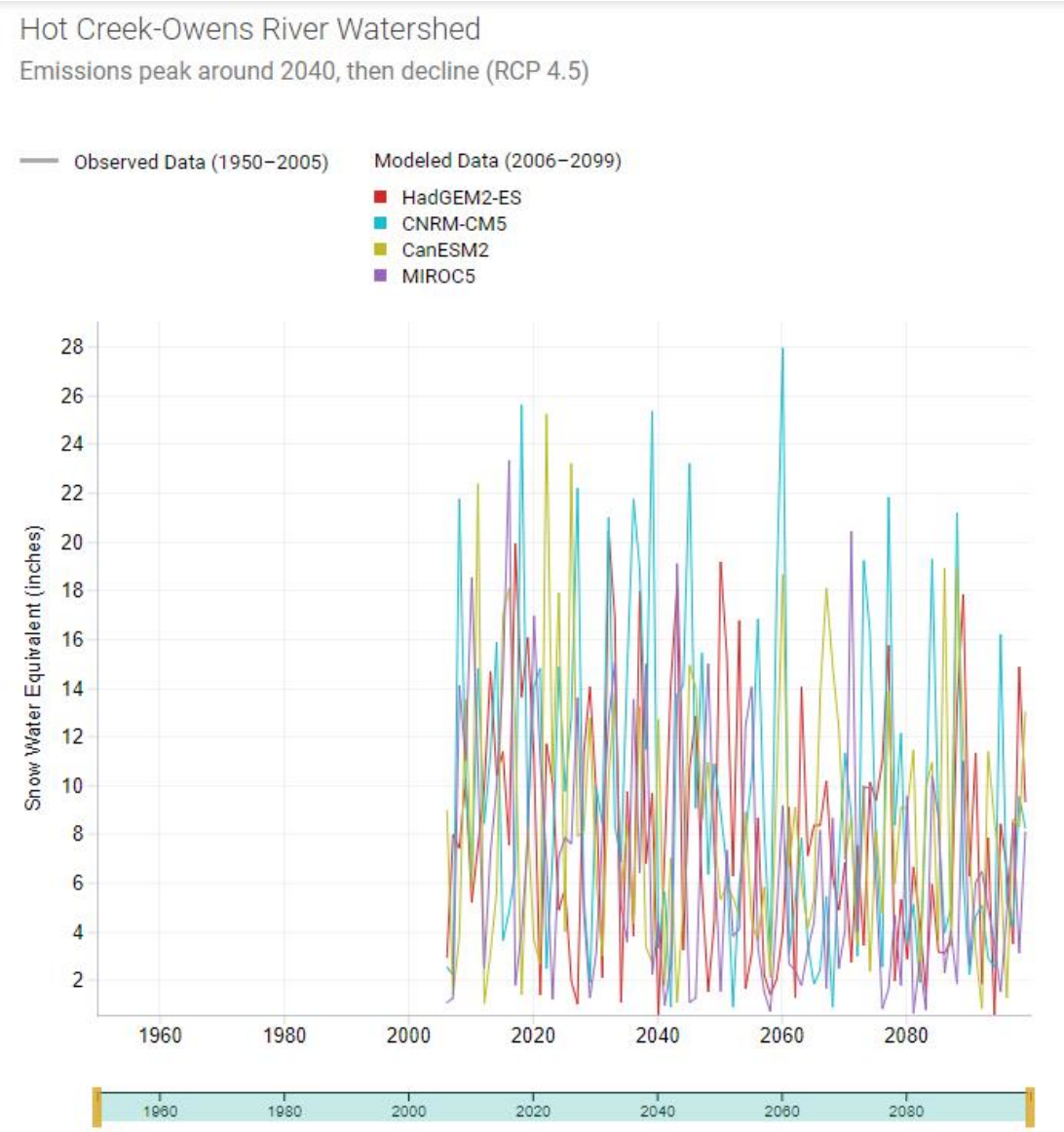


Figure 3-3 Modeled Snowpack Changes for the Hot Creek-Owens Watershed (RCP 4.5)



3.3.2 MCWD's Adaptation Strategies for Climate Change

Water Use Efficiency – Increasing water use efficiency will remain an ongoing program at MCWD. Efficiency projects consist of infrastructure improvements, maximizing recycled water production and delivery for irrigation, leak detection and repair, and customer-based programs. See Chapter 9 for a detailed discussion and descriptions of demand management measures implemented by MCWD.

Integrated Regional Water Management – The District has been an active participant in the Inyo-Mono Integrated Regional Water Management Group since its inception in early 2008. District staff serves on committees and participates in stakeholder meetings. In addition, the District has provided financial support for the group's program office staff to update plans as required by DWR and to apply for group planning and implementation grants. The District intends to remain actively involved with the Inyo-Mono group.

Ecosystem Enhancement/Protection – The integrity of the Mammoth Basin ecosystem is important to MCWD because a well-managed ecosystem has a higher capacity to absorb precipitation and flood events, maintain higher water quality, and draw visitors to the region. To support ecosystem sustainability, the District has 26 monitoring wells to protect groundwater resources. In addition, MCWD collaborated with the United States Bureau of Land Management (BLM), United States Geological Survey (USGS), Great Basin Unified Air Pollution Control District (GBUAPCD), and a local geothermal plant owner, Ormat Corporation, to develop a Groundwater Monitoring and Response Plan that will help protect MCWD aquifers and the local environment by providing real-time water quality data. This collaboration resulted in additional groundwater monitoring wells, one that was drilled in January 2021 and two that are currently in development.

The District collaborated with the Inyo National Forest, Mammoth Lakes Fire Safe Council, and the Mammoth Fire Protection District to implement the Lakes Basin Hazardous Fuels Reduction Project. MCWD provided administrative oversight on the $1,000,000 grant received from Sierra Nevada Conservancy to complete the project.

Expanded Storage and Conjunctive Water Management – Increasing surface water storage by raising the dam at Lake Mary or recharging the aquifer at the District's production wells using aquifer storage and recovery (ASR) would increase water supply reliability in the face of changing hydrologic patterns in the Mammoth Basin. However, no current plan is in place to implement these projects. MCWD conjunctively manages surface and groundwater supplies now; and both are directly linked to the primary water source of natural precipitation within the Basin.

Resource Monitoring and Data Collection – Stream flows, lake levels, and groundwater aquifers are monitored intensively by MCWD. Inflows to Lake Mary are measured daily between April 1 and November 1 and weekly during the remainder of the calendar year. The level of Lake Mary, Mammoth Creek flows, and the groundwater monitoring wells are monitored continuously through SCADA or data loggers. Mammoth Creek near the crossing of Highway 395 is measured daily. Data collected is used to ensure MCWD is managing water resources according to its SWRCB water right licenses and permit, monitor potential impacts to local springs, and improve water supply models.

MCWD has implemented efforts to reduce the potential for wildfire damage to facilities and water supplies. Fuel reduction around MCWD offices and facilities is an ongoing program. In 2019, MCWD supported a large project to complete over 600 acres of valuable fuel reduction work in the Mammoth Lakes Basin, an integral part of MCWD's watershed, by managing a grant for the Mammoth Lakes Fire Safe Council. This project provided valuable protection for the community's water supply. The project created a large fuel break, reduced standing fuel loads, increased defensible space, and improved riparian habitat health within the Mammoth Lakes Basin. There is a small area of the project scheduled for completion in Fall of 2021.

3.4 Service Area Population and Demographics

3.4.1 Service Area Population

The UWMP is required to include an estimate of the current and future population of the service area. Permanent resident population estimates for 2020 relied on data from the 2020 CA Department of Finance (DOF), which reported 7,859 permanent residents in Mammoth Lakes, which decreased from 2015. However, for purposes of evaluating impacts of Mammoth Lakes' population on water and wastewater services, consideration of the transient population is essential. Therefore, in addition to the DOF estimate of the resident population, MCWD added an estimate of the transient population present

in Mammoth Lakes based on Town estimates of dwelling units and an average occupancy report. This combination of transient and resident population is referred to as the "effective annual population" for the purposes of this UWMP.

Future permanent resident population figures were calculated using projections from the State of California Department of Finance which predicts an average growth rate of .23% over the next 20 years in Mono County (DOF 2020). This increase is significantly less than the projected growth rate of 2% which was stated in the 2010 census and the 2015 UWMP. Peak population estimates (visitors and seasonal employees) were based on current and projected buildout of dwelling units and estimated 3.34 persons per unit as described in the Town's General Plan (TOML, 2019b). The average occupancy rate was calculated utilizing Mammoth Lakes Tourism's (MLT) daily occupancy report for every day from January 1, 2016 through December 31, 2020. MLT was founded in 2010 to provide visitor information and encourage visitation to the Mammoth Lakes area. In 2015, MLT started tracking transient occupancy in Mammoth Lakes. Both the current and future estimates of effective annual population assume 52% occupancy of peak non-resident population uses on a continuous basis. In the 2015 UWMP, an average 30% occupancy peak non-resident population was utilized. However, with increased tourism and no updates to the Town studies previously utilized for occupancy estimates, utilizing occupancy numbers produced by MLT provides a more accurate depiction of occupancy in the District's service area over the last five years. Current and projected population estimates are presented below in Table 3-3. Future population estimates are challenging in a transient community, where visitation can be easily impacted by weather/snow conditions and economic health.

Table 3-2 Current and Projected Service Area Population

	2020	2025	2030	2035	2040
Resident Population	7,859[1]	7,950	8,042	8,135	8,247
Peak Visitor Population[2]	34,380	39,058	43,736	48,413	53,091
Effective Annual Population[3]	21,650	24,126	26,603	29,080	31,566

(DWR Table 3-1, Revised)

1. Data from State of Calif. Dept. of Finance
2. Peak visitor population for the Town is based on estimates of average # of occupants and number of existing and projected housing units.
3. The effective population is calculated by subtracting the resident population from the peak visitor figure. Fifty-two percent of this transient population is then added back to the resident population figure to determine the Effective Annual Population.

3.4.2 Other Social, Economic, and Demographic Factors

As described above, Mammoth Lakes has a large transient population that is composed mainly of tourist visitors and seasonal employees, which affects water demand. The tourism-based economy of Mammoth Lakes has resulted in a large portion of the service area being developed to serve visitors, second homeowners, and seasonal workers. For example, 59.4 percent of housing units in Mammoth Lakes were categorized as being used for seasonal, recreational, or occasional use in 2018 (TOML, 2019a). These properties are irrigated throughout the summer regardless of occupancy.

For the permanent resident population, Mammoth Lakes has a slightly younger median age of 32.6 than the state as a whole, which is 36.0 (TOML, 2019a). The Town's largest age group is 25 to 34, which is likely influenced by employment of young adults by Mammoth Mountain Ski Area. With the tourism economy, there is a predominance of leisure and hospitality jobs. The large number of seasonal and part-time jobs available can necessitate year-round residents having multiple jobs over a year. In 2017 annual unemployment rate for the Town of Mammoth Lakes is estimated to have been about 2.2 percent.

Seventy-five percent of Mammoth Lakes' permanent households are in the extremely low, very low, low, and moderate income categories and cannot afford most of the market rate rental or owner-occupied housing in town. The California Department of Housing and Community Development defines overcrowding as more than 1.01 occupants per room, and severe overcrowding as more than 1.5 occupants per room. Overcrowding does not appear to be a problem in Mammoth Lakes with 100.0 percent owner-occupied households having at most one occupant per room. In renter-occupied households, 94.3 percent had at most one occupant per room and 2.4 percent of households had 1.01 to 1.5 occupants per room. However, higher rates of overcrowding may be unreported.

3.5 Land Uses within Service Area

The District services a resort community. The 2007 General Plan for Mammoth Lakes shows that development to house visitors and transient employees comprises 90 percent of the buildout land area, while commercial and light industry uses fill the remaining 10 percent. These percentages did not change with the 2019 update. Mammoth Lakes' buildout scenario is based on residential and lodging units and commercial square footage. In 2019, there were 9,908 existing units, with a projection of 15,302 units at buildout. There are no existing or planned agriculture or large industrial developments in the Urban Growth Boundary (TOML 2019b).

A large, 580-unit, low-income housing project called "The Parcel" was approved in January 2021 to be developed in Mammoth Lakes. This project received a density bonus to be approved for development. The District is actively coordinating with the Town's Planning and Economic Development Commission and Town staff to ensure that the District is involved in the project's development and water demand and connection need

This chapter describes and quantifies current water use and water use projections in five-year increments through the year 2040. Accurately tracking and reporting of current water demands provides sound resource planning to avoid potential future shortfalls in water supply. In addition, future demand projections provide a background for planning necessary infrastructure to support future buildout in the Town of Mammoth Lakes. This information is also used by other agencies that rely on water supply projections.

4.1 Recycled versus Potable and Raw Water Demand

The Mammoth Community Water District supplies potable, raw, and recycled water. Raw water and potable water quantities are reported together because if necessary, the raw water supply could be diverted to the treatment plant to be utilized for potable supply. Currently, recycled water is only supplied to the two golf courses in the service area during irrigation season, approximately May through October. Detailed information regarding recycled water can be found in Chapter 6.

4.2 Past, Current, and Projected Water Use by Sectors

Descriptions of past and current water use and estimates of future demands, divided into five-year increments, are required elements in the UWMP. Customer water demands are further divided into customer use "sectors" as described in CWC §10631(e)(1) and (2) and are shown below in Tables 4-1 and 4-3. In 2016, MCWD reclassified accounts to better align with CWC §10631(e)(1) and (2), which caused some shifting of usage among the sectors when compared to the 2015 UWMP, most notably in the Institutional sector. Customer water demand in this UWMP is defined as water delivered to customers based on meter readings. All MCWD water service connections are metered.

In the 2015 UWMP, MCWD projected 2,066 acre-feet of potable water would be treated in 2020. Actual total water treated in 2020 was 2,024 acre-feet, a 2% difference from the 2015 projection. For this reason, the same methodology was utilized for the 2020 projection. However, it is noted that 2020 had major fluctuations in water demand due to the COVID-19 pandemic affecting travel and over-all water use patterns. Projected water use demand was estimated utilizing the Land Use Element of the Town of Mammoth Lakes' General Plan. "Buildout, as described in the General Plan, refers to the maximum number of potential residential units and minimum amount of commercial, industrial and non-residential square footage within the Town's municipal boundary" (TOML, 2019b). The TOML General Plan states that it is not expected full buildout would be reached within a 20-year horizon. However, because a timeline is not established, this 2020 UWMP projects water supply demand and population based on buildout being reached in 2040. MCWD has correlated its customer database sectors to reflect the Town's land use categories. In December 2019, the TOML approved a density bonus for a large low-income, multi-unit project, The Parcel. The additional units added to the MFR sector have been captured in the water demand projections.

Future water demand projections were developed by averaging customer usage data over the four drought years, 2012-2015 for the SFR, MFR, Commercial, and Landscape sectors. Water demand during those years represents a period during which MCWD implemented Water Shortage Restrictions that resulted in significant demand reductions. Applying these lower-than-normal average water demands to estimated future demand will capture anticipated water efficiencies that will result from legislation, state mandates, and improved technologies. As a result, landscape usage is projected to decrease from

2020 usage, as antiquated irrigation systems are retrofitted. The Institutional class projections were based on usage 2016-2020 because of account class changes that the District implemented in 2016.

Raw and Recycled water is supplied to the two golf courses in the service area. Demand at the golf courses is projected to remain consistent with past years, fluctuating depending on temperature, precipitation, and length of an irrigation season. Projections for Raw and Recycled water were determined by averaging total consumption (Raw and Recycled) from the past 10 years, 2011 – 2020, which had varying climate conditions in the irrigation season, including a drought. Optimization of processes at the wastewater treatment plant resulting from plant improvements allowed for increased production of recycled water. This has resulted in additional recycled water produced and available for delivery. Snowcreek golf course became a recycled water user in 2016. To divide the projected golf course demand between Recycled and Raw water, the past 5-year average of Recycled verses Raw water was applied. 70% of the total golf course usage was applied to Recycled water and the remaining 30% was applied to Raw water. The Snowcreek Golf Course plans to expand the course with an additional 9 holes. The District accounted for this expansion in the Snowcreek Golf Course Recycled Water Agreement and intends to meet the future demand with Recycled Water. For this reason, the expansion is only accounted for in the Recycled water projection. Because no date has been established for the expansion, projections begin to account for the expansion in 2030.

Recycled water is also used for construction. 3 acre-feet per year is projected for construction use and included in the Recycled water total.

4.2.1 Water Use Sectors Listed in Water Code

As previously stated, MCWD has aligned its customer classes with customer use “sectors” as described in CWC §10631(e)(1) and (2). MCWD potable water use categories in this UWMP include Single-family residents, Multifamily, Commercial, Institutional, Landscaped, Raw Water, and Distribution Water Losses. MCWD does not provide water for sale to other agencies, conjunctive use, groundwater recharge, saline water intrusion barriers, or agriculture, and therefore those sectors are not reported on. In addition, MCWD does not have any Industrial customers.

4.2.2 Water Use Sectors in Addition to Those Listed in Water Code

The District does not participate in exchanges, surface water augmentations, transfers or water delivered to wetlands or wildlife habitat. However, MCWD does monitor and maintain flows to support aquatic life and habitat in Mammoth Creek.

4.2.3 Past Water Use

MCWD reviewed usage over the past five years (2016-2020) to assess projected use methodology and understand water use trends. Table 4-1 Past Annual Water Demand – Actual 2016-2020 displays usage over the five-year period.

Table 4-1 Past Annual Water Demand – Actual 2016-2020 (ac/ft)

Water Use Category	2016	2017	2018	2019	2020
Single-family Residential (SFR)	372	422	431	381	467
Multi-family Residential (MFR)	651	714	704	723	736
Commercial	379	378	366	407	304

Water Use Category	2016	2017	2018	2019	2020
Institutional	60	63	52	43	55
Landscape[1]	183	239	242	212	251
Raw water for Golf Courses	123	82	58	44	62
Total*	1,840	1,976	1,993	1,915	2,024

*Total includes volume of water loss

4.2.4 Distribution System Water Loss

MCWD conducts monthly evaluations of the discrepancy between water leaving the water treatment plants and water flowing through customer meters. This frequent check on the distribution system allows staff to act on leaks or meter problems on a regular basis. Distribution system losses can also occur through unauthorized use (theft), meter inaccuracies, and errors in meter reading and billing. MCWD completed a project in 2013 to reduce distribution system losses by replacing aging steel water distribution mains and is currently replacing aging water service laterals. This effort is described in detail in Chapter 9.

The 2020 UWMP is required to use the AWWA Water Audit Manual and Software to determine water loss and to provide the results of the audit in the UWMP. The audit results for non-revenue water in 2016-2020 is reported in Table 4-2.

Table 4-2 Water Loss Reporting for 2016-2020 (ac/ft)

Reporting Period Start Date	Volume of Water Loss
01/2016	72
01/2017	78
01/2018	140
01/2019	105
01/2020	148

(DWR Table 4-4)

4.2.5 Current and Projected Water Use

Current and projected total water use (potable and non-potable) is reported in in Table 4-3. Current and projected water demand for potable and raw water by sector is displayed Table 4-4. Description of how projections were estimated is provided in section 4.2.

Table 4-3 Total Water Use – Potable and Non-Potable – Actual and Projected (ac/ft)

	2020	2025	2030	2035	2040
Potable and Raw Water	2,024	2,385	2,665	3,037	3,409
Recycled Water Demand	193	160	219	219	219
Total Water Demand	2,217	2,545	2,884	3,256	3,628

(DWR Table 4-3)

Table 4-4 Demand for Potable and Raw Water - Actual and Projected (ac/ft)

Water Use Category	Actual	Projected			
	2020	2025	2030	2035	2040
Single-family Residential (SFR)	467	487	507	527	547
Multi-family Residential (MFR)	736	894	1,053	1,211	1,369
Commercial	304	381	458	536	613
Institutional	55	128	202	275	348
Landscape[1]	251	236	164	177	189
Raw water for golf courses	62	67	67	67	67
Losses	148	191	215	247	276
Total	2,024	2,385	2,665	3,037	3,409

(DWR Table 4-1 and 4-2, Revised)

1. The irrigation category includes potable water use on irrigation only metered accounts. Many large landscapes in the service area do not have separate irrigation meters. Recycled water used to irrigate golf courses is not included in this table.

4.2.6 Estimating Future Water Savings

Water consumption data during the years MCWD implemented Water Shortage Restrictions were used to project future water demand. These lower-than-normal usage data are anticipated to capture future water savings as described in Section 4.2 above.

MCWD's Water Shortage Restrictions were updated in 2021 and incorporated into the Water Shortage Contingency Plan (WSCP). A copy of the WSCP can be found in Appendix E. Water conservation has also been increased by the leak detection and fixture rebate programs described in Chapter 9, Demand Management Measures.

4.3 Water Use for Lower Income Households

Water suppliers are required to project lower income household water demand for single-family and multifamily residential housing as identified in the housing element of any city or county in the service area of the supplier. The Town of Mammoth Lakes 2019-2027 Housing Element Report (TOML 2019a), the 2005 General Plan Update EIR (TOML 2007a), and the Community Housing Action Plan (CHAP) (WSW, 2017) were used to estimate low-income housing development for 2021-2040.

The Town's CHAP stated that 595 additional low-income units were required to meet the community's needs. Of these units, 275 should be for ownership and 320 for rent. In response to this expansive need for low-income housing, the TOML purchased an approximately 25-acre parcel within the District's service area and is planning to construct a large, 580-unit affordable housing project. Construction is scheduled to begin in 2021, with a goal to have the first 81 units occupied in 2023. This project received a density bonus to be approved for development. The District is actively coordinating with the Town's Planning and Economic Development Commission and Town staff to ensure the District is abreast of the project's development and water demand and connection needs. The additional units added to the MFR sector have been captured in the water demand projections in Table 4-4 Demand for Potable and Raw Water - Actual and Projected.

Water projections for low-income housing applied 2012-2015 average consumption per dwelling unit for multi-family residences to the projected new units. Water demand for low-income housing is included in future water demand projections at Town buildout.

4.6 Climate Change

Winters with decreasing snowpack or increasing rain on snow events along with longer and warmer growing season months will affect the water supply reliability for Mammoth Lakes. An in-depth discussion on climate change is included in Chapter 3, 3.3.1

A prolonged drought in California during 2007-2009 resulted in a statewide proclamation of drought emergency and the Water Conservation Act of 2009, SB X7-7 (Act). This Act required a statewide 20% reduction in urban per capita water use by December 31, 2020. UWMPs were identified as a vehicle to assist the state in achieving this goal by providing an urban water supplier's baseline daily per capita water use and 20% reduction targets. This chapter reviews data provided in the 2010 and 2015 UWMP and checks whether MCWD met the 2020 20% reduction in water demand.

5.1 Baseline Periods and Targets

This 2020 UWMP reviews specific water use metrics reported in MCWD's 2010 and 2015 UWMP to support the State's target of a 20% reduction in average per capita daily water demand by 2020. Key water use metrics for meeting the Act's requirements include the *base daily per capita water use,* the *compliance daily per capita use,* and the *interim per capita water use target*.

The base daily per capita water use was developed using a 10- and 5-year continuous record of water demand (MCWD records) and service area population (US Census data and DOF estimates) and is shown in Table 5-1. This data was then used to determine a base daily per capita water use, measured in gallons per capita per day (GPCD). Several methods were available to determine the compliance daily per capita use, or the 2020 target. In the 2010 and the 2015 UWMPs, MCWD chose to apply Method 1, a 20% reduction of the 10-year average GPCD or a 5% reduction from the 5-year record, whichever is lowest. The result for MCWD's base daily per capita water use is 181 GPCD. This result is higher than reported in the 2010 UWMP. Baseline population numbers used to develop the compliance target in the 2010 UWMP were decreased based on updated peak population estimates from the Town of Mammoth Lakes (Town). Changes to the base daily per capita water use resulted in developing new compliance targets. The 2015 interim per capita water use target was 163 GPCD and the 2020 compliance daily per capita water use is 145 GPCD, see Table 5-2 Baseline and Compliance Targets. MCWD met the 2015 interim per capita water use target with a GPCD use of 94.

Table 5-1 Base Daily Per Capita Water Use

	Year	Effective annual population	Average daily system gross water use (mgd)	Annual average daily per capita water use (GPCD)
1	2001	15,010	3.0	203
2	2002	15,200	3.2	209
3	2003	15,391	3.1	200
4	2004	15,479	2.9	189
5	2005	15,566	3.1	196
6	2006	15,591	2.8	177
7	2007	15,695	2.9	185
8	2008	15,706	2.7	170
9	2009	15,720	2.3	148
10	2010	15,808	2.1	136
10-year average annual daily per capita water use				181
Compliance Use Target - 80% of average annual daily per capita water use (target GPCD for 2020)				145
5- year average annual daily per capita water use				163

The ten-year baseline demonstrates a steadily declining per capita water demand. Per capita water use declined approximately 33% over the baseline period due to a combination of a 70% decrease in water distribution system losses and demand management (conservation) measures. Between 2010 and 2015, per capita water demand dropped 29%. Based on the compliance methodology established by DWR, the District met the 2015 interim daily per capita water use target.

The baseline data applies gross water use as all treated and raw water delivered to customers and water losses in the distribution system. Water treatment plant process water losses (such as filter backwash) and recycled water used for irrigation are excluded from gross water use. Gross water production and use data was developed from effluent meters at the District's four water treatment facilities, meters on production wells supplying raw water for direct distribution to irrigation users, and customer meter billing data.

Population data for this analysis relied on federal census data and estimates developed by the State of California Department of Finance for non-census years, Town peak population estimates, and transient occupancy rates. Since 2015 visitation to the service area increased, resulting in modification to the equation utilized to determine the service area's "effective population" A detailed discussion of population is provided in Section 3.4, Service Area Population and Demographics.

Table 5-2 Baseline and Compliance Targets

Baseline Period	Start Year	End Year	Avg. Baseline GPCD[1]	2015 Interim Target	2015 Actual GPCD	Confirmed 2020 Target	2020 Actual GPCD
10 year	2001	2010	181	163	94	145	94
5 Year	2006	2010	163				

(DWR Table 5-1 and 5-2, revised)

1. The average baselines reported in this UWMP are higher than reported in the 2010 UWMP because effective population was revised downward based on the Town's reevaluation of calculating peak population estimates.

5.2 Compliance with 2020 Target

MCWD met the 145 GPCD compliance target for 2020 with a GPCD use of 94. The District will continue its demand management and conservation efforts as an integral part of its water supply strategy to ensure future per capita water use remains below the compliance daily per capita use of 145 GPCD.

Chapter 6 SYSTEM SUPPLIES

This chapter describes and quantifies the existing sources of water available to MCWD. It describes each water source, source limitations, and water quality issues associated with those sources. In addition, there is a discussion of future water development opportunities. Available water quantities described in this chapter reflect average year conditions. Chapter 7 includes discussions on water supply reliability under a normal year, single-dry, and five-consecutive dry year scenarios. Planning for water shortage conditions is described in the Water Shortage Contingency Plan (Chapter 8).

6.1 Water Supply Analysis Overview

The District supplies water for municipal purposes only. All of MCWD's water resources are located in the Mammoth Basin. Existing sources of water include surface water, groundwater, and recycled water. Savings from water conservation (demand management) measures is important. Each year, winter precipitation received and stored as snow in the Lakes Basin provides MCWD's surface water resources as the weather warms. Surface water supply is stored and diverted from Mammoth Creek at Lake Mary. Lake Mary is relatively small with a storage capacity of about 606 acre-feet. Because of this storage limitation, high spring runoff flows typically cannot be fully utilized as allowed under MCWD's water right permit and licenses because of capacity limits at the treatment plant and due to the fact that runoff generally occurs prior to the irrigation season when demand is relatively low. The groundwater aquifer pumped by MCWD wells is used to augment surface water supplies.

MCWD also reclaims and treats wastewater to Title 22 standards and supplies the recycled water for golf course irrigation and construction purposes. Use of recycled water for irrigation began in 2010. The recycled water program directly replaces raw water demand from the groundwater aquifer that would be used for irrigation. Sierra Star, an 18-hole golf course, began irrigating with recycled water in late 2010. Snowcreek, a 9-hole golf course, started irrigating with recycled water in 2016.

Figure 6-1 Monthly Mix of Water Supplies Utilized 2011-201 and Figure 6-2 Monthly Mix of Water Supplies Utilized 2016-2020 illustrate the conjunctive management of water resources practiced by MCWD to balance supplies under varying hydrologic conditions. Surface water supply is normally maximized first due to its high quality and low production costs. Groundwater supply is then used to meet the remaining demands. Recycled water supplies a large portion of the golf course irrigation. Comparison of these two 5-year periods demonstrates how drastically water source utilization can vary based on the water year's snowpack and resulting surface water availability.

Mammoth Creek surface water quality is generally excellent, and requires minimal treatment (dual media filtration, chlorination, and corrosion control).

Groundwater quality issues include naturally occurring high levels of minerals such as iron, manganese, and arsenic. MCWD groundwater treatment plants allow full production (based on raw water supply from wells) that meets all water quality standards. Secondary water quality issues based on color, odor, and elevated temperature occur with several infrequently used wells, and are minimized by treating and blending with the higher quality groundwater from the remaining wells. These water quality issues are due to naturally occurring conditions related to the volcanic geology in portions of the Mammoth Groundwater Basin.

Starting in 2007, the District embarked on an $8 million capital improvement project for corrosion control to raise the pH of both surface water and groundwater supplies to meet the Lead and Copper Rule monitoring compliance. The program has been operational since 2015 and working as designed.

Figure 6-1 Monthly Mix of Water Supplies Utilized 2011-2015

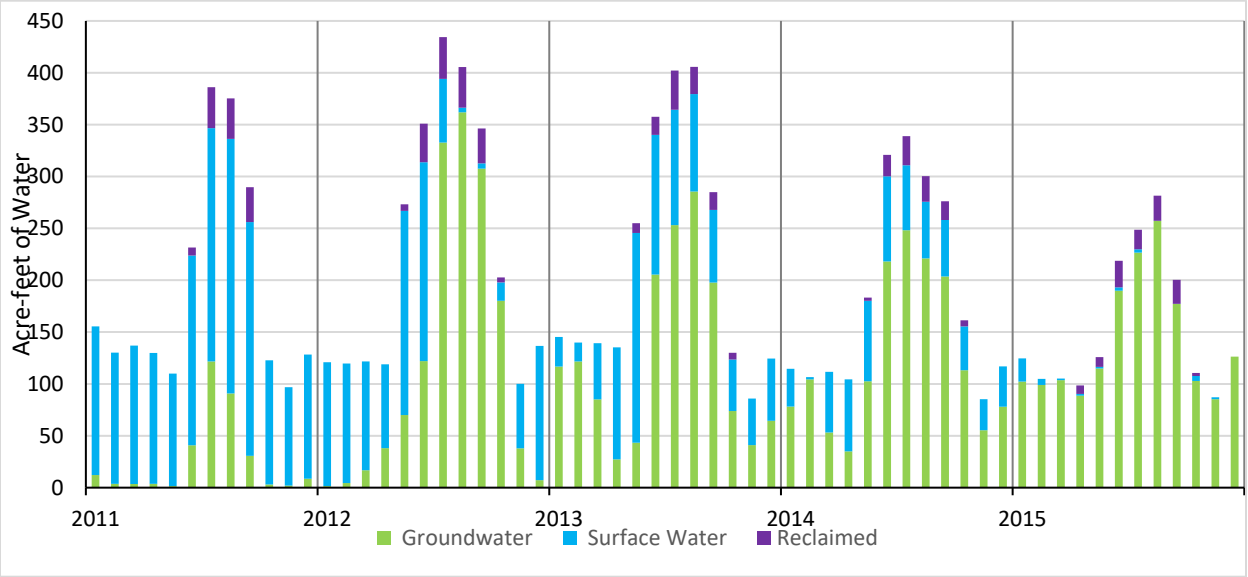
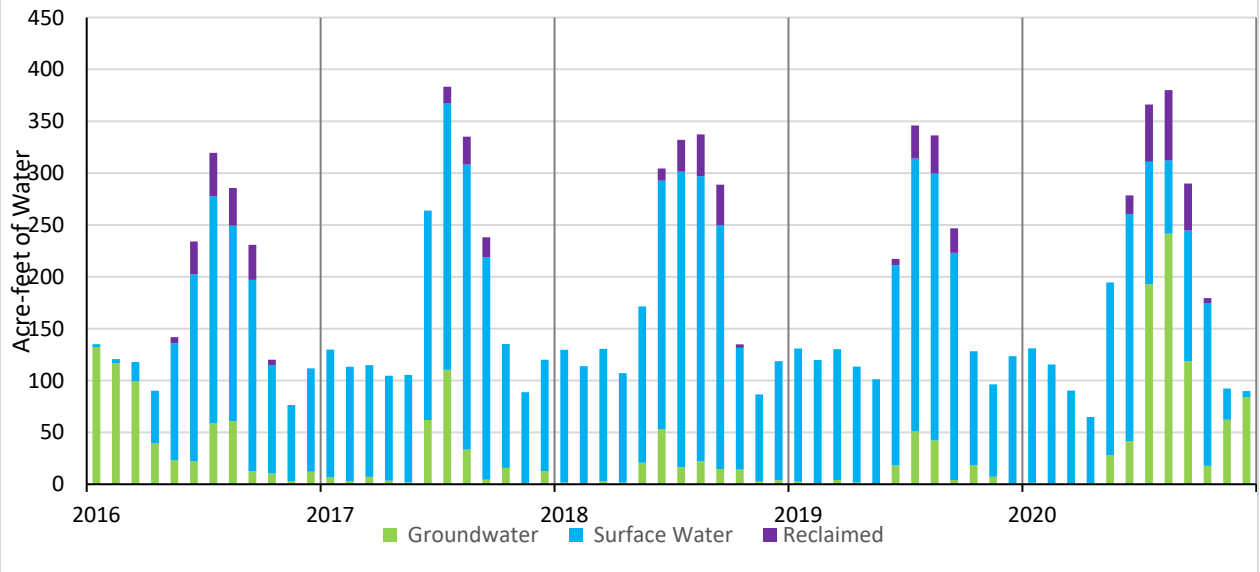


Figure 6-2 Monthly Mix of Water Supplies Utilized 2016-2020



6.2 Water Supply Characterization

6.2.1 Purchased or Imported Water

The District does not purchase or import water. Furthermore, there are no feasible opportunities for purchased or imported water identified because of MCWD's isolated location and elevation.

6.2.2 Groundwater

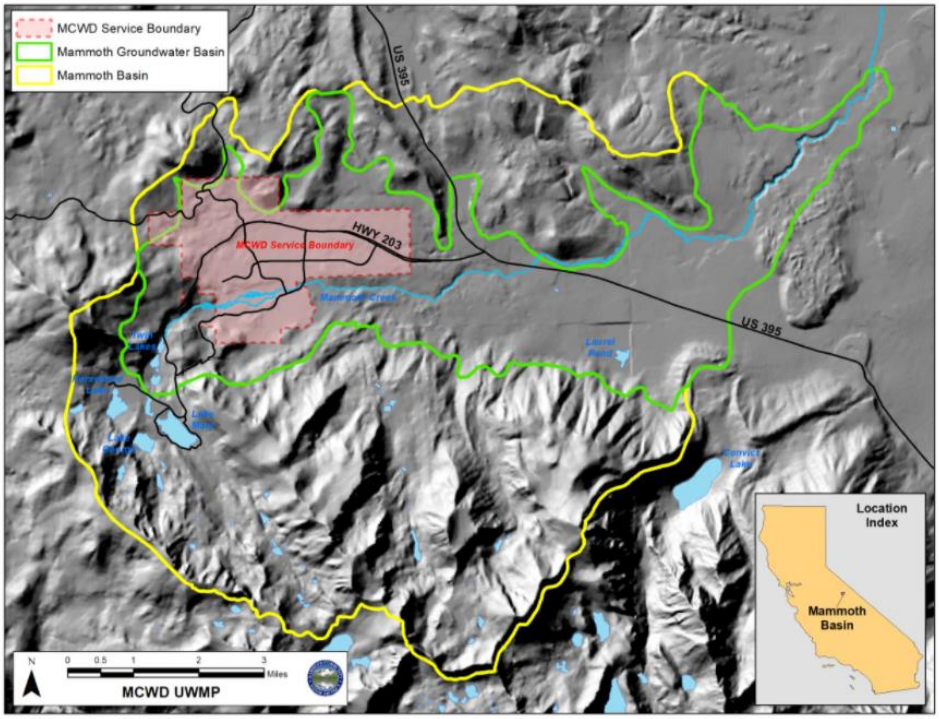
MCWD utilizes groundwater from nine production wells in the Mammoth Basin to supplement its primary surface water supply. Thus, annual groundwater production is based on the difference between annual service area demands and surface water availability. Groundwater supply can be limited by the capacity of the District's nine wells, groundwater level drawdown impacts on well production, and the ability of the two GWTPs to effectively treat and remove naturally occurring drinking water contaminants such as arsenic, iron and manganese.

If surface water becomes less available, MCWD relies on groundwater production to provide an increasing percentage of the community's water supply (see Figure 6-2 Monthly Mix of Water Supplies Utilized 2016-2020
and Figure 6-2 Monthly Mix of Water Supplies Utilized 2016-2020). The District pumped a total of 1,950 acre-feet of groundwater, including potable and raw, between 2016 and 2020, averaging 414 acre-feet per year. To illustrate the variation in water source utilization between 2011 and 2015, a considerably drier period, the District pumped a total of 6,502 acre-feet, an average of 1,297 acre-feet per year.

6.2.2.1 Basin Description

The Mammoth Basin and local groundwater basin are shown in Figure 6-3. The Mammoth Basin is formed by elevated areas on the north and west that are comprised largely of extrusive igneous rocks; a central trough filled with alluvial and glacial debris; and an abrupt southern flank of igneous intrusive and metamorphic rocks. The central trough area opens and drains to the east to the Owens River and Lake Crowley. Mammoth Basin is the watershed of Mammoth Creek and is bounded on the south by the drainage divide of Convict Creek; on the west, by Mammoth Crest; on the north by the drainage divide of Dry Creek; and on the east extending along the watershed of Hot Creek.

Figure 6-3 Map of the Mammoth Basin and Mammoth Groundwater Basin



The Mammoth Basin has not been adjudicated nor has it been identified by DWR as being overdrafted. The District is the primary user of groundwater for municipal and domestic purposes. There are a few private wells serving specific users such as the Mammoth-Yosemite Airport, which are outside of the District service area. By far the largest quantity of groundwater pumped in the Mammoth Basin is for geothermal power generation by Ormat Corporation at the Casa Diablo geothermal power plant complex. Ormat does not release data to the public on its groundwater (geothermal brine) pumping, brine re-injection operations, or related monitoring well data.

The complex geology, hydrology, and hydrogeology of the area appear to have developed multiple groundwater systems in the Mammoth groundwater basin (WEI 2003). The WEI report describes the presence of two distinct aquifer systems in the area where the District produces water. District production wells tap the deep system, consisting of fractured basalts and other water yielding rock, which is highly responsive to District groundwater production, but can respond slowly to recharge.

A shallow and generally highly transmissive system of glacial till and alluvium with interbedded volcanics lies over the deep system and seems to range from less than 100 feet to 200 feet in total thickness. This hydrostratigraphic layer consists of four distinct geologic units identified as: quaternary alluvial deposits comprised of clay, silts, sand, and cobbles; quaternary lake (lacustrine) deposits comprised mostly of unconsolidated fine-grained sediments that are of low permeability; quaternary glacial deposits within the Mammoth Basin tend to be slightly to moderately consolidated and consist of clay to boulder size glacial debris; and quaternary and tertiary igneous rock consist of lava flows, breccias, and tuffs interbedded with glacial debris. The District's groundwater studies, modeling, and monitoring do not address the deeper geothermal aquifer layer where Ormat's pumping and reinjection operations occur. Ormat does not provide information to the public on its modeling for independent, public resource agency review.

Ormat's planned Casa Diablo IV geothermal expansion project will extend geothermal extraction wells in closer proximity to the District's groundwater production wells and extract upwards of 29,000 acre-feet of geothermal water annually. The District is concerned about potential threats to its groundwater wells from this project, due to data provided by USGS which indicates some degree of intermingling of groundwater and geothermal water. In response, the District worked with BLM, USGS, GBAPCD, and Ormat to develop a Groundwater Monitoring Response Plan (GRMP) and meets quarterly. Three monitoring wells are scheduled to be added to the GRMP. BLM completed one shallow monitoring well in January 2021 and is developing another deep monitoring well planned for completion in May 2021. The third monitoring well will be drilled by the District in 2021.

6.2.2.2 Multiple Groundwater Basins

The District does not have multiple groundwater basins.

6.2.2.3 Other Considerations - Groundwater Management

The District maintains an extensive groundwater and surface water monitoring system to ensure sustainable management of the basin's water resources. The monitoring wells and production wells are shown in Figure 6-3 MCWD Production and Monitoring Wells. Groundwater levels are monitored in nine production wells and 21 shallow and deep monitoring wells. These data are used to produce an annual groundwater monitoring report that provides an evaluation of groundwater use, groundwater level trends, surface flows, and water quality. These annual reports have concluded that groundwater pumping has not had a detectable impact on surface water features such as Mammoth Creek or the

springs at the U.C. Valentine Reserve. Annual reports from 1993 to present can be accessed and downloaded from the District's website: www.mcwd.dst.ca.us/groundwater.html. In addition, the District provides groundwater data to Mono County under the State's California Statewide Groundwater Elevation Monitoring (CASGEM) program.

The District adopted a Groundwater Management Plan (GWMP) in 2005, available to download at www.mcwd.dst.ca.us/groundwater.html. The GWMP was intended to inform future water resource planning and management efforts in the Mammoth Basin and met the requirements of AB-3030. Development of the GWMP involved numerous local government agencies and private entities. The GWMP includes a monitoring and operation plan for the long-term use of local groundwater resources. A Local Groundwater Assistance grant from the California Department of Water Resources in 2004 provided funding to complete the GWMP, expand the groundwater monitoring program, and assist in the development of a groundwater model.

In 2009, the District developed a groundwater simulation model for the Mammoth Basin (WEI 2009). The model incorporates the primary hydrologic and hydrogeologic features of the Mammoth Basin and District groundwater infrastructure and operations. It is used to simulate and evaluate current and future groundwater pumping scenarios, for determining sustainable groundwater use levels. The model development, calibration, and initial long-term projections are presented in the 2009 study. The model's hydrology was extended through December 2015 for analysis conducted for the 2015 UWMP.

Groundwater modeling results based on the historical record of Mammoth Pass snow water content indicate that the District's current and future groundwater production is generally sustainable, under conjunctive management of both surface, groundwater, and recycled water supplies. In years with average and higher than average surface water supplies, groundwater production is reduced and natural recharge is increased, leading to replenishment of the groundwater basin. A discussion regarding the reliability of the water supply under a single-dry year and five-consecutive dry years can be found in Chapter 7 and in the District's Drought Risk Assessment.

6.2.2.4 Past Five Years

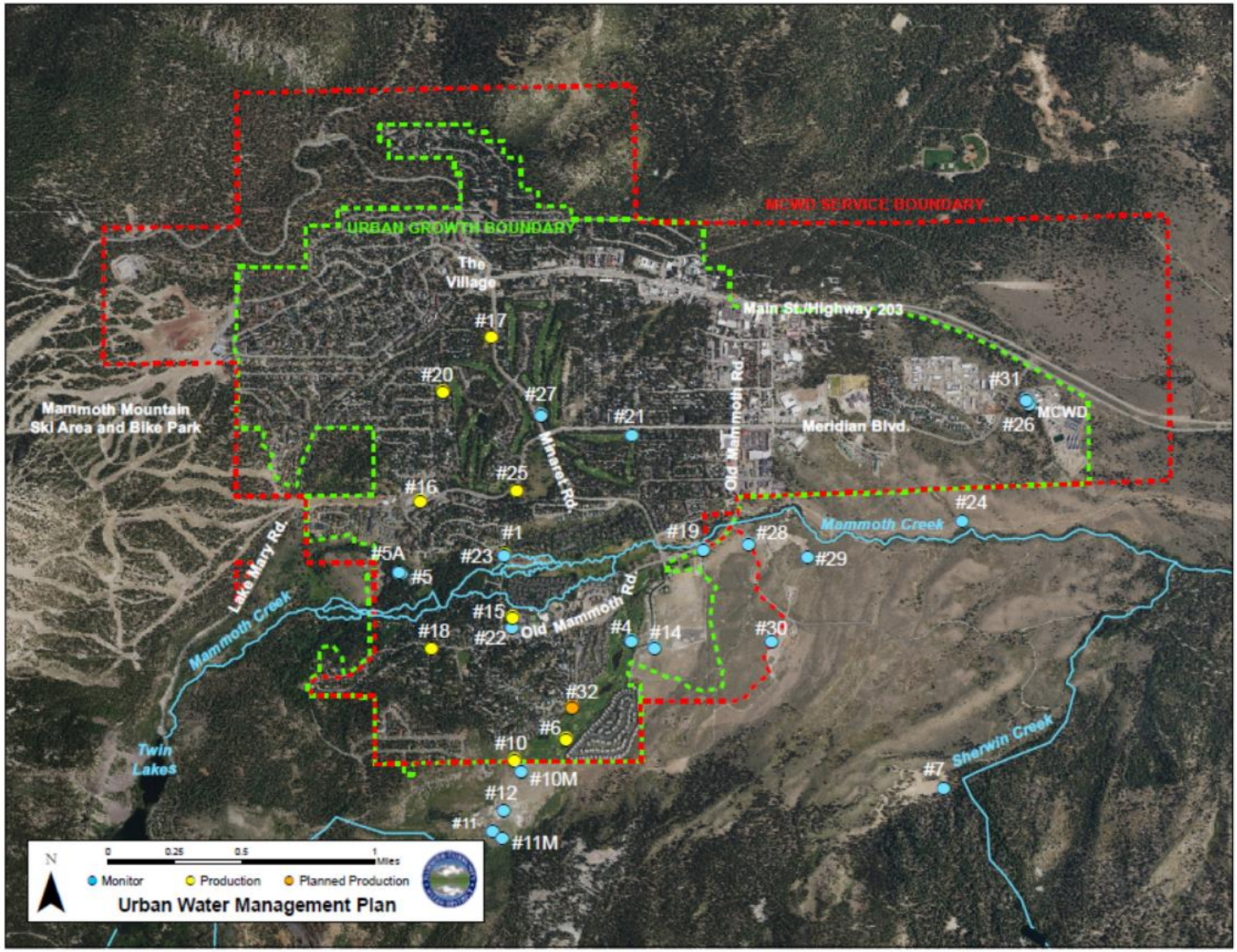
As described previously, groundwater resources are utilized when surface supplies are not available to meet demand. The variability of groundwater production can be seen in Table 6-1. The April 1st snow water content at Mammoth Pass from 2016 through 2020 was 96%, 195%, 78%, 158%, and 58% of normal, respectively (California Cooperative Snow Surveys, [2021, February 22] Mammoth Pass (LADWP) (205), http://cdec.water.ca.gov/cgi-progs/snowQuery_ss?course_num=MAM&month=April&start_date=2016&end_date=2021&data_wish=Retrieve+Data.)

Table 6-1 Groundwater Volume Pumped - Mammoth Basin Groundwater (ac/ft)

Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
Fractured Rock	Mammoth Basin	591	261	156	151	790
NOTES: Total annual pumped groundwater is the total metered flow from all groundwater pumps. Water samples, water line flushing, backwashing water treatment filters, and water for water quality studies are included in totals.						

DWR Table 6-1

Figure 6-3 MCWD Production and Monitoring Wells



6.2.3 Surface Water

The District utilizes surface water as the primary water source when available because it requires less energy to divert and deliver and requires less chemical treatment. The elevation at the Lake Mary Water Treatment Plant allows water to flow by gravity to almost the entire distribution system. The treatment plant is located about 1,000 feet higher in elevation and about 3 miles west of town. Lake surface water levels and stream flow rates are monitored at twelve locations throughout the Mammoth Basin watershed. This monitoring data is provided monthly to the SWRCB as a compliance measure contained in the District's water permit and licenses.

The District has two water right licenses, 5715 and 12593, and one permit, 17332, issued by the SWRCB, which entitle the District to both store and divert Mammoth Creek surface water at Lake Mary. The licenses and permit specify limits and conditions on the storage and diversion of surface water that are intended to sustain a healthy Mammoth Creek fishery and support recreational uses at Lake Mary. Diversion of surface water is conditioned on a maximum storage quantity, timing of diversions to storage, maximum seasonal drawdown levels at Lake Mary, and meeting the fish flows requirements as shown below in Table 6-2.

Table 6-2 Required Fishery Stream Flows at Old Mammoth Road Gauge

Month	Mean Daily Flow
January	6.4 cfs
February	6.0 cfs
March	7.8 cfs
April	9.8 cfs
May	18.7 cfs
June	20.8 cfs
July	9.9 cfs
August	7.2 cfs
September	5.5 cfs
October	5.5 cfs
November	5.9 cfs
December	5.9 cfs

**cfs – cubic feet per second*

MCWD's licenses and permit allow an annual maximum of 2,760 acre-feet of surface water diversion. However, actual diversions are typically significantly lower. This is due to natural variability in snowpack runoff quantity and timing, limited storage to manage the variable runoff, mismatch between the seasonal trends in supply availability and community water demands, and compliance with the monthly minimum Mammoth Creek fishery bypass-flow requirements. For example, between the years 2016 –

2020, the District diverted an average of 1,630 acre-feet per year, which was approximately 83% of the total domestic supply. Figure 6-2 Monthly Mix of Water Supplies Utilized 2016-2020
20 demonstrates the conjunctive management of water resources as surface water supplies fluctuate.

6.2.4 Stormwater

MCWD does not have a program to collect stormwater to meet local water supply demands. The Town of Mammoth Lakes is responsible for stormwater management.

6.2.5 Wastewater and Recycled Water

MCWD is the only collection and treatment facility for wastewater in the Mammoth Basin. This includes wastewater generated in the Town of Mammoth Lakes, USFS campgrounds, and USFS permittees in the Mammoth Lakes Basin with the exception of 10 private cabins on the south end of Lake George. No other sources of wastewater are available for reclamation in the Mammoth Basin.

6.2.5.1 Recycled Water Coordination

The District is the only agency in the Basin collecting wastewater and providing recycled water. The District coordinates regularly with local agencies, including TOML, Mono County, and USFS.

6.2.5.2 Wastewater Collection, Treatment and Disposal

Wastewater is collected at the MCWD Wastewater Treatment Plant (WWTP) located at the MCWD main facility. The WWTP has a design average daily flow of 4.1 million gallons. It treats wastewater through preliminary, primary, and secondary treatment processes and discharges disinfected secondary 2.2-treated effluent for disposal at Laurel Pond, which is located approximately 5 ½ miles southeast of Mammoth Lakes on USFS land. Laurel Pond is a terminal surface water feature that, prior to initiation of treated effluent discharge, dried up during sustained drought periods. MCWD has an obligation to maintain a minimum of 18 acres of water surface area at Laurel Pond as a mitigation measure for the recycled water project. During the summer months, the District also delivers disinfected tertiary recycled water to two local golf courses and a trucked recycled water program for construction use. Table 6-3 Wastewater Treatment and Discharge in 2020 shows 1,259 acre-feet of wastewater was treated by MCWD in 2020. The slight mismatch between the total wastewater treated and the sum of discharged treated wastewater and recycled water used in the service area is caused by the timing of treatment between two different calendar years (Christmas/New Year's holidays) when holding basins are used to even out flows to the WWTP. Golf course irrigation and construction uses utilized 193 acre-feet and 1045 acre-feet of tertiary treated wastewater was discharged to Laurel Pond. The tertiary water that was not distributed in the service area was lost due to evaporation or was pumped back to the WWTP.

Table 6-3 Wastewater Treatment and Discharge in 2020 (ac/ft)

Treatment Level	WW Treated	Discharged to Laurel Pond	Recycled w/in Service Area
Tertiary	193	-	193
Secondary, Disinfected	1045	1045	-
Total	1259	1045	193

(DWR Table 6-3 revised)

6.2.5.3 Recycled Water System Description

Improvements at the wastewater treatment plant and installation of the recycled water distribution system allowed the first delivery of recycled water to begin in 2010. Treated wastewater is also utilized for construction water, and is provided at no charge via a filling station at the wastewater treatment plant. The MCWD recycled water facility is designed to treat about 1.55 million gallons per day of effluent. To deliver recycled water for irrigation, the plant has a 1.5 million gallon on-site storage reservoir, a pump station to deliver water, and two, 2-mile long, recycled water distribution lines.

MCWD has made significant progress on its recycled water program. In 2007, the District's Board of Directors certified the EIR for the recycled distribution system. In 2009, WWTP improvements necessary to produce treated water that met the State's Title 22 standards were completed and the Lahontan Regional Water Quality Control Board issued a master permit to the District for recycled water supply within the District's service area. Construction of the distribution system pump stations and pipelines to serve the Sierra Star and Snowcreek golf courses was completed in 2010. Sierra Star Golf Course completed the on-site work to comply with Title 22 regulations and began using recycled water for irrigation in late summer 2010. A recycled water service agreement between the Sierra Star Golf Course and MCWD provides for an annual maximum of 320 acre-feet of recycled water delivery during the irrigation season.

Snowcreek Golf Course, a 9-hole golf course, was anticipated to begin receiving recycled water for irrigation use in 2012. However, this project fell behind schedule and the golf course did not begin receiving recycled water until the 2016 irrigation season. MCWD provided financial incentives, in the form of a construction loan, to Snowcreek to construct a recycled water storage pond for irrigation. The recycled water agreement with Snowcreek provides up to 320 acre-feet of recycled water for the current course and a future expansion of the course to 18 holes and for the development of a resort community. The schedule to complete the additional development projects is at the landowner/developer's discretion and is beyond the authority of MCWD.

MCWD also encourages the use of recycled water for construction.

Table 6-4 Current and Projected Recycled Water Direct Beneficial Uses Within Service Area (ac/ft)

Use Type	2020 Actual Use	2025	2030	2035	2040
Golf Course Irrigation	191	157	216	216	216
Construction Use	2	3	3	3	3

{DWR Table 6-4 revised}

Table 6-5 2015 Recycled Water Use Projection Compared to 2020 Actual and Projected (ac/ft)

	2015 Projection for 2020	2020 Actual Use
Golf Course and Resort Irrigation	195	193

{DWR Table 6-5}

6.2.5.4 Potential, Current, and Projected Recycled Water

The District began studying the feasibility of a recycled water system in 1987 (Brown and Caldwell 1987). The study objective was to determine the economic feasibility and financial viability of recycling wastewater and/or sub-potable groundwater. Uses of recycled water analyzed included landscape and

agricultural irrigation, industrial process water, and water used for recreational purposes. The study concluded that the only feasible use of recycled water was for restricted landscape irrigation. MCWD evaluated the uses of reclaimed water again in a 1991 Feasibility Study of Alternative Sources of Water Supply and Methods of Reducing Demand (Boyle Engineering Corp 1992). It was reaffirmed that restricted landscape irrigation uses, such as golf course irrigation, were the most feasible use of recycled water. Irrigation places a major demand on water supply during the late spring and summer seasons, with peak season demands three to four times the annual average demand.

Currently, recycled water produced by MCWD is fully committed and no future customers are anticipated. The District has agreements with the two golf courses in the service area: Sierra Star, an 18-hole course and Snowcreek, currently 9 holes with a planned 9-hole expansion. Developing additional uses of recycled water is limited by the availability of seasonal storage. The highest production potential for recycled water occurs during the winter season when transient population and related wastewater generation peaks, while the highest demand for recycled water occurs during the summer irrigation season. In addition, the production of recycled water can be challenging due to extreme variations in flow from the transient population along with fats, oil, grease and industrial waste entering the WWTP.

6.2.5.5 Actions to Encourage and Optimize Future Recycled Water Use

Due to supply/storage limitations, there are no plans to encourage future recycled water use. Recycled water is currently optimized in the system.

6.2.6 Desalinated Water Opportunities

The District does not have brackish or saline water resource available for potential development.

6.2.7 Exchanges or Transfers

The District conducted a feasibility study of alternative sources of water supply in 1992 that included an analysis of several exchange or transfer opportunities (Boyle Engineering Corp 1992). The study analyzed the use of reclaimed wastewater for irrigation in the Laurel Creek and lower Mammoth Creek areas in exchange for local surface water supply, groundwater acquisition in adjacent watersheds and exchange/transfer options, and Central Valley supply acquisition/transfer/exchange opportunities. The study determined that no feasible transfer opportunities existed. The geographic isolation of the Mammoth Basin is a significant limitation on feasible water transfer opportunities.

6.2.7.1 Exchanges

No feasible exchange opportunities exist.

6.2.7.2 Transfers

No feasible transfer opportunities exist.

6.2.7.3 Emergency Interties

No emergency intertie opportunities exist.

6.2.8 Future Water Projects

The District's newest production well, Well 25, was put online in 2013. This well serves as a redundant well for rotational pumping management schemes. In 2015, rotational pumping was critical when surface water supplies were unavailable and heavy pumping contributed to temporary mechanical failures.

The District is currently in the process of developing a new production well in the Mammoth Basin near the Snowcreek Golf Course, Well 32, shown on Figure 6.2 MCWD Monitoring and Production Wells. When online this new production well will increase the reliability of water supplies by expanding the number of wells available for rotational pumping management.

The District is also in the process of procuring sites for additional groundwater exploration and production well development.

6.2.9 Summary of Existing and Planned Sources of Water

Existing sources of water include surface water, groundwater, recycled water, and savings from water conservation (demand management) measures. The District stores and diverts Mammoth Creek surface water at Lake Mary. Groundwater supply comes from nine production wells within the Mammoth groundwater basin. Recycled water meeting Title 22 standards for unrestricted irrigation is produced by MCWD. Delivery of recycled water use began in 2010. Table 6-6 Water Supplies – Actual 2020 Source and Volume of Water Supplies in 2020, below, presents the water supply sources utilized by MCWD.

The surface water supply estimates in Table 6-7 Water Supplies – Projected are based on the 75-year history of snow water content at Mammoth Pass on April 1 and eight years of MCWD diversion records (WEI 2016). When surface water is available, MCWD's annual surface water diversions are typically less than permitted and licensed by the SWRCB because of the mismatch between the height of runoff in early spring and the height of customer demand in mid-summer. Surface water supply projections, included in this UWMP, assume that early spring demand will increase as the Town's population increases. This higher spring demand will allow higher annual utilization of surface water supplies.

The Mammoth Basin Groundwater Model developed in 2009 (WEI 2009) was used to determine whether the groundwater supply would be sustainable for the UWMP 20-year planning horizon. WEI (2016) extended the hydrology contained in the model to December 2015 to provide updated estimates of initial conditions for groundwater model projections. The groundwater production estimates are the difference between projected surface and recycled water supplies and projected demand. All groundwater supplies will continue to be produced from the Mammoth Groundwater Basin.

The recycled water quantities in Table 6-6 reflect the existing and planned increased use at the Sierra Star and Snowcreek golf courses. All recycled water supplies will be produced from MCWD's WWTP.

Assumptions in the supply conclusions are:

- Climate change could adversely affect the availability of water resources. Timing of precipitation events and runoff patterns may be altered and the annual water content of the snowpack may decrease, but there is uncertainty about how these changes may or may not affect water supply.
- The current array of groundwater production wells will maintain their production capacity.
- Increases in water demand will occur during the period of high creek flows allowing higher utilization of surface water supplies.

6.2.9.1 Description of Supplies

As previously stated, surface water is the preferred source of potable water due to its high quality and low production cost. However, storage is limited and diversions are regulated by SWRCB license and

permit conditions. Because of this storage limitation, high spring runoff flows typically cannot be fully utilized as allowed under MCWD's water right permit and licenses. When necessary, MCWD uses the groundwater aquifer wells to augment surface water supplies. These wells can take one to two years to respond to recharge from previous years' runoff conditions. MCWD also utilizes reclaimed water treated to Title 22 standards whenever available for golf course irrigation.

6.2.9.2 Quantifications of Supplies

Table 6-6 Water Supplies – Actual 2020 displays the water supplied in 2020 per water source. Table 6-7 Water Supplies – Projected below displays the amounts of water from each supply category projected to be used through 2040.

Table 6-6 Water Supplies – Actual 2020 (ac/ft)

Water Source	Acre-Feet Used 2020
Groundwater (potable)	729
Groundwater (raw)	61
Surface Water	1,291
Recycled Water	193
Total	2,274

{DWR Table 6-8}

Table 6-7 Water Supplies – Projected (ac/ft)

Water Source	2025	2030	2035	2040
Surface Water	1,404	1,517	1,630	1,743
Groundwater	885	1,041	1,197	1,353
Recycled Water	198	448	448	448
Raw Water[1]	76	220	220	220
Total	2,563	3,226	3,495	3,764

{DWR Table 6-9}

1. Raw water is untreated groundwater used for irrigation

6.2.10 Special Conditions

6.2.10.1 Climate Change Effects

Climate change induced temperature increases will accelerate the timing of snowpack melting and runoff, and may increase water demands due to longer irrigation seasons and higher temperatures. In addition, MCWD's water supplies may be vulnerable to greater sediment loads from flood events and higher temperatures that may degrade water quality. MCWD's surface water resource is replenished annually by the snowpack in the Sierra Nevada Mountains. The District's water supply in any given year is dependent on winter season precipitation, primarily snowfall, and the subsequent amount and rate of surface water runoff from snowpack within the watershed. Groundwater resources also respond to the precipitation received through recharge of the basin; however, the response time can take one to two years.

An in-depth explanation about Climate Change and MCWD preparedness can be found in Chapter 3.

6.2.10.2 Regulatory Conditions and Project Development

None identified for the area pertaining to MCWD.

6.2.10.3 Other Locally Applicable Criteria

None identified for the area pertaining to MCWD.

6.3 Energy Intensity

Energy demand to extract, treat, and supply water varies greatly depending on the source being utilized. Surface water, which is diverted from Mammoth Creek via Lake Mary, does not require any pumping to reach the water treatment plant and the distribution system. The water is treated to comply with the Surface Water Treatment Rule through direct filtration and disinfection, as well as pH adjustment for corrosion control to comply with the Lead and Copper Rule. The service area is approximately 1000 feet down-gradient from Lake Mary and therefore almost entirely pressurized by gravity when supplied by surface water. Conversely, groundwater sources are much more energy intensive and require electricity to extract the water and deliver it to the treatment facilities. The treatment process includes oxidation and filtration for the removal of iron, manganese, and arsenic to comply with primary and secondary drinking water standards. Additionally, air stripping is done to adjust pH for corrosion control to comply with the Lead and Copper Rule. After treatment, electrical energy must be used to pump groundwater into the distribution system to pressurize the system. For these reasons, energy demand to supply water varies greatly depending on availability of surface water. The District conducted an energy analysis for the last 5 years on water supply uses to demonstrate how energy usage fluctuates depending on the water year. Total kWh energy demand per acre foot for the water supply process for 2016-2020 is shown below in Table 6-8 Energy Demand for Water Supply Process 2016-2020. A detailed breakdown of the energy consumed per water management process can be found in the O-1A tables included in Appendix F.

Table 6-8 Energy Demand for Water Supply Process 2016-2020

	2016	2017	2018	2019	2020
Energy Intensity (kWh/AF)	726	331	270	312	657

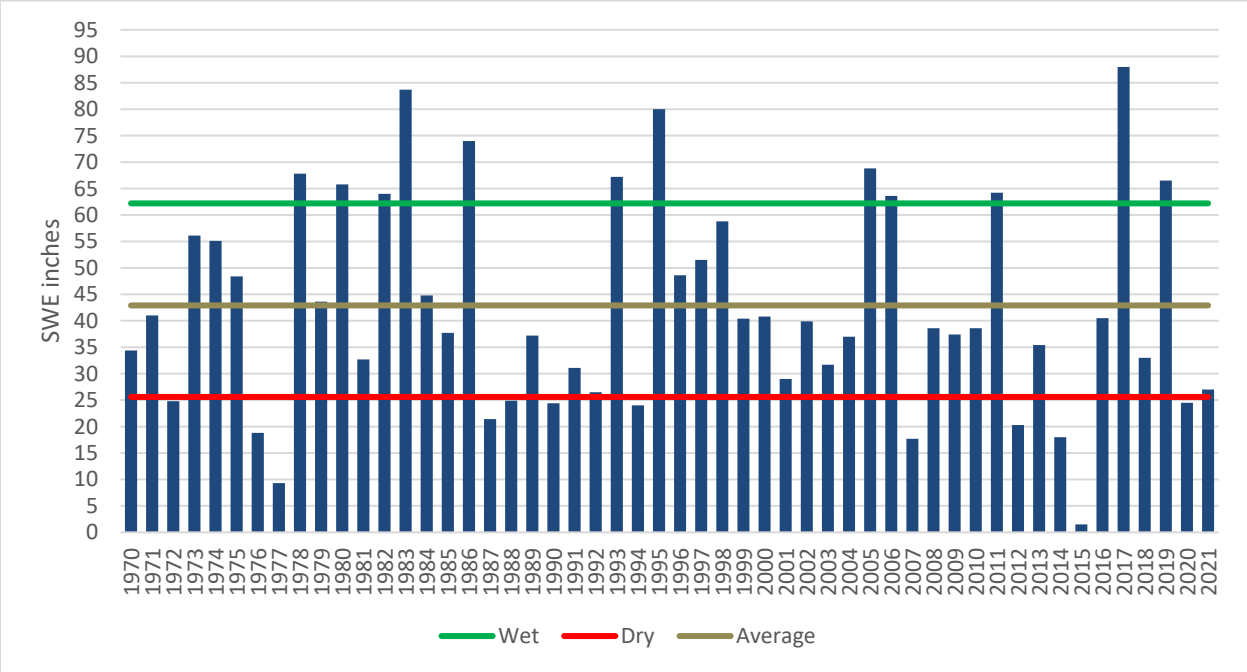
{DWR Table O1-A revised}

This chapter compares projected water supplies and service area demands over the 20-year planning horizon of the UWMP. It assesses the overall reliability of future supplies, including limitations to supplies and the impacts of drought and/or emergency conditions that severely curtail supply. Drought conditions considered include both a single dry year and a period of five consecutive dry years, based on hydrologic records for the Mammoth Basin.

7.1 Constraints on Water Sources

The quantity of MCWD's surface and groundwater supplies are limited by a number of factors. The most significant is the annual water content of the snowpack in the Mammoth Basin and the timing of the resulting surface water runoff. The District utilizes surface water as the primary water source when it is available because less energy and chemicals are required to divert, treat, and deliver water from the Lake Mary Water Treatment Plant, which can gravity feed to almost the entire District distribution system. As shown in Figure 7-1 April 1 Mammoth Pass Water Content 1970 – 2021, the annual snowpack water content conditions are highly variable.

Figure 7-1 April 1 Mammoth Pass Water Content 1970 – 2021



1. Source: CDEC Mammoth Pass USBR Gauge

In addition to environmental constraints on water supply, MCWD operates under water right restrictions contained in licenses and permit from the State Water Resources Control Board (SWRCB) and total usage is limited by a Settlement Agreement with the Los Angeles Department of Water and Power (LADWP). In May 2011, the District completed and certified an environmental impact report (EIR) on fishery bypass flows for Mammoth Creek. Approval of this project and acceptance of the project terms by the SWRCB established, on a long-term basis, the fishery bypass flows and various other surface-water management requirements. The terms of diversion constraints contained in MCWD's water right licenses and permit are described in Table 7-1 Constraints on Water Supply. In addition, completion of

the EIR required a Settlement Agreement between LADWP and MCWD imposing a limit on surface water diversions, groundwater extractions, and recycled water deliveries.

Table 7-1 Constraints on Water Supply

Water supply source	Limitation quantification	Issue – Legal, Environmental, Water Quality, Climatic
Mammoth Creek Surface Water	Minimum diversion of 337 acre-feet under 1977 drought conditions. Maximum diversion of 2,670 ac-ft. under permit and license terms.	SWRCB water right permit 17332 and licenses 5715 and 12593: Requirements include ceasing diversions when creek flows are at or below specified mean daily fishery bypass flow rates that vary by month; diversion to Lake Mary storage limited to April 1 through July 1; seasonal storage drawdown is limited to 3 feet prior to September 15 without state and federal permission; maximum diversion to storage is limited to 606 acre-feet between April 1 – July 1 and 54 acre-feet between September 1 – September 30; maximum diversion rate limited to 5.0 cfs; total annual diversions are limited to a maximum of 2,760 acre-feet. Climate – Annual surface water supply is dependent on annual snowpack water content. Precipitation as rain and above normal temperatures can cause earlier and larger runoff rates that cannot be captured in Lake Mary's minor storage pool (606 acre-feet).
Groundwater Wells	Limitations on annual yield are variable and based on reaching specified depths to water for each well. No quantity restrictions are identified.	Groundwater production can be limited by decreases in pumping levels due to inter-annual hydrologic conditions, total pumping and treatment capacity, poor water quality, and mechanical failures. Decreased groundwater levels lower yield from each well. The nine wells and two treatment plants have a maximum capacity based on facility size and features. Poor water quality limits production from some wells due to high arsenic levels. Measures to maximize the groundwater supply within these constraints include use of variable speed drive motors, GWTP improvements for arsenic removal, rotational pumping, and conjunctive management of surface and groundwater supplies to minimize demands on the local aquifer.
Recycled water	640 acre-feet	The District has two recycled water agreements to deliver a total maximum of 640 acre-feet/year. Half of this amount depends on the construction of the Snowcreek Phase VIII development (golf course expansion, hotel, and housing). Production of the recycled water supply is constrained by a mismatch of highest wastewater flows in winter and highest demand in summer, highly fluctuating inflows over weekends and holidays, composition of the wastewater, and limited storage capacity.
Surface, ground and recycled water	4,387 acre-feet	An Agreement between LADWP and MCWD in 2010 to end litigation over water rights requires that surface water diversions, groundwater extractions and deliveries of recycled water to be limited to 4,387 acre-feet. This limit was considered adequate to meet the Town's projected buildout demand, water treatment plant processing water needs, and distribution losses using the best available data and information during negotiations.

Annual groundwater production is variable, depending on the current water year type (wet, dry, normal), and availability of the resource depends on the preceding one to two water years, which influence recharge trends and groundwater basin levels. Groundwater production can also be limited by

water quality (ability to treat raw water to required standards), declining depth to water, and mechanical failures of pumps and motors. A new well, Well 32, will provide additional redundancy in the system during mechanical failures and during periods of reduced production resulting from water quality concerns. The District is also in the process of procuring sites for other groundwater exploration and production well development. In addition to expanding groundwater resources, MCWD will continue to improve and enforce water conservation measures contained in its WSCP and to promote water efficiency through MCWD sponsored programs and collaboration with the Town's CEDD.

7.2 Water Service Reliability

The Mammoth Lakes community relies solely on local water resources for its water supply. The town is located in a rural and remote setting that would not allow easy access to other water agencies or groundwater basins for supplemental water. To ensure a reliable supply to the community, MCWD uses a mix of surface, groundwater and recycled water resources. To increase rotational pumping flexibility and potentially augment supplies for buildout, MCWD is currently developing a new groundwater production well. The District is also in the process of procuring sites for additional groundwater exploration and production well development. In the last five years, MCWD has made significant progress in strengthening and enforcing water conservation regulations and improving infrastructure to reduce water demand. MCWD places a high priority on maximizing the effectiveness of the available water resources to ensure a sustainable long-term water supply for the community.

7.2.1 Types of Years

This section presents an assessment of MCWD's water supply and demand balance under three standard water supply conditions, a normal year, a single dry year, and a five-consecutive-year drought, for each of the five-year increments of the 20-year planning horizon. Service area demands and water supply are based on information presented in Chapters 4 and 6, respectively. The groundwater and surface water modeling tools and methods used to estimate these supplies are discussed in Chapter 6.

For this supply analysis, the normal year is represented by averaging Mammoth Pass hydrologic conditions from 1940 through 2015, the single dry year is represented by 2015 supply data, and the five-consecutive-year drought is represented by data from 2012 through 2015, with the assumption that conditions in 2015 were repeated, see Table 7-2 Basis of Water Year Data (Reliability Assessment). The volume of available water is influenced by the demand for the base years listed, except the Average Year used potable demand volumes from 2015 and the averaged raw and recycled demand from 1988 and 2015 (WEI 2016).

Table 7-2 Basis of Water Year Data (Reliability Assessment) (ac/ft)

Water Year Type	Base Year	Volume Available	% of Average Supply
Average	1940-2015	2,068[1]	100
Single Dry Year	2015	1,955	95
Multiple Dry Years - Year 1	2013	1,989	96
Year 2	2014	1,959	95
Year 3	2015	1,955	95
Year 4	2015	1,955	95
Year 5	2015	1,955	95

{DWR 7-1}

1. Historical hydrology from Mammoth Pass. Water demand from 2015 potable demand and 1988 -2015 averaged raw and recycled water demand.

7.2.1.1 Water Service Reliability – Normal Year

The normal year is represented by averaging Mammoth Pass hydrologic conditions from 1940 through 2015. Level 0, permanent water conservation requirements, were assumed for the water demand.

Table 7-3 Retail: Normal Year Supply and Demand Comparison (ac/ft)

	2025	2030	2035	2040
Supply Totals	2,563	3,280	3,495	3,764
Demand Totals	2,548	2,884	3,256	3,628
Difference	15	396	239	136

{DWR 7-2}

7.2.1.2 Water Service Reliability – Single Dry Year

The single dry year is represented by 2015 supply data, the lowest water content of snowpack at Mammoth Pass since 1931, 2% of average. For the single dry year, Level 3 Water Shortage Restriction targets were assumed per the data and methodologies for determining water shortage levels as determined in the District's WSCP.

Table 7-4 Single Dry Year Supply and Demand Comparison (ac/ft)

	2025	2030	2035	2040
Supply Totals	2,563	3,280	3,495	3,764
Demand Totals	1,898	2,184	2,445	2,707
Difference	665	1,096	1,050	1,057

{DWR 7-3}

7.2.1.1 Water Service Reliability – Five Consecutive Dry Years

For the five consecutive dry year scenario, the Level of Water Shortage Restriction were assumed per the data and methodologies for determining water shortage levels as determined in the District's WSCP. The Water Shortage Level for each year is reported in the table below. Methodology for projections for the supply totals is described in 7.3.1.

Table 7-5 Multiple Dry Years Supply and Demand Comparison (ac/ft)

Planning Horizon Year		2025	2030	2035	2040	Level
First year supply	Supply totals	2,563	3,280	3,495	3,764	Level 0
	Demand totals	2,548	2,884	3,256	3,631	
	Difference	15	396	239	136	
Second year supply	Supply totals	2,563	3,280	3,495	3,764	Level 2
	Demand totals	2,038	2,310	2,607	2,905	
	Difference	525	970	888	859	
Third year supply	Supply totals	2,563	3,280	3,495	3,764	Level 3
	Demand totals	1,784	2,021	2,281	2,542	
	Difference	779	1,259	1,214	1,222	
Fourth year supply	Supply totals	2,563	3,280	3,495	3,764	Level 2
	Demand totals	2,038	2,310	2,607	2,905	
	Difference	525	970	888	859	
Fifth year supply	Supply totals	2,563	3,280	3,495	3,764	Level 3
	Demand totals	1,784	2,021	2,281	2,542	
	Difference	779	1,259	1,214	1,222	

{DWR 7-4 revised}

7.2.4 Description of Management Tools and Options

MCWD management decisions to ensure a reliable water supply may affect the supply volumes presented in any given year. Every year, MCWD staff reviews water supply conditions and potential operational constraints that may limit water production. Water Shortage Restrictions, as described in the WSCP attached as Appendix E, may be implemented to ensure reliable water supply. Operational changes are utilized to reduce the pressure on mechanical equipment when relying on high groundwater production, to enhance aquifer recovery, and to avoid the necessity of implementing more severe water restrictions in the near future.

7.3 Drought Risk Assessment

7.3.1 Data, Methods, and Basis for Water Shortage Conditions

Modeling completed for the District for development of the 2015 UWMP Water Supply Reliability Assessment was utilized for this 2020 UWMP. MCWD considered the supply and demand projections determined for the multiple-year drought to reflect conditions in the five-consecutive-dry year scenario. Projected water supplies in the 2015 UWMP were through 2035. Because these projections were based on town buildout being accomplished in 2035, those projections have been extended to 2040. The General Plan for the town states that it does not expect buildout to be reached by 2040, therefore the District determined the planning is conservative.

The previous Tables, 7.3 through 7.5, estimate water supply reliability for the UWMP 20-year planning horizon based on historical hydrology and demand presented in Table 7-2 under the three water supply conditions. Projections for future water demand were reduced under the single dry year and five consecutive dry year scenarios, based on the Level of Water Shortage implemented per the District's WSCP.

Modeling results provided in the tables above indicate a sustainable supply of water during the severe one-year and five-year-consecutive drought scenarios based on the hydrologic record. However, these results relied on a sequence of hydrological events that may not be repeated if warmer and drier conditions increase in frequency. Model projections for sustainability that reordered the sequence of hydrologic conditions to start with a long dry period, 1999 through 2015, followed by the 1957 through 1998 hydrology, resulted in some wells declining below sustainable production capacities during a multiple-year drought, with three years considered. Under this reordered scenario, in 2040, it should be expected that five of the wells would not be sustainable for 67%, 17%, 11%, 6%, and 1% of the year (WEI 2016).

The water supply projections presented assume that higher surface water supplies will be available as demand increases during months that frequently underutilize supply due to low demand.

The analysis used in the 2020 UWMP was extrapolated from the report completed by WEI in 2016. A new water supply projection analysis will be added to the District's strategic plan to allow staff to revisit supply projections and make necessary shifts in capital improvement and program planning to ensure future water supply reliability.

7.3.1.1 Basis for Water Shortage Conditions

The Mammoth Community Water District relies on a mix of water supplies from surface water, groundwater and reclaimed water. There is no option to import water into the service area. The quantity of MCWD's supplies are/could be limited by a number of factors listed below:

Surface Water

- Annual water content of the snowpack in the Mammoth Basin
- Timing and quantity of the surface water runoff
- Water right restrictions contained in licenses and permits
- Storage capacity
- Maintenance of infrastructure
- Natural Disasters
- Contamination of supply

Groundwater

- Annual water content of the snowpack in the Mammoth Basin
- Soil moisture content
- Maintenance of infrastructure
- Natural Disasters
- Contamination of supply

Recycled Water

- Amount of wastewater entering into the treatment plant
- Storage capacity
- Maintenance of Infrastructure
- Wastewater treatment plant disruptions

April 1 is considered the start of the water year. Therefore, annually in the first two weeks of April, staff will assess the water content for the coming water year. The methodologies established below were developed based on the assumption that the following year will be a dry year. The District will assess water supply availability with the assumption that the following year will be a dry year.

The District has six standard water shortage stages. Level 0 (permanent water conservation requirements) are always is place as a prohibition against water waste. The 5 Water Supply Shortage Levels that may be implemented to mandate reductions due to threatened or existing water supply shortages will be implemented per the data and methodologies described below.

Level 1 Water Supply Shortage

A Level 1 Water Supply Shortage Condition will be declared if one or more of the following conditions exist:

April 1 snow water content at Mammoth Pass is 60% or less.
April 1 snow water content at Mammoth Pass is 70% or less and the previous year's snow water content at Mammoth Pass was less than 60%.
April 1 snow water content at Mammoth Pass is 70% or less and the 3-year average snow water content at Mammoth Pass is less than 60%.
If the percentage of groundwater is predicted to be 75% or more of the overall water supply.

Required infrastructure maintenance is anticipated to cause an imbalance in projected supply and demand.

Water resources monitoring data indicates that aquifer recharge is insufficient and requires a 10% reduction in demand to promote recharge and prevent further drawdown.

A natural disaster or contamination of water supply has occurred that requires a 10% reduction in water demand.

Level 2 Water Supply Shortage

A Level 2 Water Supply Shortage Condition will be declared if one or more of the following conditions exist:

April 1 snow water content at Mammoth Pass is 50% or less.

April 1 snow water content at Mammoth Pass is 60% or less and the previous year's snow water content at Mammoth Pass was less than 50%.

April 1 snow water content at Mammoth Pass is 60% or less and the 3-year average snow water content at Mammoth Pass is less than 60%.

If the percentage of groundwater is predicted to be 80% or more of the overall water supply.

Required infrastructure maintenance is anticipated to cause an imbalance in projected supply and demand.

Water resources monitoring data indicates that aquifer recharge is insufficient and requires a 20% reduction in demand to promote recharge and prevent further drawdown.

A natural disaster or contamination of water supply has occurred that requires a 20% reduction in water demand.

Level 3 Water Supply Shortage

A Level 3 Water Supply Shortage Condition will be declared if one or more of the following conditions exist:

April 1 snow water content at Mammoth Pass is 30% or less.

April 1 snow water content at Mammoth Pass is 40% or less and the previous year's snow water content at Mammoth Pass was less than 50%.

April 1 snow water content at Mammoth Pass is 60% or less and the 3-year average snow water content at Mammoth Pass is less than 50%.

If the percentage of groundwater is predicted to be 85% or more of the overall water supply.

Required infrastructure maintenance is anticipated to cause an imbalance in projected supply and demand.

Water resources monitoring data indicates that aquifer recharge is insufficient and requires a 30% reduction in demand to promote recharge and prevent further drawdown.

A natural disaster or contamination of water supply as occurred that requires a 30% reduction in water demand.

Level 4 Water Supply Shortage

A Level 4 Water Supply Shortage Condition will be declared if one or more of the following conditions exist:

April 1 snow water content at Mammoth Pass is 10% or less.

April 1 snow water content at Mammoth Pass is 30% or less and the previous year's snow water content at Mammoth Pass was less than 20%.

April 1 snow water content at Mammoth Pass is 40% or less and the 3-year average snow water content at Mammoth Pass is less than 50%.

If the percentage of groundwater is predicted to be 90% or more of the overall water supply and aquifer levels dictate that a 40% reduction of typical demand is necessary to meet overall water demand.

Required infrastructure maintenance is anticipated to cause an imbalance in projected supply and demand.
Water resources monitoring data indicates that aquifer recharge is insufficient and requires a 40% reduction in demand to promote recharge and prevent further drawdown.
A natural disaster or contamination of water supply as occurred that requires a 40% reduction in water demand.

Level 5 Water Supply Shortage

A Level 5 Water Supply Shortage Condition will be declared if one or more of the following conditions exist:

April 1 snow water content at Mammoth Pass is 15% or less and the previous year's snow water content at Mammoth Pass was less than 40%.
April 1 snow water content at Mammoth Pass is 20% or less and the 3-year average snow water content at Mammoth Pass is less than 40%.
If the percentage of groundwater is predicted to be 90% of the overall water supply and aquifer levels dictate that a 50% reduction of typical demand is necessary to meet overall water demand.
Required infrastructure maintenance is anticipated to cause an imbalance in projected supply and demand.
Water resources monitoring data indicates that aquifer recharge is insufficient and requires a 50% reduction in demand to promote recharge and prevent further drawdown.
A natural disaster or contamination of water supply as occurred that requires a 50% reduction in water demand.

7.3.2 DRA Water Source Reliability

The District's priority source, surface water, is heavily dependent on water content at Mammoth Pass on April 1. In addition, the ability to utilize surface water is dependent on time of runoff verses water demand. This is due to limited (606 acre-feet) storage capacity in Lake Mary. Groundwater is used when surface water is not available or is being held in storage. Groundwater supply can be limited by the capacity of the District's nine wells, groundwater level drawdown impacts on well production and the ability of the two GWTPs to effectively treat and remove naturally occurring drinking water contaminants such as arsenic, iron and manganese.

7.3.3 Total Water Supply and Use Comparison

The UWMP must include an assessment of the water supply for a five-year consecutive dry-year period. The District utilized the most recent dry period (2013-2015) and extended it 2 years, as shown in Table 7-2 Basis of Water Year Data (Reliability Assessment). The supply projections were developed using the same methods described in section 7.3.1. The assessments shows that if a Level 2 shortage is implemented the first two years (2021 and 2022) and a Level 3 shortage is implemented in the last 3 years (2023-2025), there is adequate water supply available.

Summary Conclusions from Analysis of Buildout Water Supply Reliability

Based on the historical record, MCWD has adequate water supply to meet community needs under the full range of water year types, including both the Severe One-year and Multiple-year droughts. This is primarily due to the availability of local groundwater resources, the development of recycled water supplies and conservation. Groundwater supplied 91% and recycled water supplied 6% of total delivered water during the severe 2015 drought. In addition, during the 2015 six-month irrigation season when water demand is highest, demand decreased by 34% in comparison to 2013 usage, due to customer compliance with water shortage restrictions.

During the intermediate planning horizons and through 2035 (Town buildout) which was extended to 2040 for this plan, the combined use of Mammoth Creek surface water, local groundwater, and recycled water results in a supply mix that can reliably meet the community needs under the full range of water year types. However, this long-range projection could be significantly impacted by future changes to both demands and supply. On the demand side, this analysis is largely influenced by the Town's land use policies on development type, density, and enforcement of their water-efficient landscape ordinance in addition to MCWD's implementation of water conservation regulations. Future demand projections incorporated demand reductions based on water consumption during the 2012-2015 drought. Climate change will increase demand by lengthening and intensifying the irrigation season.

On the supply side, surface water availability could be adversely impacted by climate change reductions to snowpack water content and altered watershed runoff patterns, which cannot be adapted to without significantly increased surface water storage. Similarly, climate change could reduce local groundwater supplies by decreased recharge to the aquifer. Local groundwater supplies could also be impacted by the expansion of geothermal energy production or natural changes from seismic or volcanic activity causing changes to the local hydrogeologic characteristics. In addition, groundwater production wells decrease production as they age, so existing well infrastructure will need to be replaced and renewed to maintain groundwater production. Finally, the ability of MCWD to produce recycled water consistently is critical. Each of these potential influences on future water supply and demand will need to be re-evaluated in the 2025 UWMP update to confirm the conclusions presented in this UWMP update. To prepare for the 2025 UWMP, the District plans to conduct a new analysis of its water supply projections, with the potential to introduce new methodologies.

The Mammoth Lakes community relies solely on local water resources for its water supply. The town is located in a rural and remote setting that would not allow easy access to other water agencies or groundwater basins for supplemental water. To ensure a reliable supply to the community, MCWD will continue to use a mix of surface, groundwater and recycled water resources. To increase rotational pumping flexibility and potentially augment supplies for buildout, MCWD is pursuing additional groundwater well development. In addition, the District will augment its Capital Improvement Plan to support projects deemed necessary from future analysis. In the last five years, MCWD has made significant progress in strengthening and enforcing water conservation regulations and improving infrastructure to reduce water demand. MCWD places a high priority on maximizing the effectiveness of its available water resources to ensure a sustainable long-term water supply for the community.

The District's Water Shortage Contingency Plan was adopted as a separate document. The Plan, which is attached as Appendix E, satisfies the Water Code requirements for the District's Water Shortage Contingency Plan.

This chapter describes MCWD's water conservation programs developed to ensure a reliable water supply to the community and to meet State conservation targets. The following section describes the nature of each measure and the extent that each measure has been implemented by MCWD over the past five years.

9.1 Existing Demand Management Measures for Retail Suppliers

9.1.1 Water Waste Prevention Ordinances

MCWD has enacted ordinances and enforcement procedures to prevent the waste of water. The water waste prevention ordinance is located in Chapter 12, Division XII, Section 12.01 C of the District Code. Upon adoption of this Plan and the new Water Shortage Contingency Plan (WSCP), Division XII will be replaced by the WSCP. The District's mandatory Level 0 permanent water conservation requirements, summarized below, are in effect at all times. The Level 0 requirements have not changed since the 2015 UWMP. In 2021, the District added an additional Level of Water Shortage Condition to its existing water conservation ordinance which requires a 40% reduction in water demand and permitted the District to come into compliance with the requirement of having a total of six water conservation levels. The District will continue to annually review its WSCP and amend it as necessary to incorporate advances in technology (e.g., hourly meter readings), support local ordinances and state laws intended to achieve water conservation, and to ensure that local and state conservation goals are met. Conservation ordinances and increased enforcement have been an effective tool for decreasing water waste. A copy of the WSCP, which described the District's permanent Level 0 conservation requirements and Levels 1-5 of increasing additional restrictions, is provided in Appendix E.

Implementation over past five years

All of MCWD's customers are subject to the Board's ordinances imposing water regulations and enforcement measures. All 82 irrigation-only accounts have maximum applied water allowances (MAWA) tailored to their landscaped area. The MAWA assigned to each of these accounts creates a target water use for the customers that, if exceeded, results in paying for water at a higher rate and violations. At the time the MAWA allocation was created, many accounts were using over double their allowances. Monitoring irrigation allowances on these accounts for compliance has had a significant impact on reducing irrigation usage. Increasing enforcement of the District's prohibitions on water waste also has reduced demand in an amount that has not been quantified. New permanent water conservation requirements were added in the last five years, including the addition of the 'Excessive Application of Irrigation Water', 'Construction and Maintenance Water' and 'Decorative Water Features' (See Appendix E, WSCP, p. 10 and 11), to encourage additional water use reductions. In addition, the irrigation times for watering outdoor vegetation were modified. Water savings resulting from this measure overlaps other programs such as leak detection and enforcing landscape water budgets. Therefore, no quantification of water savings provided. From 2016 to 2020, 456 violations of water regulations were issued.

9.1.2 Metering

Meters are required for all MCWD customers pursuant to the District's Water Code. MCWD has a long history of metering its customers' water use and has been in compliance with the Water Code sections 525 and 527 metering mandates since 1980.

In early 2015, the District completed a major meter replacement project that installed an Advanced Meter Infrastructure (AMI) system. All meters were equipped with new radio communication systems. Of the District's 3,650 meters at the time of the project, all 3,367 meters that are 2 inches or less in size were replaced with Neptune T10 positive displacement meters. All T10 meters meet or exceed the latest AWWA C700 Standard. Five fixed-base AMI data collectors were installed to allow for two-way communication between all District meters and the collectors.

Implementation over last five years

Since completion of AMI system, MCWD has been able to implement additional water conservation programs utilizing the hourly data from meters. Meter reading efficiency has varied following the installation of the meters and a pilot study is currently underway to assess the effectiveness of utilizing a new radio signal. Another full replacement of meters and registers is scheduled for 2034. Per standard maintenance procedures, meters are replaced as needed if a meter becomes defective, stops reading, loses accuracy or freezes. Although the hourly consumption data provides excellent enforcement capabilities, informs MCWD's leak detection program, and provides valuable information to our customers, it is not feasible to separate water savings resulting from installation of the AMI from other MCWD water conservation programs.

9.1.3 Conservation pricing

MCWD customers receive a monthly water bill that includes a base water service charge established by meter size and a quantity rate charge. Quantity rate charges for domestic users and irrigation accounts are based on a tiered rate structure to encourage the reduction of water use. Multi-Family Residential and Commercial customers pay for water quantity based on a higher flat rate. With a 2012 rate study, the District added an Irrigation class. All accounts with a dedicated irrigation meter(s) are assigned a monthly allocation based on the size of their irrigated area. The customer is billed based on their usage in relation to the allocation. This price incentive made a drastic change in large irrigation customers' water usage. A water rate study is currently underway. Revised rates are planned to be implemented in October 2021.

Implementation over past five years

In 2016, MCWD completed a rate study and the Board of Directors adopted a Master Fee Schedule (revised annually) in response. Table 9-1 MCWD Water Commodity Rates ($/Kgal)shows the tiered rates for each of the District's customer classes from 2016-2020. The rate structure is expected to encourage conservation and assist in managing system demand. In addition, the rate study included a water shortage surcharge, based on meter size and drought level. The MCWD Board of Directors has the ability to implement this surcharge during a water shortage. It is not feasible to measure water conservation that resulted solely from conservation pricing.

Table 9-1 MCWD Water Commodity Rates ($/Kgal)

Customer Class	Usage – Up to (kgal)	April 2016	April 2017	April 2018	April 2019	April 2020
SFH						
Tier 1	>4	$0.91	$0.93	$0.95	$0.97	$0.99
Tier 2	4-8	$2.12	$2.17	$2.22	$2.27	$2.32
Tier 3	>8	$4.47	$4.66	$4.86	$4.96	$5.06
MFR		$2.16	$2.21	$2.26	$2.31	$2.36
Commercial		$2.88	$2.94	$3.00	$3.06	$3.13
Irrigation						
Tier 1	0-100%	$2.53	$2.59	$2.65	$2.71	$2.77
Tier 2	100-200%	$5.70	$5.82	$5.94	$6.06	$6.19
Tier 3	200+%	$8.44	$8.61	$8.79	$8.97	$9.15
Recycled		$1.67	$1.71	$1.75	$1.79	$1.83

9.1.4 Public Education and Outreach

MCWD has an ongoing program to inform its customers about water supply conditions, conservation tips, landscape management practices, and other District programs. It includes a school education program, public education workshops and tours, an advertisement campaign, a customer portal and actively updating the District's website, and Facebook and Twitter pages.

School Education Program

MCWD has co-sponsored the Mammoth Middle School sixth grade water and energy conservation program, LivingWise, every year since the 2006/2007 academic year. In addition, MCWD staff accommodates all requests from schools for tours or talks.

The 6th grade LivingWise program educates students about energy and water resource efficiency. The program provides each student with water efficient aerators for the kitchen and bathroom and a water efficient showerhead. To develop an understanding of water and energy use, students conduct an indoor water and energy audit and use this information to reduce those resource demands by installing the free fixtures and making other lifestyle changes in their homes. In addition to the classroom curriculum, the students learn about their local water supply and MCWD's wastewater treatment by participating in an MCWD led tour of the Mammoth Lakes basin, environmental monitoring stations, a water treatment plant, and the wastewater treatment plant and laboratory.

Implementation over past five years

The program is ongoing and reaches all 6th grade children in the Mammoth Lakes public school system. Importantly, the program provides the information necessary for a lifetime of practicing resource conservation. Table 9-2 LivingWise Program - Water Savings and Program Costs below, illustrates program costs and estimated water savings, but does not include staff time for classroom presentations and organizing and leading field trips.

Table 9-2 LivingWise Program - Water Savings and Program Costs

Year	2016	2017	2018	2019
Program participants	91	101	103	106
Estimate of Annual Water Savings (gallons)	368,526	263,338	338,590	286,217
Program cost	$4,500	$4,500	$5,110.20	$5,160.30

Public Workshops and Classes

Public participation is an essential component of achieving water demand reductions. MCWD reaches out to the local community to enhance learning opportunities that emphasize water use efficiency, provide a forum for interaction with MCWD staff, and demonstrate MCWD operations through tours and lectures. Classes targeting working community members, e.g., landscape maintenance employees and landscapers, are held during the lunch hour with lunch provided by the District to facilitate participation. MCWD regularly conducts tours of the wastewater treatment plant to educate customers on the water distribution and wastewater collection systems, energy impacts of water delivery, and promote water conservation programs. MCWD views the tours as an opportunity to engage customers and promote awareness about MCWD operations and water demand.

Implementation over past five years

Several classes and workshops pertaining to landscape water-efficiency were offered during the past five years. Learning opportunities included the following topics; Basic Soil Science for Landscapes, Plants That Thrive in Mammoth, Plant Stress in a Landscape, and Landscape Fundamentals. These classes were taught by the local U.C. Agriculture and Natural Resource Advisor, Dustin Blakey. The classes were held during the lunch hour to enhance participation from working people.

The landscape water-efficiency courses provide District customers with information to improve their landscape management practices. However, it is not possible to calculate a water savings for hosting these courses. Table 9-3 Landscape Water Efficiency Workshops and Expenses shows the number of participants.

Table 9-3 Landscape Water Efficiency Workshops and Expenses

Course	# of Participants	Year
Basic Soil Science for Landscapes	13	2019
Plants That Thrive in Mammoth	18	2018
Plant Stress in a Landscape	14	2017
Landscape Fundamentals	14	2016

Leak Detection Class

MCWD implemented a leak detection program utilizing the AMI system to contact customers when leak alerts were identified. The program demonstrated a need to show customers, property managers, and plumbers how to efficiently search for leaks. In 2015, the District offered its first Leak Detection Class. The 1.5-hour Leak Detection course discussed efficient methods to find leaks on a property, handling of the District's meter pits and equipment, and ended with a final exam. In addition to teaching effective leak detection and protecting MCWD property, MCWD benefited by providing a forum for local contractors and District staff to discuss various rules and regulations on an informal basis. Plumbers that passed the course were listed on the MCWD website as having passed the Leak Detection course.

Implementation over past five years

The District offered the Leak Detection course again in 2018, and expanded it to include information on Green Code Upgrades, rebates available, and the Backflow Program. Lunch was provided to enhance participation by workers using their lunch hour to attend.

Seventeen people took the Leak Detection Class and five plumbers passed the test. This increased the effectiveness of local plumbers by enabling them to quickly and safely identify and correct leaks which helps to save water. MCWD does not have a method to estimate savings resulting from this class.

Qualified Water Efficient Landscaper (QWEL) Certification Course

In 2013, MCWD offered a Qualified Water Efficient Landscaper (QWEL) certification course. The purpose of the workshop was to teach landscape professionals, property managers, and homeowners about numerous landscape management and local water conservation topics. The course covered 12 topics over four weeks ending with a final exam and a requirement to complete a water audit. Subjects covered included local water resources, irrigation system efficiencies, soil amendments, plant selection, water budgets, and landscape management. Participants received a certification when they completed the course, passed an exam, and successfully completed a water audit. Twenty-one people participated, including members of the public not pursuing QWEL certification. Twelve of the participants met all of the course requirements and received a QWEL certificate. Water savings resulting from this course are difficult to track for several reasons: the size, existing irrigation efficiency, and landscape of each property is unique, homeowner associations have different levels of interest in incurring costs to reduce demand, and MCWD does not track all landscapes managed by certified landscapers.

Implementation over past five years
The District plans to offer this course again. However, given the relatively small community, the course will be offered based on interest. Since 2013, there has not been enough interest to justify offering another course.

Tours
MCWD regularly conducts tours of the wastewater treatment plant to educate customers on the water distribution and wastewater collection systems, energy impacts of water delivery, and promote water conservation programs. MCWD views the tours as an opportunity to engage customers and promote awareness about MCWD operations and water demand.

Implementation over past five years
In 2018, the District offered the public a tour of its Wastewater Treatment Plant facilities. Prior to touring the plant, participants were informed about our water resources, MCWD's water and wastewater infrastructure, current water conditions, and water conservation regulations. The District plans to continue to offer this tour biannually. The public tour scheduled for 2020 was cancelled due to COVID-19. It is unknown how much water savings may result from this educational program.

In August 2017, MCWD celebrated 60 years of service by inviting the public to an Open House at the District. Customers were able to tour the wastewater treatment plant, see demonstrations of software utilized by the District, and receive free conservation handouts.

This event was well received by the 52 adults and 10 children who attended. It is unknown how much water saving may have resulted from the open house, but awareness of the District and its operations was heightened.

Advertisements and Press Releases

MCWD regularly publishes advertisements and provides press releases to local newspapers and radio stations. Frequency of advertisements is highest during the irrigation season to remind customers to conserve water during the peak demand season and to inform residents and visitors of MCWD's water

conservation regulations. Press releases are issued monthly. In addition, the public is informed about the location of construction projects and any potential disruptions in service. Outside of the irrigation season, topics include minimizing the buildup of fats, oils, and grease in the sewer system, and the rebate program. The District does not regularly put out a newsletter. However, in 2020, the District released its first annual report and the second annual report is scheduled for release in 2021.

MCWD also utilizes its website and social media for public outreach. Messages are updated regularly and generally corresponds with the recent advertisements and press releases.

Implementation over past five years

It is not possible to estimate savings resulting from this program. See Table 9-4 Annual Advertising Expenditures Fiscal Years 2016-2020 for amounts spent on advertising from 2016-2020.

Table 9-4 Annual Advertising Expenditures Fiscal Years 2016-2020

2016	2017	2018	2019	2020
$24,377	$21,011	$10,645	$15,170	$15,610

WaterSmart Customer Portal

In 2016, MCWD made a WaterSmart Customer Portal (Portal) available to our customers. The Portal provides customers with the ability to monitor hourly usage at their property, set leak alerts and high usage notifications, communicate with MCWD staff, and receive water conservation tips. The software provides robust analytics for MCWD staff to monitor for leaks and irrigation violations. In addition, the *Group Messengers* function provides a tool for MCWD to easily email or text customers with related information.

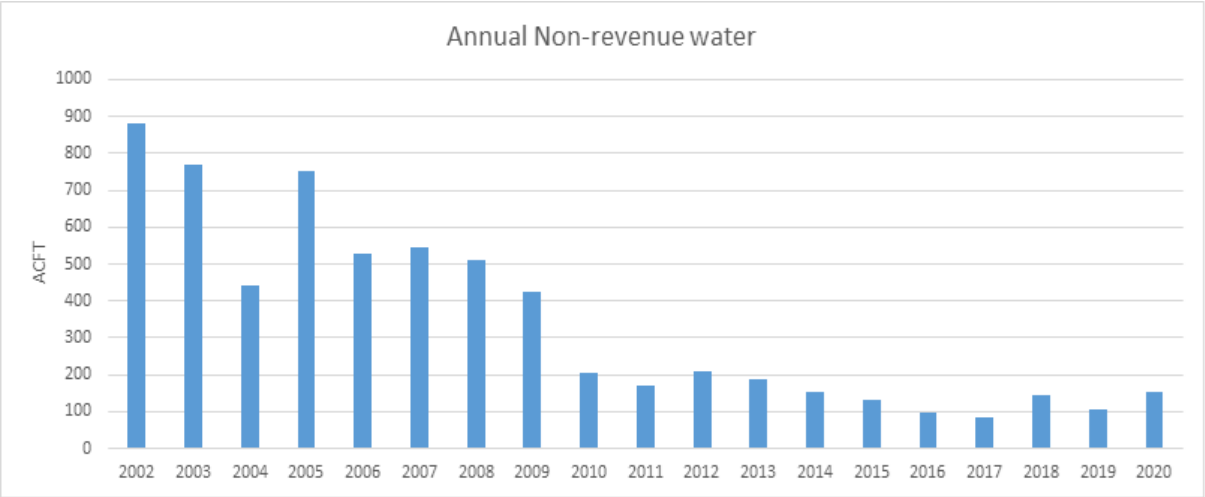
Implementation over past five years

The portal has gained in popularity over the past five years, with 836 customers enrolled. The District has not calculated savings from having the customer portal available, but continues to receive positive feedback from customers regarding the opportunity.

9.1.5 Programs to assess and manage distribution system loss

The District identified old leaking steel water mains as a significant source of water loss in the early 2000s. Non-revenue water represented about 16 to 25% of total produced water. MCWD has consistently implemented programs to reduce distribution losses by replacing aging steel mainlines and laterals to customer's properties and installing master meters at large properties with long laterals leading to meters. In 2013, MCWD completed a high priority project to replace over 110,700 feet (21 miles) of aging steel water distribution mains. This project resulted in reducing distribution water losses to about 7% and significantly reduced the need for staff to respond to emergency leak repairs. The results of this effort are described displayed in Figure 9-1 Annual Non-revenue Water.

Figure 9-1 Annual Non-revenue Water



1. Totals displayed are different from AWWA water audit results. This data does not count authorized non-revenue water as a loss.

In 2010, MCWD began a master metering project on developments having long laterals within the private parcels comprising the develpment before reaching the customers meters. The new master meters capture water losses occurring within the development, but not captured in the billing usage. Master meters in parallel with sub-meters can also be used to separate irrigation from domestic use.

In addition, non-revenue water is evaluated monthly. The monthly auditing procedure compares effluent volume from the water treatment plants to the volume of billed water. This program has been an effective mechanism for quickly responding to water losses and for assessing inconsistent water usage that may indicate leaks or failing meters. The monthly water audits are presented to the MCWD Board of Directors and are discussed at the staff and management level to evaluate potential solutions and resolution. In 2015, MCWD began using the AWWA Water Audit Manual and Software. The results are reported in Chapter 4, section 4.2.4.

Implementation over past five years

In 2014, MCWD continued with infrastructure improvements to reduce distribution losses by initiating a project to replace all lateral water lines, as well as some distribution system upgrades and main line replacement. This work has continued over the last 5 years and from 2016-2020 the following as completed:

- 134 single water laterals replaced
- 52 double water laterals replaced
- 2 triple water laterals replaced
- 5 fire hydrant laterals replaced
- 5 gate valves installed
- 800’ of 8” water main installed to replace old line
- 1 new PRV installed

In addition, the Line Maintenance Department conducts regular leak detection on main water lines when inspecting fire hydrants. Approximately 600 hydrants are inspected every two years, covering the majority of the District’s service area. If a potential leak is identified, more thorough leak detection is conducted and appropriate repairs are made.

9.1.6 Water conservation program coordination and staffing support

MCWD's conservation coordination efforts are maintained by the Senior Administrative Analyst within the District's Administrative and Regulatory Support Division. The Senior Analyst develops public information for the local media outlets, works with the Town to encourage water demand reduction in new developments and landscaping, and develops and implements water conservation programs for MCWD. An Administrative Analyst and Administrative Assistant position at MCWD provide support to the water conservation activities and programs at MCWD. The Senior Analyst, Administrative Analyst, and Administrative Assistant work with all District departments to increase water conservation savings, achieve the conservation targets during Water Shortage conditions, and inform the public about MCWD activities that affect the community.

Implementation over past five years

The Senior Analyst, Administrative Analyst, and Administrative Assistant are permanent positions at MCWD. The District does not estimate water savings resulting from maintaining these staff positions.

9.1.7 Other demand management measures

Rebate Program

MCWD has had a water efficient fixture rebate program since 2006. The MCWD Board of Directors provides for the program through the annual budgeting process. The program has varied over the years on types of fixtures on which rebates will be provided. Currently rebates are available on WaterSense labeled toilets and urinals, clothes washers, dishwashers, and pressure reducing valves for irrigation systems.

A rebate of up to $200 per toilet/urinal for the first two toilets/urinals in a unit is available and additional toilets/urinals may receive a rebate of up to $100 per toilet/urinal. Eligible new clothes washers must have a water factor (WF) of 4.5 or less. The rebate for a clothes washer is $400. A $200 rebate is available for Energy Star certified dishwashers. MCWD's program also rebates new Pressure Reducing Valves (PRVs) installed on irrigation systems. Eligible PRVs must be from a District approved list. Rebate amounts are based on size of the pressure reducing valve: ¾" - $150.00, 1" - $200.00, 1¼" - $300.00, 1½" - $450.00, 2" – $550.00. New construction projects governed by the Green Building Code Standards and new toilets added to a building are not eligible for the rebate program.

Implementation over past five years

Annual spending for the program and water savings is shown below in Table 9-5 Rebate Program Summary Fiscal Year 2016 - 2020.

Table 9-5 Rebate Program Summary Fiscal Year 2016 - 2020

	2016	2017	2018	2019	2020
Toilets/Urinals	657	331	336	301	378
Dishwashers*	N/A*	N/A*	N/A*	N/A*	13
Clothes washers	23	42	27	33	23
Pressure Reducing Valves	5	0	1	0	0
Estimated Water Savings (gal.)**	3,432,558	1,619,195	2,070,090	1,748,056	2,101,514
Total Amount Rebated	$129,761	$77,772	$71,550	$65,145	$80,513

* Dishwashers added mid-year in FY 2020

** Estimated Water Savings does not include an estimated savings for pressure reducing valves

Free Water Efficiency Items

The District provides a variety of free water saving items to customers such as hose shut-off nozzles and timers, sink aerators, showerheads, shower timers, dish squeegees, and pre-rinse fixtures. Providing free water efficiency items to customers has boosted customer relations and demonstrated the ease of making minor changes that have little to no impact on lifestyle. Free irrigation items are carried by field crews to facilitate conversations with customers violating irrigation regulations and are also available at the front office.

Implementation over past five years

Items are available for pick up at the District front desk, provided in the field, made available at workshops and tours, and provided to condominium complexes upon request at no cost to the customer. Table 9-6 Expenses for Free Efficiency Items Fiscal Years 2016 - 2020 shows spending incurred by MCWD to provide free water conservation items to customers.

Table 9-6 Expenses for Free Efficiency Items Fiscal Years 2016 - 2020

Calendar Year	2016	2017	2018	2019	2020
Amount Spent on free items	$2,462	$1,678	$2,344	$1,363	$2,273

Leak Detection Program

Since January 2015, the District has been able to access customer's hourly consumption data through the AMI system. This detailed information allows MCWD to identify customer leaks that are unidentifiable with only monthly data. MCWD staff notifies customers of leaks and they are given a specified period for making repairs depending on the size and duration of the leak and any water shortage condition that may be in effect. Customers are responsible for repairing leaks on their side of the meter and they may be subject to penalties if repairs are not made within designated timelines. Previously, MCWD had used monthly billing data to identify unusually high usage that might indicate a leak on a customer's premises.

Implementation over past five years

In 2016, MCWD launched the WaterSmart Customer Portal which allows customer to sign up for high usage notifications at their property. In addition, staff was provided with powerful analytics to produce daily leak reports. The WaterSmart Leak Report makes identifying and sorting leaks by size possible, allowing staff to prioritize which customers to contact first. The program has saved water and improved customer relations. In Fiscal Year 2020, 692 customers were notified of leaks.

Communicating Water Use via Water Bills

Each MCWD water bill compares current monthly use with the previous year. A conservation message to customers is also included on the bill.

Implementation over past five years

Water bill comparison and conservation message was included in all billings from 2016-2020.

9.2 Implementation over the Past Five Years

A description of implementation is provided under each Demand Management Measure category discussed above.

9.3 Implementation to Achieve Water Use Targets

MCWD has met its 2020 water use targets. However, all the demand management measures described in Section 9.1 will continue. MCWD plans to continue water conservation programs to ensure a reliable supply for the Town of Mammoth Lakes now and into the future, especially as the specific impacts of climate change remain uncertain.

9.4 Water Use Objectives (Future Requirements)

MCWD will continue its current demand management measures and will remain flexible to adjust in order to align conservation management with future water use objectives as they are developed.

The UWMP guidelines require that, prior to adoption of the 2020 UWMP, the District must provide a draft for public review and provide notice to the public and pertinent agencies of a public hearing to accept comments. The District's Board of Directors will consider adoption of the 2020 UWMP following the public hearing. After the UWMP is adopted, a copy of the final 2020 UWMP will be filed with the Department of Water Resources (DWR) within 30 days of adoption.

10.1 Notice of Public Hearing

The draft 2020 UWMP was made available to the public for review at the Mammoth Lakes branch of the Mono County Public Libraries and the District office, and was available for download from the District's website. A link to the draft 2020 UWMP and the Notice of a Public Hearing were provided to the Mammoth Lakes Town Manager, the Mono County Administrative Officer, and those agencies listed in Table 2-2 Agencies/Organizations Notified of UWMP Update via mail on May, 1, 2021. A Notice of a Public Hearing on the 2020 UWMP that included information on obtaining copies of the draft plan for review and comment was published in the local paper for two successive weeks, May 1 and 8, 2021, and posted on the District's website. News releases were provided to the local radio stations. The Notice of a Public Hearing is provided in Appendix C.

10.2 Public Hearing and Adoption

The public hearing and subsequent consideration for adoption occurred on May 20, 2021. During the Board meeting to discuss adoption, the Board received a brief presentation of the plan. Resolution No. 05-20-21-12 adopting MCWD's 2020 UWMP was passed, with a minor revision to a table, during the regular Board meeting. The resolution is included as Appendix D.

10.3 Plan Submittal and Public Availability

DWR and the State Library will receive a copy of the final 2020 UWMP within 30 days of adoption by the District's Board of Directors. In addition, copies will be provided to the planning departments of the Town and Mono County within the same timeframe. An electronic copy will be available from MCWD's website: www.mcwd.dst.ca.us and a hardcopy will be available for public review at the District's office located at 1315 Meridian Boulevard in Mammoth Lakes, California during regular office hours.

10.4 Amending an Adopted UWMP

Subsequent to adoption, any amendments or changes to the 2020 UWMP will comply with the same procedures for adoption and submittal to state and local agencies as described in this Chapter.

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MCWD 2020 UWMP Appendices

A. Definitions and Abbreviations

B. Notification of UWMP Update

C. Notice of Public Hearing

D. Resolution Adopting 2020 UWMP

E. Water Shortage Contigency Plan

F. DWR Standardized UWMP Tables

G. DWR Energy Use Tables

Acre-Feet – Also **ac-ft.** An acre-foot is the amount of water covering one acre with one foot of water. It is equivalent to 325,851 gallons.

Adaptation strategies – In relationship to responding to climate change, these are methods to undertake to respond to the effects of climate change.

AWWA – American Water Works Association. An international non-profit association dedicated to improving water management and water quality.

Base daily per capita water use – The District's estimate of average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010. A second base period is a continuous five-year period, and is used to determine whether to 2020 per capita water use targets meets the legislation's minimum water use reduction requirement.

BLM - Bureau of Land Management

CASGEM – California Statewide Groundwater Elevation Monitoring. A new state requirement created by SBX7-7, establishing a statewide program to collect groundwater elevations and report the information to the public.

CDEC – The California Exchange Center. A website developed by DWR to share state hydrological data.

CEDD – Town of Mammoth Lake's Community and Economic Development Department

Compliance daily per capita water use – the gross water use during the final year of the reporting period, reported in gallons per capita per day (CWC § 10608.12 (e)).

Customer Water Demand – The amount of metered delivered water. This demand figure excludes water losses, water treatment plant process water and recycled water deliveries.

CWC – California Water Code.

District – Mammoth Community Water District.

DMM or Demand Management Measures – Water Conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies (CWC § 10611.5).

DWR – California Department of Water Resources.

Effective Population – An adjusted population measurement that accounts for both the full time resident population and the combined transient population of seasonal workers and tourism-based visitors. The community water use on a per capita basis is then calculated using the effective population. Effective population is calculated as (PAOT minus resident population)x(average annual occupancy rate for transient housing and lodging) + resident population.

GPCD – Gallons per capita day.

GBUAPCD – Great Basin Unified Air Pollution Control District

Gross water use – The total volume of water entering the potable water distribution system. Recycled water for irrigation and water used to backwash filters at the treatment plant is excluded. Water losses caused by meter reading errors and leaking pipes are included in this use category.

GWMP – Mammoth Community Water District's Groundwater Management Plan. The District's planning document to monitor and manage groundwater production in a sustainable manner. The plan can be accessed at www.mcwd.dst.ca.us/ProjectsReports/GWMP.

GWTP – Groundwater treatment plant.

HECW – High efficiency clothes washer. For the purposes of MCWD, a HECW has a water factor of 4.5 or less.

Interim urban water use target – the mid-point between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020 (CWC 10608.12(j)).

IRWM or Integrated Regional Water Management – A regionally based collaborative effort to manage all aspects of water resources within a region. This effort involves forming a group of water resource related stakeholders to develop an IRWM Plan.

Interim urban water use target - The midpoint between the base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

LADWP – Los Angeles Department of Water and Power.

LMWTP – Lake Mary Water Treatment Plant.

Lower Income – Includes persons and families whose income does not exceed the qualifying limits for lower income families as established by Section 8 of the U.S. Housing Act of 1937. Lower income households includes very low income households as defined in Section 50105, and extremely low income households, as defined in Section 50106.

MAWA – Maximum Applied Water Allowance refers to the upper limit of annual water applied to an established landscaped area. Determining MAWA requires local evapotranspiration (ET) rates, an ET adjustment factor (adjusts for irrigation efficiency and plant water requirements), and the landscape area.

MCWD – Mammoth Community Water District.

MGD – Million gallons per day.

Mitigation strategies – In relationship to climate change, these are actions taken to reduce greenhouse gas emissions.

PAOT – People at One Time.

RWQCB – Regional Water Quality Control Board.

SCADA – Supervisory Control and Data Acquisition. This system allows District staff to access data regarding the water and wastewater systems and to control the processes as needed.

Service Area – A Mono County Local Agency Formation Commission boundary to ensure efficient community services and land use planning.

Snow water content – Also referred to as snow water equivalent. This is a measurement of the amount of water contained in the snowpack.

SWRCB – State Water Resources Control Board.

Target Method – One of four methods to calculate an urban retail water supplier's urban water use target pursuant to CWC 10608.20(a).

Town – The incorporated Town of Mammoth Lakes.

Urban water use target - The District's targeted future daily per capita water use.

USFS – United States Forest Service.

UWMP – Urban Water Management Plan.

Urban Growth Boundary – A regional planning tool used to delineate urban growth boundaries from open space. The Town of Mammoth Lakes adopted an Urban Growth Boundary policy in 1993.

VFD – Variable frequency drive.

WW – Wastewater.

January 6, 2021

[Addressee]

RE: Mammoth Community Water District update of Urban Water Management Plan

Dear Mr. Martin:

The Mammoth Community Water District (District) will be updating its 2015 Urban Water Management Plan (UWMP) pursuant to the California Urban Water Management Planning Act (California Water Code Division 6, Part 2.6). This Act is intended to ensure water suppliers conduct long-term planning of water resources so that adequate water supplies are available to meet existing and future demands in their service area. The 2020 UWMP will include a discussion of the following topics:

- A description of the District's water system;
- A description of existing and planned sources of water supply in relationship to the existing and projected water demand;
- Conservation efforts to reduce water demand and compliance with SBX7 (20% reduction by 2020);
- An assessment of future water supply reliability and drought preparedness; and
- A water shortage contingency analysis and plan.

If you have information regarding land-use planning decisions that may affect water consumption over the next 20 years or if you have comments, questions or both, please contact me directly.

The UWMP is scheduled for completion on July 1, 2021. A public hearing to explain the plan and accept comments is planned to take place in April 2021. The MCWD Board of Directors will consider adoption of the plan at the regularly scheduled Board meeting on May 20, 2021. You will receive confirmation of the date and time for the hearing 30 days prior to its occurrence.

The MCWD 2015 Urban Water Management Plan is available on the District's website, https://mcwd.dst.ca.us/assets/final-2015-uwmp.pdf.

Sincerely,
Betty Hylton
Senior Analyst
Mammoth Community Water District

cc: Board of Directors, MCWD

The following notice of a public hearing was published May 1 and 8, 2021 in The Sheet, a local weekly newspaper.

Mammoth Community Water District
Notice of Public Hearing Regarding the Intent to Adopt an Urban Water Management Plan

The Mammoth Community Water District (District) will be holding a public hearing regarding a proposal to adopt the 2020 Urban Water Management Plan (UWMP) at 5:30 pm on May 20, 2021.

In accordance with the California Department of Public Health's and Governor Newsom's Executive Orders N-29-20 and N-33-20, the District boardroom is closed and this meeting will be conducted solely by video/teleconference with members of the Board attending from separate remote locations in response to the threat of COVID-19. The public is invited to listen, observe, and provide comments during the hearing by either method provided for below. For members of the public interested in viewing and having the ability to comment at the public hearing via Zoom, an internet enabled computer equipped with a microphone and speaker or a mobile device with a data plan is required. Use of a webcam is optional. You also may call in to the hearing using teleconference without video. Members of the public who wish to participate in the hearing may do so by joining the following Zoom Videoconference Meeting: https://zoom.us/j/7609342596 (meeting ID: 760 934 2596) OR Join via teleconference by dialing 1-669-900-9128, 760-934-2596#

This plan is an update of the 2015 UWMP. The purpose of the plan is to ensure that the water supplier has an appropriate level of water supply reliability sufficient to meet the needs of its customers during normal, dry, and five consecutive dry years within a 20-year planning horizon. The plan must describe water supply, water demand, and specific measures implemented to reduce water usage by 20% in 2020 compared to baseline demand. The Urban Water Management Plan must be updated and adopted every five years.

Copies of the Draft 2020 UWMP will be available for public inspection at the District office, on the District website, www.mcwd.dst.ca.us, and at the Mammoth Lakes Public Library at 400 Sierra Park Road in Mammoth Lakes.

Comments, concerns, or suggested revisions that are relevant to the proposed plan must be submitted by close of business May 18, 2021 to receive a written response from the District. However, comments may be submitted during the hearing. Correspondence prior to the hearing may be transmitted by:

U.S. Mail: Mammoth Community Water District
2020 UWMP
P.O. Box 597
Mammoth Lakes, CA 93546

Fax: (760) 934-4080
Attn: 2020 UWMP

E-mail: bhylton@mcwd.dst.ca.us
Subject line: Draft 2020 UWMP

Adopted
05-20-2021

RESOLUTION NO. 05-20-21-12

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE MAMMOTH COMMUNITY WATER DISTRICT ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN

WHEREAS, the California Urban Water Management Planning Act (Act), Water Code sections 10610 through 10657, requires every urban water supplier, which is defined as a public or private entity that annually provides service to more than 3,000 customers or more than 3,000 acre-feet of potable water, to prepare and adopt an urban water management plan;

WHEREAS, the Act requires each urban water supplier to update the plan at least once every five years;

WHEREAS, the Water Conservation Act of 2009, Water Code Section 10608 (SB X7-7), requires urban water suppliers reduce water use by 20% in the year 2020. UWMPs are required to include baseline daily per capita water use, interim reduction targets for 2015, and final targets for the 20% reduction in 2020;

WHEREAS, the California Urban Water Management Planning Act requires each updated plan to be noticed for a public hearing in accordance with the Act and after adoption to be filed with the Department of Water Resources and certain other agencies and made available to the public no later than 30 days after adoption;

WHEREAS, the Mammoth Community Water District is an urban water supplier and has reviewed its 2015 Urban Water Management Plan and, as a result of that review, has prepared an updated plan which reflects necessary changes or amendments;

WHEREAS, the Mammoth Community Water District coordinated with the Town of Mammoth Lakes, provided draft copies to the Town of Mammoth Lakes, Mono County, Los Angeles Department of Water and Power, Inyo National Forest, Mammoth Mountain Ski Area and the Inyo Mono Integrated Regional Water Management Program, published two public hearing notices in a local newspaper of general circulation, and provided the public the opportunity to review and comment on the draft plan; and

WHEREAS, a public hearing was held on May 20, 2021 at 5:30 p.m. virtually via Zoom, to allow for community input regarding the UWMP, consider the economic impacts of the UWMP, and adopt a method for determining its urban water use targets.

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

1. The Board finds that the proposed 2020 MCWD Urban Water Management Plan contains all of the elements required by the Act and therefore approves and adopts the 2020 Urban Water Management Plan and the methods stated therein for determining its water use targets.

2. The General Manager or his designee is authorized and directed to file the District's 2020 Urban Water Management Plan with the California Department of Water Resources, the California State Library, the Town of Mammoth Lakes, and the County of Mono within 30 days of its adoption.

3. The General Manager or his designee will make a copy of the District's adopted 2020 Urban Water Management Plan available for public review during normal business hours within 30 days of its adoption.

PASSED AND ADOPTED by the Board of Directors of the Mammoth Community Water District at a regular meeting held on the 20th day of May 2021 by the following vote of the Board:

AYES:	Directors Creasy, Domaille, Smith, and Thompson
NOES:	None
ABSENT:	Director Cage
ABSTAIN:	None

MAMMOTH COMMUNITY WATER DISTRICT

s/ Thomas R. Smith

Thomas R. Smith, President
Board of Directors

ATTEST:

s/ Mark Busby

Mark Busby, Secretary
Board of Directors

Mammoth Community Water District

Water is our Future

Water Shortage Contingency Plan

May 2021

Table of Contents

1 Water Supply Reliability Analysis

The District supplies water for municipal purposes only. All of MCWD's water resources are located in the Mammoth Basin, with no imported water options. Existing sources of water include surface water, groundwater, and recycled water.

Each year, winter precipitation received and stored as snow in the Lakes Basin feeds MCWD's surface water resources as the weather warms. Surface water supply is stored and diverted from Mammoth Creek at Lake Mary. Lake Mary is relatively small with a storage capacity of about 606 acre-feet. Because of this storage limitation, high spring runoff flows typically cannot be fully utilized as allowed under MCWD's water right permit and licenses because of capacity limits at the treatment plant and due to the fact that runoff generally occurs prior to the irrigation season when demand is relatively low.

The groundwater aquifer pumped by MCWD wells is used to augment surface water supplies. MCWD utilizes groundwater from nine production wells in the Mammoth Basin to supplement its primary surface water supply. Thus, annual groundwater production is based on the difference between annual service area demands and surface water availability. Groundwater supply can be limited by the capacity of the District's nine wells, groundwater level drawdown impacts on well production and the ability of the two GWTPs to effectively treat and remove naturally occurring drinking water contaminants such as arsenic, iron and manganese.

MCWD also utilizes reclaimed wastewater treated to Title 22 requirements and recycled for golf course irrigation.

The District maintains regulations prohibiting water waste at all times and is prepared for water shortages resulting from short-term emergencies or naturally occurring drought shortage conditions. Multiple factors such as the water content of the snowpack, declining groundwater levels, Lake Mary storage capacity, creek flows and the water availability of prior runoff years could trigger a water shortage. The District closely monitors surface water supplies and water levels in production wells Water shortages may also result from unplanned emergencies such as mechanical breakdown of treatment/production facilities or natural or human caused disasters. Determination of and preparation for a water shortage condition is described in the subsequent sections of this plan.

2 Annual Water Supply and Demand Assessment Procedures

2.1 Decision-Making Process for Implementing Water Shortage Levels

The Board of Directors (Board) may declare a Water Supply Shortage when there is a projected imbalance of water supply and peak demand. Once a declaration of a Water Supply Shortage resolution has been adopted, the Board may implement any of the five levels of shortage deemed necessary. Each shortage level corresponds to the estimated imbalance between supply and demand: Level 1 shortage is 10%, Level 2 is 20%, Level 3 is 30%, Level 4 is 40%, and at Level 5 the imbalance is 50% or greater.

The determinations of the appropriate level of water conservation conditions shall be supported by a recommendation from the General Manager or his/her designee, along with a written explanation of the existence of the facts and circumstances supporting the determination. The determination will be guided by the data and methodologies discussed in Section 2.2 of this WSCP. A copy of the written

determination will be filed with the General Manager. The District shall post notice of the water conservation level condition on its website and include it in its regular billing statement or in a separate mailing to the District's customers. The District may publish a notice of the determination of the existence of a water conservation level condition in a newspaper circulated within the District service area.

The conservation measures applicable to Level 1, Level 2, Level 3, Level 4, or Level 5 will take effect seven days following the date of mailing notice of the declared level. This can be done either through the District's regular billing statements or a separate mailing to the District's customers.

The Board of Directors by motion may declare an end to a particular water shortage level condition upon the recommendation of the General Manager or his/her designee at any meeting of the Board of Directors.

2.2 Data and Methodologies for Determining Water Shortage Levels

The Mammoth Community Water District relies on a mix of water supplies from surface water, groundwater and reclaimed water. There is no option to import water into the service area. The quantity of MCWD's supplies are/could be limited by a number of factors listed below:

Surface Water:

- Annual water content of the snowpack in the Mammoth Basin
- Timing and quantity of the surface water runoff
- Water right restrictions contained in licenses and permits
- Storage capacity
- Maintenance of infrastructure
- Natural Disasters
- Contamination of supply

Groundwater

- Annual water content of the snowpack in the Mammoth Basin
- Soil moisture content
- Maintenance of infrastructure
- Natural Disasters
- Contamination of supply

Recycled Water

- Amount of wastewater entering into the treatment plant (Recycled Water)
- Storage capacity
- Maintenance of Infrastructure
- Wastewater treatment plant disruptions

April 1 is considered the start of the water year. Therefore, annually, in the first two weeks of April, staff will assess the water content for the coming water year. The methodologies established below were

developed based on the assumption that the following year will be a dry year. The District will assess water supply availability with the assumption that the following year will be a dry year.

The District has six standard water shortage stages. Level 0 (permanent water conservation requirements) is always in place as a prohibition against water waste. The five Water Supply Shortage Levels that may be implemented to mandate reductions due to threatened or existing water supply shortages will be implemented using the data and methodologies described below.

Level 1 Water Supply Shortage

A Level 1 Water Supply Shortage Condition will be declared if one or more of the following conditions exist:

April 1 snow water content at Mammoth Pass is 60% or less.

April 1 snow water content at Mammoth Pass is 70% or less and the previous year's snow water content at Mammoth Pass was less than 60%.

April 1 snow water content at Mammoth Pass is 70% or less and the 3-year average snow water content at Mammoth Pass is less than 60%.

If the percentage of groundwater is predicted to be 75% or more of the overall water supply.

Required infrastructure maintenance is anticipated to cause an imbalance in projected supply and demand.

Water resources monitoring data indicates that aquifer recharge is insufficient and requires a 10% reduction in demand to promote recharge and prevent further drawdown.

A natural disaster or contamination of water supply has occurred that requires a 10% reduction in water demand.

Level 2 Water Supply Shortage

A Level 2 Water Supply Shortage Condition will be declared if one or more of the following conditions exist:

April 1 snow water content at Mammoth Pass is 50% or less.

April 1 snow water content at Mammoth Pass is 60% or less and the previous year's snow water content at Mammoth Pass was less than 50%.

April 1 snow water content at Mammoth Pass is 60% or less and the 3-year average snow water content at Mammoth Pass is less than 60%.

If the percentage of groundwater is predicted to be 80% or more of the overall water supply.

Required infrastructure maintenance is anticipated to cause an imbalance in projected supply and demand.

Water resources monitoring data indicates that aquifer recharge is insufficient and requires a 20% reduction in demand to promote recharge and prevent further drawdown.

A natural disaster or contamination of water supply has occurred that requires a 20% reduction in water demand.

Level 3 Water Supply Shortage

A Level 3 Water Supply Shortage Condition will be declared if one or more of the following conditions exist:

April 1 snow water content at Mammoth Pass is 30% or less.

April 1 snow water content at Mammoth Pass is 40% or less and the previous year's snow water content at Mammoth Pass was less than 50%.

April 1 snow water content at Mammoth Pass is 60% or less and the 3-year average snow water content at Mammoth Pass is less than 50%.

If the percentage of groundwater is predicted to be 85% or more of the overall water supply.

Required infrastructure maintenance is anticipated to cause an imbalance in projected supply and demand.

Water resources monitoring data indicates that aquifer recharge is insufficient and requires a 30% reduction in demand to promote recharge and prevent further drawdown.

A natural disaster or contamination of water supply as occurred that requires a 30% reduction in water demand.

Level 4 Water Supply Shortage

A Level 4 Water Supply Shortage Condition will be declared if one or more of the following conditions exist:

April 1 snow water content at Mammoth Pass is 10% or less.

April 1 snow water content at Mammoth Pass is 30% or less and the previous year's snow water content at Mammoth Pass was less than 20%.

April 1 snow water content at Mammoth Pass is 40% or less and the 3-year average snow water content at Mammoth Pass is less than 50%.

If the percentage of groundwater is predicted to be 90% or more of the overall water supply and aquifer levels dictate that a 40% reduction of typical demand is necessary to meet overall water demand.

Required infrastructure maintenance is anticipated to cause an imbalance in projected supply and demand.

Water resources monitoring data indicates that aquifer recharge is insufficient and requires a 40% reduction in demand to promote recharge and prevent further drawdown.

A natural disaster or contamination of water supply as occurred that requires a 40% reduction in water demand.

Level 5 Water Supply Shortage

A Level 5 Water Supply Shortage Condition will be declared if one or more of the following conditions exist:

April 1 snow water content at Mammoth Pass is 15% or less and the previous year's snow water content at Mammoth Pass was less than 40%.

April 1 snow water content at Mammoth Pass is 20% or less and the 3-year average snow water content at Mammoth Pass is less than 40%.

If the percentage of groundwater is predicted to be 90% of the overall water supply and aquifer levels dictate that a 50% reduction of typical demand is necessary to meet overall water demand.

Required infrastructure maintenance is anticipated to cause an imbalance in projected supply and demand.

Water resources monitoring data indicates that aquifer recharge is insufficient and requires a 50% reduction in demand to promote recharge and prevent further drawdown.

A natural disaster or contamination of water supply as occurred that requires a 50% reduction in water demand.

3 Six Standard Water Shortage Levels

3.1 Purpose

The District developed six standard Water Shortage Levels (Level 0 – Level 5) to ensure water supply reliability. Permanent and mandatory water management requirements (Level 0) are necessary to conserve water, enable effective water supply planning, assure reasonable and beneficial use of water, prevent the waste or unreasonable use of water, prevent unreasonable use of water, and prevent unreasonable methods of use of water by all District water users. These levels are available to ensure that the District has adequate supplies of water to meet the needs of the public, and further the public health, safety and welfare, recognizing that water is a scarce natural resource that requires careful management not only in times of drought, but at all times. This WSCP establishes regulations to be implemented during times of declared water shortages, or declared water shortage emergencies. In addition to the Level 0 permanent conservation level, it establishes five levels, Level 1 – Level 5, of actions to be implemented in times of shortage or emergency, with increasing restrictions on water use in response to decreases in available water supplies or water production capabilities. Levels 1 through 5 water supply shortage measures are mandatory and require increasingly restrictive measures in order to attain escalating conservation goals. All levels will be reinforced through public education and awareness measures, as well as per enforcement as described in Section 6.

3.2 Application of the WSCP

1. This WSCP applies to any person using potable or raw water provided by the District, including persons located outside of the District's service area who receive water service.

2. The WSCP does not apply to uses of water necessary to protect public health and safety or for essential government services, such as law enforcement, fire and other similar emergency services.

3. Nothing in this WSCP is intended to affect or limit the ability of the Board or General Manager to declare and respond to an unforeseeable disaster or water emergency, such as an earthquake or other major disruption of the District's water supply, pursuant to applicable state or local laws or the District's ordinances, rules, regulations, or policies.

3.3 Level 0 - Permanent Water Conservation Requirements - Prohibition Against Waste

Because Mammoth Lakes is a semi-arid region, water conservation must be practiced on a regular, year-round basis. California, including Mammoth Lakes, has historically experienced severe and extended drought periods which have the potential to limit available water supplies for the Mammoth Lakes community's current and future population. Therefore, it is critical that the public become water conscious and conserve water at all times.

3.3.1 Level 0 - Permanent Water Conservation Requirements

The following water conservation requirements shall be in effect at all times regardless of whether any declared water shortage is in effect, and are permanent and mandatory. They are necessary to conserve water, enable effective water supply planning, assure reasonable and beneficial use of water, and prevent waste or unreasonable use of water. Violations will be considered a waste and unreasonable use of water and are subject to penalties as provided in Section 6.4 of this WSCP and by other applicable law.

a) **Runoff and Ponding** – No person shall cause or permit any District-supplied water furnished to any property to flow from any hose, pipe, valve, faucet, sprinkler, or irrigation device for a distance of 50 feet or greater if such flow can reasonably be prevented. No person shall allow water to pond greater than 0.25 inch in a street, parking area, or on other impervious surfaces.

b) **No Overfilling of Swimming Pools and Spas** – Overfilling of swimming pools and spas such that overflow water is discharged onto an adjoining sidewalk, driveway, street, alley, gutter or ditch is prohibited.

c) **Pools and Spas** – Covers are required on pools and spas to reduce evaporation during the hours that the pool or spa is closed.

d) **Leaks** – No person shall permit leaks of water that he/she has the authority to eliminate. Repair or prevention of all water leaks shall be carried out within five days of discovery by the customer or notification by the District.

e) **Washing Hard Surface Areas** – Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or garages, is prohibited unless the hose is equipped with a functioning automatic shut-off device.

f) **Vehicle Washing** – A hose used to wash commercial and noncommercial vehicles, boats, trailers and other types of vehicles is required to have a functioning automatic shut-off device.

g) **Hose Equipped with Irrigation Device** - A hose connected to an irrigation device, e.g., landscape sprinkler, must be equipped with a timer that will automatically shut-off the water supply after a set amount of time. Timers may not be set for more than two hours.

h) **Landscape Irrigation**– Permitted Hours and Permitted Days of Week - The watering of vegetation outside of any building is permitted between the hours of 1:00 a.m. and 11:00 a.m. and between 4:00 p.m. to 11:00 p.m. No irrigation is permitted between 11:00 a.m. and 4:00 p.m. Customers with even numbered addresses are permitted to water outside vegetation only on Monday, Wednesday, and Saturday. Customers with odd numbered addresses are permitted to water outside vegetation only on Tuesday, Thursday, and Sunday. Customers with a District approved irrigation plan and irrigation meter who do not exceed 100% of the District Maximum Applied Water Allowance (MAWA) shall not be subject to the day of week requirements, but shall comply with the time of day prohibitions.

i) **Additional Irrigation Requirements** – No person shall cause or permit the following:

   i. Misting of irrigation devices;

   ii. Operation of a broken sprinkler head; or

   iii. Operation of a sprinkler head out of adjustment and the arc of the spray head is over a street, parking area, or other impervious surface.

j) **MAWA Exceedance** - A customer with a separate irrigation meter shall not exceed 125% of the District MAWA.

k) **Excessive Application of Irrigation Water** – Excessive application of water on landscapes without a dedicated irrigation meter may be subject to requiring a customer to implement a MAWA budget. Excessive use will be determined by considering appropriate standards of peak water consumption and size of irrigated area. Customers who excessively use water that are converted to a MAWA budget will become subject to the provisions contained in this Chapter for MAWA accounts.

l) **Dining Establishments** – Drinking water shall only be served to customers upon request.

m) **Hotel or Motel Linen Laundry** - The owner or operator of a hotel, motel, or other establishment that offers or provides lodging or rental accommodations for compensation shall provide customers with the option of not having towels and linen laundered daily. They must prominently display notice of this option in each bathroom using clear and easily understood language.

n) **Construction and Maintenance Water** - Water used for general construction and maintenance activities, including dust control, compaction, and concrete curing, may come from one of two sources, potable or reclaimed. Potable water may be used from a fire hydrant meter supplied by the District or a metered connection if connection fees have been paid. Either potable water source requires payment for the water used. Reclaimed water is available from the District's wastewater treatment plant at no cost. The use of construction water will be subject to inspection and possible termination if any pooling, ponding, or other waste of water occurs.

o) **Decorative Water Features** – are required to have a functioning recirculation system if using potable or raw water.

3.3.2 Exemptions from Permanent and Water Level Condition Water Restrictions

a) The following are exempt from the watering day restrictions specified in 3.3.1 (h), but are subject to the watering hour restrictions:

   i. Irrigation systems with a separate irrigation meter where the customer has a District approved MAWA irrigation plan and the customer does not exceed 100% of the District's MAWA;

   ii. Use of recycled water that is not supplemented by potable or raw water supplied by the District, as long as the recycled water supply is available; and

   iii. Public parks, school playing fields and golf courses.

b) In permanent Level 0 conditions only, upon written request to the District, a customer may receive an exemption for up to 30 days from the restrictions on days and hours of irrigation provided in 3.3.1 (h), to permit planting of new seed or installing of new turf. The 30-day exemption commences from the date of installation of the turf or the initial seeding. Exemptions for longer periods will require approval from the District Board of Directors.

c) Commercial plant nurseries shall be exempt from the restrictions on days and hours of irrigation set forth in 3.3.1 (h).

d) Hand-watering from a watering can shall be exempt from the restrictions on days and hours of irrigation set forth in 3.3.1 (h).

e) Hand-watering landscapes with a hose having a functioning automatic shut-off device shall be exempt from the restrictions on days and hours of irrigation set forth in 3.3.1 (h), but shall be subject to the conditions i. through ii. below. This exemption does not apply to the watering of new turf or lawns.

   i. Under Level 0 Permanent Water Conservation Requirements, Level 1, and Level 2 Water Conditions and Mandatory Reductions, hand-watering landscapes is allowed after 5:00 p.m. to 10:00 a.m. on Sunday, Monday, Tuesday, Wednesday, Thursday, and Saturday.

   ii. Under Level 3, Level 4, and Level 5 Water Conditions and Mandatory Reductions, hand-watering existing landscapes is allowed between 6:00 a.m. and 10:00 a.m. and between 4:00 p.m. and 9:00 p.m. on Sunday, Wednesday, Thursday, and Saturday.

f) Other variances from the water restrictions set forth in 3.3.1 (h) may be granted by the General Manager pursuant to the provisions of section 3.4.9.

3.4 Water Level 1-5 Conditions and Mandatory Reductions - Threatened or Existing Water Supply Shortages

There are five levels of water restrictions, which may be implemented after the District Board of Directors by resolution has declared the existence or threatened existence of a water shortage. Whenever the Board has made such a declaration, and during the course of such threatened or existing water

shortage, the Board by motion may implement any level of shortage as it deems necessary, and shall authorize the General Manager and District staff to enforce it. Any level of restrictions so implemented by the Board shall remain in effect until the Board by motion determines otherwise.

The five levels of water shortages and the approximate condition of the shortage are described below. Measures to reduce water demand are targeted to the shortage condition and apply to potable and raw water uses.

3.4.1 Level 1 Water Supply Shortage

The Board of Directors by motion may declare a Level 1 water supply shortage condition ("Level 1 Condition") due to a projected imbalance in available water supply and projected peak demand. Under Level 1, each consumer shall reduce their demand by at least 10 percent below that consumer's demand in the same month in calendar year 2013. This reduction will ensure that sufficient supplies will be available to meet anticipated demands, as determined by the methodologies set forth in section 2 of this WSCP. Upon such declaration, the General Manager or his/her designee shall take the necessary actions to implement the Level 1 Condition conservation practices identified in this subsection.

During the period of a declared Level 1 Condition, all water customers shall be required to comply with the Level 0 permanent water conservation measures in section 3.3 and the following additional water conservation measures:

a) Irrigation of residential and commercial landscapes, except golf courses, public parks, and school playing fields, shall only occur between 1:00 a.m. and 7:00 a.m. and between 5:00 p.m. and 11:00 p.m.

b) No hard surfaces including sidewalks, driveways, parking areas or decks may be washed or hosed down with water supplied through the District's water system, unless required by health or safety requirements.

c) After the District institutes a Level 1 Condition or a higher water conservation level condition in any year, there shall be no new lawn areas planted (whether by sod, seed, hydro mulch, or other means) which will require water from the District's potable water system. The exception to this would be if the landscape is managed under a District approved Landscape Plan and the landscape meets the current Town of Mammoth Lakes Water Efficient Landscape Ordinance.

d) No more than five percent of existing turf area may be replaced or reseeded.

e) Any other measures that the Board determines will promote the appropriate level of water use reductions under this water shortage level and that are specified in any motion or other action adopted by the Board.

3.4.2 Level 2 Water Supply Shortage

The Board of Directors by motion may declare a Level 2 water supply shortage condition ("Level 2 Condition") due to a projected imbalance in available water supply and projected peak demand. Under Level 2, each consumer shall reduce their demand by at least 20 percent below that consumer's demand in the same month in calendar year 2013. This reduction will ensure that sufficient supplies will be available to meet anticipated demands, as determined by the methodologies set forth in section 2 of

this WSCP. Upon such declaration, the General Manager or his/her designee shall take the necessary actions to implement the Level 2 Condition conservation practices identified below in this subsection.

During the period of a declared Level 2 Condition, all water customers shall be required to comply with all Level 0 and Level 1 Condition measures, as set forth above, and also shall comply with the following additional conservation measures:

a) Irrigation of residential and commercial landscapes, except golf courses, public parks, and school playing fields, shall only occur between 1:00 a.m. and 7:00 a.m. and between 7:00 p.m. and 11:00 p.m. Customers with a monthly MAWA may not have monthly water use exceeding 100% of the monthly allowance.

b) No turf areas may be replaced or reseeded.

c) Repair or prevention of all water leaks shall be carried out within 3 days of discovery by the customer or notification from the District.

d) Any other measures that the Board determines will promote the appropriate level of water use reductions under this water shortage level and that are specified in any motion or other action adopted by the Board.

3.4.3 Level 3 Water Supply Shortage

The Board of Directors by motion may declare a Level 3 water supply shortage condition ("Level 3 Condition") due to a projected imbalance in available water supply and projected peak demand. Under Level 3, each consumer shall reduce their demand by at least 30 percent below that consumer's demand in the same month in calendar year 2013. This reduction will ensure that sufficient supplies will be available to meet anticipated demands, as determined by the methodologies set forth in section 2 of this WSCP. Upon such declaration, the General Manager or his/her designee shall take the necessary actions to implement the Level 3 Condition conservation practices identified below in this subsection.

During the period of a declared Level 3 Condition, all water customers shall comply with all Level 0, Level 1, and Level 2 Condition water conservation measures and also shall comply with the following additional conservation measures:

a) Irrigation of residential and commercial landscapes, except golf courses, public parks, and school playing fields, shall only occur between 1:00 a.m. and 6:00 a.m. and between 8:00 p.m. and 11:00 p.m. Customers with odd addresses will be permitted to water only on Thursday and Sunday. Customers with even addresses will be permitted to water only on Wednesday and Saturday. Customers who do not have a numbered address will be notified by the District of their two watering days. Customers with a monthly MAWA may not have monthly water use exceeding 80% of the monthly allowance.

b) All water leaks, breaks, or other plumbing malfunctions shall be repaired within 2 days of discovery by the customer or notification by the District, with the exception of rental properties. In order to comply with State laws regarding the provision of notice to tenants, rental properties shall have up to 3 days to repair interior unit leaks.

c) Any other measures that the Board determines will promote the appropriate level of water use reductions under this water shortage level and that are specified in any motion or other action adopted by the Board.

3.4.4 Level 4 Water Supply Shortage

The Board of Directors by motion may declare a Level 4 water supply shortage condition ("Level 4 Condition") due to a projected imbalance in available water supply and projected peak demand. Under Level 4, each consumer shall reduce their demand by at least 40 percent below that consumer's demand in the same month in calendar year 2013. This reduction will ensure that sufficient supplies will be available to meet anticipated demands, as determined by the methodologies set forth in section 2 of this WSCP. Upon such declaration, the General Manager or his/her designee shall take the necessary actions to implement the Level 4 Condition conservation practices identified below in this subsection.

During the period of a declared Level 4 Condition, all water customers shall be required to comply with all Level 0, Level 1, Level 2, and Level 3 Condition water conservation measures, and also shall comply with the following additional conservation measures:

a) Irrigation of residential and commercial landscapes, except golf courses, public parks, and school playing fields, shall only occur between 4:00 a.m. and 6:00 a.m. and between 8:00 p.m. and 10:00 p.m. Customers with odd addresses will be permitted to water only on Thursday. Customers with even addresses will be permitted to water only on Wednesday. Customers who do not have a numbered address will be notified by the District of their watering day. Customers with a monthly MAWA may not have monthly water use exceeding 60% of the monthly allowance. Watering of any turf area is prohibited.

b) Any other measures that the Board determines will promote the appropriate level of water use reductions under this water shortage level and that are specified in any motion or other action adopted by the Board.

3.4.5 Level 5 Water Supply Shortage

The Board of Directors by motion may declare a Level 5 water supply shortage condition ("Level 5 Condition") due to a projected imbalance in available water supply and projected peak demand. Under Level 5, each consumer shall reduce their demand by at least 50 percent below that consumer's demand in the same month in calendar year 2013. This reduction will ensure that sufficient supplies will be available to meet anticipated demands, as determined by the methodologies set forth in section 2 of this WSCP. Upon such declaration, the General Manager or his/her designee shall take the necessary actions to implement the Level 5 Condition conservation practices identified below in this subsection.

During the period of a declared Level 5 Condition, all water customers shall be required to comply with all Level 0, Level 1, Level 2, Level 3, and Level 4 Condition water conservation measures, and also shall comply with the following additional conservation measures:

a) All landscape irrigation shall be prohibited.

iv. Golf courses, public parks, school playing fields, and landscape products of commercial growers and nurseries are exempt as set forth in 3.4.6.e.

v. Hand-watering existing landscapes with a hose equipped with a shut-off nozzle is exempt as set forth in 3.3.2 (e)ii.

b) All water leaks, breaks, or other plumbing malfunctions shall be repaired within 1 day of discovery by the customer or notification by the District, with the exception of rental properties. In order to comply with State laws regarding the provision of notice to tenants, rental properties shall have up to 3 days to repair interior unit leaks.

c) Filling or refilling of residential pools and spas is prohibited.

d) Vehicle washing may only be conducted at or by businesses licensed for such activity and which have a process to recycle wash water.

e) Any other measures that the Board determines will promote the appropriate level of water use reductions under this water shortage level and that are specified in any motion or other action adopted by the Board.

3.4.6 Golf Course, Public Park, and School Playing Field Water Restrictions

During water shortage level conditions, golf courses, public parks, and school playing fields using potable or raw water shall be subject only to the following water restrictions for irrigation. Golf courses, public parks, and school playing fields utilizing recycled water for irrigation are exempt from this subsection 3.4.6. Owners of golf courses, public parks, and school playing fields subject to these provisions shall:

a) At Level 1 water restrictions, the owners of golf courses, public parks, and school playing fields shall submit a water conservation plan to the District. The plan shall describe existing and planned methods for reducing water use by 10 percent below that consumer's demand in the same month in calendar year 2013. This water conservation plan shall be approved by the General Manager. Golf Courses, public parks, and school playing fields shall be subject to the Level 1 irrigation water restrictions until such plan is approved.

b) At Level 2 water restrictions, the owners of golf courses, public parks, and school playing fields shall submit a water conservation plan to the District. The plan shall describe methods for reducing water use by 20 percent below that consumer's demand in the same month in calendar year 2013. This water conservation plan shall be approved by the General Manager. Golf courses, public parks, and school playing fields shall be subject to the Level 2 irrigation water restrictions until such plan is approved.

c) At Level 3 water restrictions, owners of golf courses, public parks, and school playing fields shall submit a water conservation plan to the District. The plan shall describe methods for reducing water use by 30 percent below that consumer's demand in the same month in calendar year 2013. This water conservation plan shall be approved by the General Manager. Golf courses, public parks, and school playing fields shall be subject to the Level 3 irrigation water restrictions until such plan is approved.

d) At Level 4 water restrictions, owners of golf courses, public parks, and school playing fields shall submit a water conservation plan to the District. The plan shall describe methods for reducing water use by 40 percent below that consumer's demand in the same month in calendar year 2013. This water conservation plan shall be approved by the General Manager. Golf courses, public

parks, and school playing fields shall be subject to the Level 4 irrigation water restrictions until such plan is approved.

e) At Level 5 water restrictions, owners of golf courses, public parks, and school playing fields shall submit a water conservation plan to the District. The plan shall describe methods for reducing water use by 50 percent below that consumer's demand in the same month in calendar year 2013. This water conservation plan shall be approved by the General Manager. Golf courses, public parks, and school playing fields shall be subject to the Level 5 irrigation water restrictions until such plan is approved.

3.4.7 School and Town Playing Fields

Whenever the Board of Directors has implemented water shortage level conditions, it may, if in the public interest, permit the irrigation of the playing fields at the following locations: the Mammoth High School, the Mammoth Middle School, the Mammoth Elementary School, and the Town of Mammoth Lakes Shady Rest Park on days and during times fixed by motion of the Board of Directors.

3.4.8 Recycled Water

The water restrictions set forth in this Section 3.4 shall not apply to the use of recycled water for any purpose.

3.4.9 Variances

1. If, due to unique circumstances, a specific requirement of this WSCP would result in an undue hardship to a customer using District water or to a property upon which such water is used, then the customer may apply for a variance to the designated requirement under this subsection 3.4.9.

2. The variance may be granted or conditionally granted only upon a written finding of the existence of facts demonstrating an undue hardship to a customer or to property upon which water is used, that is disproportionate to the impacts to District water users generally or to similar property or classes of water user due to specific and unique circumstances of the user or the user's property.

3. Application. An application for a variance shall be on a written form as prescribed by the General Manager or his/her designee. The written application shall be accompanied by photographs, maps, drawings, or other pertinent information, as applicable, including a written statement by the applicant explaining the basis for the variance required and reasons supporting the request.

4. Approval Authority. The General Manager or his/her designee will exercise approval authority and act upon any completed application after submittal and may approve, conditionally approve, or deny the variance. The applicant requesting the variance will be promptly notified in writing of any action taken. The decision of the General Manager or his/her designee shall be final unless the applicant files a written appeal to the District Board of Directors within 10 days after the date of the decision. Unless specified otherwise at the time a variance is approved, the variance shall apply to the subject property only during the term of the applicable water conservation level condition.

5. Required Findings for Variance. An application for a variance will be denied unless the

approving authority finds, based on the information provided in the application, supporting documents, or such additional information as may be requested, and on water use information for the property as shown by the records of the District, that:

a) The variance does not constitute a grant of special privilege inconsistent with the limitations upon other District customers;

b) Because of special circumstances applicable to the property or its use, the strict application of this WSCP would have a disproportionate impact on the property or use that exceeds the impacts upon District customers generally;

c) The approval of such variance will not materially affect the ability of the District to effectuate the purposes of this WSCP and will not be detrimental to the public interest; and

d) The condition or situation of the subject property or the intended use of the property for which the variance is sought is not common or general in nature or application.

6. No relief shall be granted to any customer for any reason in the absence of a showing by the customer that the customer has achieved the maximum practical reduction in their water consumption.

4 Shortage Response Actions

4.1 Supply Augmentation

Given its location and the lack of additional available water sources, the District does not have any feasible water supply augmentation options.

4.2 Demand Reduction

Demand reduction actions developed to address supply shortages are described in detail in Section 3, Standard Water Shortage Levels.

Supplemental to the Standard Water Shortage Levels, MCWD runs water conservation programs to reduce water demand. These programs are:

- Public information campaigns promoting water use efficiency and conservation
- Water use information provided to customers to explain their water demand
- Rebates or giveaways of low-use plumbing fixtures and devices
- Rebates for landscape irrigation efficiency improvements and devices
- Reduce system water loss in the MCWD system through leak detection and repair and other measures
- Tracking of water use for irrigation compliance

Details and descriptions of these programs are provided in Chapter 9, Demand Management Measures, of the District's Urban Water Management Plan.

4.3 Operational Changes

During potential and declared water shortages, the District makes several operational changes to prepare. Surface water is almost entirely gravity fed to the distribution system. Therefore, conservation of stored surface water is initiated to retain a minimum storage level in Lake Mary of approximately 200 acre-feet. This stored surface water would supply roughly a month of peak water demand to accommodate for a groundwater emergency or other natural disasters. Additionally, the distribution system is set up for a pumping scenario to enable the District to supply primarily groundwater to maintain surface water for reserves.

4.4 Additional Mandatory Restrictions

Mandatory Restrictions are described in detail in Section 3, Standard Water Shortage Levels.

4.5 Emergency Response Plan

To respond to emergency shortage situations, MCWD regularly updates its Emergency Response Plan (Plan), which contains actions to maintain service or restore service in instances of disruption. The Plan is summarized below in Table 1-1. In addition to response actions, the Plan includes estimates of water requirements for various types of emergencies and the capability for the system to meet these requirements.

TABLE 1.1 MCWD EMERGENCY RESPONSE PLAN ACTIONS REGARDING WATER SUPPLY

Emergency	Response
Loss of power at the surface water treatment plant	Stop flow to the treatment plant and place both groundwater treatment plants (GWTP) into service. Set appropriate booster pumps to deliver water from the GWTPs to zones and storage tanks normally served by the surface water treatment plant.
Loss of power at the groundwater treatment plant(s)	Shut down main electrical service breaker. Use surface water treatment plant and/or other groundwater treatment plant to supply storage tanks and service zones as needed.
Loss of access and power to Lakes Basin facilities: surface water treatment plant and wastewater (ww) lift stations.	Emergency standby power used to operate the water treatment plant. SCADA used to monitor the status of the treatment plant and all ww lift stations. Notify businesses in the Basin to minimize ww until electricity is functioning. Maintain contact with the Town Road Dept. for safe access into the Lakes Basin to conduct inspection of District facilities. Have necessary equipment available for immediate dispatch on notice of safe access.
Loss of power and access in Old Mammoth area: GWTP No. 1, 4 production wells and 1 sewer lift station impacted.	Monitor status of water storage tanks, water pressure in impacted service zone. Maintain contact with the Town Road Dept. for safe access to area to conduct inspection of District facilities. Have necessary equipment available for immediate dispatch on notice of safe access.
Chlorine gas leak at water treatment or wastewater plant.	Inspect the affected plant to determine risks and perform emergency repairs if possible. If gas plume present, evacuate immediate area. Notify Town police and fire department to assist in evacuation notification procedures. Evacuate additional areas according to wind direction.
Major earthquake and/or volcanic eruption: loss of power, treatment facilities, water storage tanks, underground pipe breakage, and release of hazardous chemicals.	Investigate operational status of all water and ww facilities through SCADA or physical inspection unless hazards exist. Staff to report to District headquarters and follow assigned procedures to perform inspections as safety allows. Inspection to follow prioritized list contained in plan. If necessary, isolate sections of the water distribution system to prevent loss of water and conserve supplies. Notify the public to conserve water. If

	present, volcanic ash may contaminate the surface water supply and foul air filters disabling vehicles and other motorized equipment.
Wildfire consideration	Fire-fighting would require up to 2,000 gallons of water per minute. If mains are damaged, fire-fighting supply may not be available. District storage tanks have a total capacity of 7,500,000 gallons. The order of priority for water supply will be fire safety, potable water for customers, sanitary needs for customers, and irrigation use.

4.6 Seismic Risk Assessment and Mitigation Plan

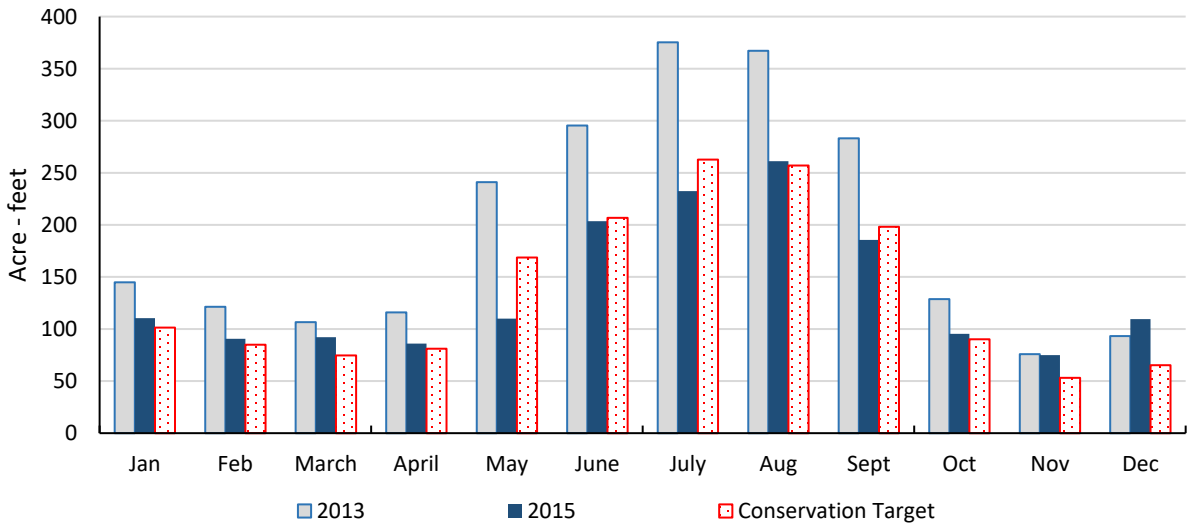
Seismic risk assessment and mitigation is included in the District's Emergency Response Plan. Attachment A provides a copy of this Plan to address seismic risk assessment and mitigation.

4.7 Shortage Response Action Effectiveness

During the four-year drought period from 2012 to 2015, the District implemented various Water Shortage Levels. Figure 4-2, Actual Demand 2013 (comparison year), 2015, and MCWD 30% Reduction Target, shows actual water demand reductions during Level 3 Water Shortage Restrictions that were implemented in April 2015. In November 2015, a new customer with significant water demand was connected to the MCWD system. Also, winter transient occupancy was higher than in 2013.

Emphasizing irrigation efficiency has been the most effective demand reduction program implemented by MCWD. However, variations in the timing of the beginning and end of the irrigation season, monthly temperature variations and summer precipitation can have a complicating effect on determining the savings from landscape management regulations. In June 2015, the state set a cumulative reduction level of 20% for MCWD using 2013 as the baseline year. MCWD met the state requirements with a 28.2% cumulative reduction in December 2015. Significant water savings were obtained during the 2015 irrigation season under Level 3 Water Shortage Restrictions as demonstrated in Figure 4-2. Implementing and enforcing water conservation has been effective at reducing demands such that state and MCWD goals are being met.

FIGURE 1-1 ACTUAL DEMAND 2013 (COMPARISON YEAR), 2015 AND MCWD 30% REDUCTION TARGET



5 Communication Protocols

The General Manager or his/her designee may publish a Notice of the Determination of the existence of a water conservation level condition in a newspaper circulated within the District. The District shall post notice of the water conservation level condition on its website and include it in its regular billing statement or in a separate mailing to all of the District's customers. The District may also utilize customer bills, social media and group messenger to notify customers of water conservation levels.

6 Compliance and Enforcement

The following provisions apply to the enforcement of the permanent water conservation requirements and the water shortage level water conservation requirements in Section 3, Six Standard Water Shortage Levels, of this WSCP.

6.1 Single-Family Residential, Commercial, and Other

For single-family residential, commercial, or other customers served by one meter or two meters where one is for inside use and another is for outside use, such as for irrigation of landscaping, the following shall apply:

1. For a customer's first two violations of the permanent water restrictions or the water restrictions during a declared water shortage condition or emergency, the District will issue warnings. For each warning, the District first will make one attempt to contact the customer or other person at the premises of the observed violation and follow-up any such verbal warning with a written confirmation of the violation. If such contact is unsuccessful, the District will mail a written notice of the violation to the customer. If the warning was orally communicated, the customer will have 48 hours to correct the violation. Otherwise, the customer will have 7 days from the date of the written notice to correct the violation.

2. Upon the occurrence of three or more violations, the District will notify the customer in writing by mail of the violation. The customer will have 7 days from the date of the notice to correct the violation. If the violation is not corrected, a fine of $50 per day will be imposed and charged to the customer's account until the earlier of: (i) the violation is corrected, or (ii) the District disconnects the customer's irrigation meter or installs a flow restrictor pursuant to subsections 3 and 4 below.

3. When at least four violations have been committed, which concern or relate to the watering of landscaping or vegetation (including multiple violations of the same restriction), then the District, upon notice pursuant to section 6.6 below, may disconnect the customer's irrigation meter if the customer's landscaping or vegetation is separately metered. If the landscaping or vegetation is not separately metered, then the District may install a flow restrictor on the customer's meter in order to reduce water service to essential uses only (i.e., household or inside uses). A customer with four or more violations and a single meter may choose to install separately metered systems for inside and outside use. If this option is selected, the District will install a flow restrictor until the separate systems are operational to the District's satisfaction, and then the outside system would be disconnected.

4. If there are at least four violations of the water restrictions of any nature, then the District, upon notice pursuant to section 6.6 below, may install a flow restrictor on the customer's

meter in order to reduce water service for essential uses only. If a customer has a separate meter for irrigation of landscaping or vegetation, the District may disconnect that meter in lieu of installing a flow restrictor.

5. In the event that service is disconnected or reduced pursuant to subsections 3 or 4 above, service shall not be restored and flow restrictors shall not be removed until the customer pays the District the appropriate fees as described below. A fee of $100.00 per disconnected meter and a fee of $200.00 per flow restrictor installation shall be imposed to reimburse the District for its costs in disconnecting or reducing service, and then restoring service, and a fine of $500. The District shall have 5 working days from the date of payment to restore service and/or remove the flow restrictors. Upon restoration of service, the customer will be subject to the provisions of this section 6.1, except the customer will be considered to already have received 2 warnings.

6.2 Multi-family Residential, Commercial and Other

For multi-family residential customers (condominiums, duplexes, triplexes, apartments, trailer parks, and others), and commercial and other customers with more than one meter or two meters, where one meter is for inside use and the other is for outside use such as for irrigation of landscaping, the following shall apply:

1. Violations concerning or relating to common areas, landscaping, or vegetation

   a) For the first two violations of water restrictions by a customer or his/her agents or employees relating to or concerning common areas, landscaping or vegetation, the District will issue warnings. For each warning, the District first will make one attempt to contact the customer or other person at the premises of the observed violation and follow-up any such verbal warning with a written confirmation of the violation. If such contact is unsuccessful, the District will mail a written notice of the violation to the customer's billing address. If the warning was orally communicated, the customer will have 48 hours to correct the violation. Otherwise, the customer will have 7 days from the date of the written notice to correct the violation.

   b) Upon the occurrence of three or more violations, the District will notify the customer in writing by mail of the violation. The customer will have 7 days from the date of the notice to correct the violation. If the violation is not corrected, a fine of $50 per day will be imposed and charged to the customer's account until the earlier of: (i) the violation is corrected, or (ii) the District disconnects the customer's irrigation meter or installs a flow restrictor pursuant to subsection (c) below.

   c) When at least four violations have been committed by a customer or his/her agents or employees, which concern or relate to common areas, landscaping, or vegetation, then the District, upon notice pursuant to section 6.6, may disconnect all of the customer's irrigation meters if the customer's common areas, landscaping, or vegetation are separately metered. If the common areas, landscaping, or vegetation are not separately metered, then the District may install flow restrictors on all of the customer's meters in order to reduce water service to essential uses only (i.e., household or inside uses). A customer with four or more violations and a single meter may choose to install separately metered water systems for inside and outside use, in which event the outside water system only would be disconnected. If the customer chooses to install separately

metered systems, then the District may install flow restrictors until the separate systems are operational to the District's satisfaction.

2. Violations associated with dwelling units, businesses, or other individual units

   a) For the first two violations of water restrictions associated with a dwelling unit, business, or other individual unit, the District will issue warnings to the occupants thereof, and the customer, if different from the occupant. For each warning, the District first will make one attempt to contact the customer or other person at the premises of the observed violation and follow-up any such verbal warning with a written confirmation of the violation to the customer. If such contact is unsuccessful, the District will mail a written notice of the violation to the customer. If the warning was orally communicated, the customer will have 48 hours to correct the violation. Otherwise, the customer will have 7 days from the date of the written notice to correct the violation.

   b) Upon the occurrence of three or more violations, the District will notify the occupant and customer in writing by mail of the violation. The occupant or customer will have 7 days from the date of the notice to correct the violation. If the violation is not corrected, a fine of $50 per day will be imposed and charged to the customer's account until the earlier of (i) the violation is corrected, or (ii) the District disconnects the irrigation meter or installs a flow restrictor pursuant to subsection (c) below.

   c) When at least four violations of such water restrictions have been committed, the District, upon notice pursuant to section 6.6 below, may install a flow restrictor on the meter serving the dwelling unit, business, or other individual unit in order to reduce water service to essential uses only. If the meter provides service to other dwelling units, businesses, or other individual units, or to common areas, landscaping, or other vegetation, then those affected thereby who are unrelated to the violations may elect to install separate meters. However, the District may install the flow restrictor until the separate meters have been installed and are operational to the District's satisfaction.

3. Restoration of service and/or removal of flow restrictors

In the event that service is disconnected and/or reduced pursuant to either subsections 1 or 2 above, the customer or other affected person may request reconnection and/or removal of the flow restrictor upon payment of a fine of $500 and the following fees. The sum of $100.00 per disconnected meter and $200 per meter on which a flow restrictor is installed. The District shall have 5 working days within which to restore service and/or remove the flow restrictor after a request therefor by the customer or other affected person and payment of the fine and costs to restore service. Upon restoration of service, the customer will be subject to the provisions of this section 6.2, except the customer will be considered to already have received two warnings.

6.3 For Food Service and Lodging Establishments

1. For a food service's or lodging establishment's first two violations of the permanent water restrictions or water restrictions imposed during a declared water shortage condition or emergency related to serving water or failing to notice customers regarding an option to reduce linen service, the District will issue warnings. For each warning, the District first will make one attempt to contact the owner or manager or other person at the premises of the observed violation and follow-up any such verbal warning with a written confirmation of the violation. If such contact is unsuccessful, the District will mail a written notice of the violation to the business.

2. Upon the occurrence of three or more violations, the District will impose a fine of $50 for each additional violation, to be collected on the water bill.

6.4 Fees and Fines

In addition to any other fees or costs imposed by this WSCP, there also shall be a $20 monthly fee imposed on each customer whose service has been reduced through the installation of a flow restrictor for each month or part thereof that the flow restrictor is in operation. The purpose of this fee is to reimburse the District for its costs of administering and processing flow restrictors and in monitoring the customer's water use and the proper operation of the flow restrictor. The fee provided in this section 6.4 shall be subject to the collection and enforcement provisions of Section 6.15 and Division VIII B of Chapter 12 of the Water Code.

6.5 Appeals

1. Any person who wishes to object to the enforcement of this WSCP may submit a written appeal to the General Manager of the District within 10 days after the date of the challenged action. The appeal shall set forth the events and circumstances concerning the challenged action, the nature of the action from which relief is sought, the reasons for why the appeal should be granted, and all supporting documentation. The General Manger shall review the appeal and render a decision on it within 10 days of its receipt.

2. Should the appellant not be satisfied with the General Manager's decision, he/she may appeal the decision of the General Manager to the Board of Directors within 10 days after the date that the General Manager's determination is made. The General Manager shall then submit such appeal, together with his/her recommendations, to the District Board of Directors which shall review the matter and schedule a hearing within 60 days from the date the appeal is submitted to the Board, and at the hearing receive testimony and evidence from both the appellant and staff. After the hearing, the Board will deliberate and prepare a written decision summarizing its findings and decision, which shall be sent to the appellant within 30 days after the hearing.

3. A decision is by the Board of Directors is final. An appellant may only challenge a decision by the Board by filing a legal action against the District within the time limits set forth in Section 53069.4 of the Government Code, or as otherwise provided by law.

6.6 Notice

Notwithstanding any other provision of Chapter 12 of the District Code, any disconnection or reduction in service may be made after providing 48 hours' advance written notice thereof if such notice is

personally served on the customer and violator, if different from the customer, and other affected person, or after providing one week's advance written notice thereof if such notice is mailed to the customer and violator, if different from the customer, and other affected person.

The provisions of Section 3.08 of Chapter 12 of the District Code shall not apply to this WSCP. Written notice given by mail pursuant to this section shall be deposited in the United States Post Office Box for delivery by first class mail. Registered or Certified mail is not required. The customer shall be responsible for notifying the District to whom notices under this WSCP should be mailed if other than the customer.

6.7 Accumulation of Violations

Violations of water restrictions in the Six Standard Water Shortage Levels section of this WSCP, shall not accumulate from one year to the next year.

6.8 Criminal Penalties

In addition to the above administrative penalties and remedies, violators of water conservation requirements imposed by the District in response to the declaration of a Level 1, 2, 3, 4, or 5 Condition and which would otherwise violate any applicable provision of the District's Water Code, may be subject to criminal penalties in accordance with California Water Code section 31029.

7 Legal Authorities

The District has the authority to declare a water shortage condition or emergency under its enabling act, the County Water District Law, Water Code sections 30000 and following, and particularly Water Code sections 31025 through 31029. Also, the District is empowered to declare a water shortage emergency and enforce it under Water Code sections 350 through 359. In addition, the District has enacted by ordinance a comprehensive Water Code, which includes prohibitions on water waste and water conservation measures, as well as enforcement measures for violation. The Water Code as enacted includes enforcement authority under Government Code section 53069.4. This WSCP, when adopted will provide additional authority. The District does not have any water supply contracts as it is completely self-supplied. The District shall coordinate with the Town of Mammoth Lakes within which it provides water supply services for the possible proclamation of a local emergency under the California Emergency Services Act (Article 2, Section 8558 of the California Government Code).

Protocols for coordination with agencies within the District's service area in the event of a local emergency will be followed as outlined in the District's Emergency Response Plan. Contact for agencies within the service area are listed below:

Town of Mammoth Lakes	760-965-3600
Mammoth Lakes Police Department	760-965-3700
Mammoth Lakes Fire Department	760-934-2300

8 Financial Consequences of WSCP

During periods of plentiful water supply when no water conservation measures are in effect other than the permanent Level 0 requirements, District revenue from water consumption charges provides

approximately 12% of total District revenue. The District's water rate structure, which emphasizes collection of a fixed base charge, minimizes the fluctuations in total revenue associated with fluctuations in water use revenue. Each 10% reduction in water use results in a total revenue loss of about 1.2%, about $170,000. Costs for delivering water during droughts increase compared to normal years. The ratio of groundwater to surface water increases as surface water availability decreases. Groundwater is more expensive to pump, treat, and distribute than surface water.

The District maintains cash reserves to minimize the financial risk associated with reduced revenue or unexpected capital asset repairs or replacements. The reserve requirement set for water operations is equal to six months of operating expenses, approximately $1,640,000. One year with a 50% reduction in water supply would result in revenue loss of approximately $850,000. Three years with a 30% reduction in water supply would result in a cumulative revenue loss of $1,530,000.

In 2015, the District conducted a water rate study. The rate structure resulting from that study includes a provision for a water shortage surcharge. The surcharge is a fixed monthly amount per customer calculated to offset the revenue lost when conservation requirements reduce water use. The District Board of Directors has the option, at each level of water conservation, to implement the corresponding level of water shortage surcharge, a lower level of water shortage surcharge, or no water shortage surcharge. The Board adopted the surcharge on January 21, 2016. The District is currently conducting a water rate study, with implementation of new rates planned for October 2021. The pending rate study will provide sufficient revenue for operations and capital needs through 2026.

The District has two sources of water – surface water from Lake Mary and groundwater. Surface water is the least expensive source: treatment costs are lower and the water flows by gravity to District customers. During the four-year drought period from 2012 to 2015, the surface water supply was depleted and the District's sole source in 2015 was groundwater. The additional cost of pumping and treating groundwater is estimated at $125,000 per year at a 30% supply reduction.

The District's cash reserves, in combination with the option of implementing a water shortage surcharge, minimize the risk that a loss of revenue from reduced water supply and increased cost associated with groundwater delivery would cause the District to be unable to meet ongoing operating expenses.

Table 1-2 shows the fiscal impacts of reduced water revenue, increased operating costs associated with groundwater delivery, and the potential offset of the water shortage surcharge.

TABLE 1-2 FISCAL IMPACTS OF WATER RESTRICTIONS ON REVENUE

Reduction	10%	20%	30%	40%	50%
Revenue loss from conservation	$(170,000)	$(340,000)	$(510,000)	$ (680,000)	$(850,000)
Additional groundwater costs			$(125,000)	$(112,000)	$(100,000)
Water shortage surcharge	$170,000	$340,000	$510,000	$850,000	$850,000
Net	$0	$0	$(215,000)	$(62,500)	$(250,000)

Impacts to revenues and expenditures resulting from catastrophic events can vary widely in extent and duration. The greatest natural threats come from fire or earthquake. Fire could damage or destroy the District's above-ground assets; earthquakes could damage or destroy both above-ground and below-

ground assets. Contamination of the groundwater supply from geothermal power generation is an additional threat. The District would make every effort and financial commitment to maintain and repair services as quickly as possible as its first priority.

In addition to operating reserve funds, the District maintains capital reserves to provide for emergency capital expenditures. The fiscal impacts to water operations, to the extent they exceed existing operating reserves, would be addressed through some combination of fund transfers and deferral of planned capital expenditures. MCWD currently has over $20,000,000 in combined operations and capital available reserve fund balances.

9 Monitoring and Reporting

During a shortage condition, MCWD staff will continuously monitor the projected supply and demand. Customer water usage is used to evaluate the effectiveness of water shortage regulations and consumption reduction programs. Since early 2015, customer hourly usage can be viewed the following day. Hourly usage allows MCWD staff to evaluate customer compliance with District regulations. When supply conditions warrant, the General Manager will recommend to the Board that it either increase or decrease the water shortage level or terminate the restrictions per the water supply and demand assessment procedures described in Section 2 of this WSCP.

10 WSCP Refinement Procedures

The District will utilize the WSCP as a dynamic tool that can be refined to ensure that it is effective. As the District monitors projected supply and demand throughout the year and especially when threatening or existing water supply shortages exist, the District will adjust procedures and implement actions to ensure that the WSCP is serving as an adequate and appropriate water shortage mitigation plan. This WSCP can be modified, through motion by the Board of Directors, at any time to ensure it is a dynamic plan that is adjusted as needed based on monitoring and reporting.

11 Special Water Feature Distinction

MCWD uses the Health and Safety Code Section 11592(a) definition of swimming pools and spas.

Health and Safety Code Section 11592(a): "Swimming pool" or "pool" means any structure intended for swimming or recreational bathing that contains water over 18 inches deep. "Swimming pool: includes in-ground and above ground structures and includes, but is not limited to, hot tubs, spas, portable spas, and non-portable wading pools.

Water features have been defined by MCWD conservation staff as ponded or running water structures designed to receive potable, raw, or recycled water from MCWD and used for ornamental purposes.

The most prominent water features in MCWD's service area are golf course ponds. Ponds that are used to hold irrigation water are allowed under conditions specified in MCWD's Code.

12 Plan Adoption, Submittal and Availability

Guidelines require that, prior to adoption of the WSCP, the District must provide a draft for public review and provide notice to the public and pertinent agencies of a public hearing to accept comments. The District's Board of Directors will consider adoption of the WSCP following the public hearing. After the WSCP is adopted, a copy of the WSCP must be filed with the Department of Water Resources (DWR) within 30 days of adoption.

12.1 Notice of Public Hearing

The draft WSCP was made available to the public for review at the Mammoth Lakes branch of the Mono County Public Libraries and the District office, as well as made available for download from the District's website. A link to the draft WSCP was provided to the Town Manager of the Town of Mammoth Lakes, the Mono County Administrative Officer, Los Angeles Department of Water and Power, Inyo National Forest, and the Inyo-Mono Regional Water Management Group Program Office via email notification. A Notice of Public Hearing on the WSCP, which included information on obtaining copies of the draft plan for review and comment, was published in the local paper for two successive weeks, May 8 and 15 2021, and posted on the District's website. News releases were provided to the local radio stations. The Notice of Public Hearing is provided in Appendix A.

12.2 Public Hearing and Adoption

The public hearing and subsequent consideration for adoption occurred on May 20, 2021. During the Board meeting to discuss adoption, the Board received a brief presentation of the WSCP. Resolution No. 05-20-21-11 adopting MCWD's 2020 UWMP was passed, with a minor revision to a table, during the regular Board meeting. The Board of Directors' resolution approving the WSCP is included as Appendix B.

12.3 Plan Submittal and Public Availability

DWR and the State Library will receive a copy of the final WSCP within 30 days of adoption by the District's Board of Directors. In addition, copies will be provided to the planning departments of the Town of Mammoth Lakes and Mono County within the same timeframe. An electronic copy will be available from MCWD's website: www.mcwd.dst.ca.us and a hardcopy can be viewed at the District's office located at 1315 Meridian Boulevard, Mammoth Lakes, California during regular office hours.

12.4 Amending an Adopted UWMP

Subsequent to adoption, any amendments or changes to the WSCP will comply with the same procedures for adoption and submittal to state and local agencies as described in this Section 12.

Water Shortage Contingency Plan Appendices

A. Notice of Public Hearing

B. Board of Director's Resolution Approving the WSCP

Appendix A - Notice of Public Hearing

Mammoth Community Water District
Notice of Public Hearing Regarding the Intent to Adopt a Water Shortage Contingency Plan

The Mammoth Community Water District (District) will be holding a public hearing regarding a proposal to adopt a Water Shortage Contingency Plan (WSCP) at 5:30 pm on May 20, 2021.

In accordance with the California Department of Public Health's and Governor Newsom's Executive Orders N-29-20 and N-33-20, the District boardroom is closed and this meeting will be conducted solely by video/teleconference with members of the Board attending from separate remote locations in response to the threat of COVID-19. The public is invited to listen, observe, and provide comments during the hearing by either method provided for below. For members of the public interested in viewing and having the ability to comment at the public hearing via Zoom, an internet enabled computer equipped with a microphone and speaker or a mobile device with a data plan is required. Use of a webcam is optional. You also may call in to the hearing using teleconference without video. Members of the public who wish to participate in the hearing may do so by joining the following Zoom Videoconference Meeting: https://zoom.us/j/7609342596 (meeting ID: 760 934 2596) OR Join via teleconference by dialing 1-669-900-9128, 760-934-2596#

The WSCP is a detailed proposal for how the Mammoth Community Water District intends to act in the case of water shortage conditions.

Copies of the Draft WSCP will be available for public inspection at the District office, on the District website, www.mcwd.dst.ca.us, and at the Mammoth Lakes Public Library at 400 Sierra Park Road in Mammoth Lakes.

Comments, concerns, or suggested revisions that are relevant to the proposed plan must be submitted by close of business May 18, 2021 to receive a written response from the District. However, oral comments may be submitted during the hearing. Correspondence prior to the hearing may be transmitted by:

U.S. Mail: Mammoth Community Water District
WSCP
P.O. Box 597
Mammoth Lakes, CA 93546

Fax: (760) 934-4080
Attn: WSCP

E-mail: bhylton@mcwd.dst.ca.us
Subject line: WSCP

Appendix B – Resolution Adopting Water Shortage Contingency Plan

Adopted
05-20-2021

RESOLUTION NO. 05-20-21-11

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE MAMMOTH COMMUNITY WATER DISTRICT ADOPTING THE WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the California Urban Water Management Planning Act (Act), Water Code section 10632.3, states that the board defer to implementation of locally adopted Water Shortage Contingency Plans (WSCP) to the extent practicable;

WHEREAS, the WSCP can be updated as needed;

WHEREAS, the WSCP provides actions for how to proceed through various levels of water shortage;

WHEREAS, each update to the WSCP will be noticed for a public hearing and after adoption to be filed with the Department of Water Resources and certain other agencies and made available to the public no later than 30 days after adoption;

WHEREAS, the Mammoth Community Water District is an urban water supplier and has developed a WSCP;

WHEREAS, the Mammoth Community Water District coordinated with the Town of Mammoth Lakes, provided draft copies to the Town of Mammoth Lakes, Mono County, Los Angeles Department of Water and Power, Inyo National Forest, Mammoth Mountain Ski Area and the Inyo Mono Integrated Regional Water Management Program, published two public hearing notices in a local newspaper of general circulation, and provided the public the opportunity to review and comment on the draft plan; and

WHEREAS, a public hearing was held on May 20, 2021 at 5:30 p.m. virtually via Zoom, to allow for community input regarding the WSCP;

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

1. The Board finds that the proposed MCWD Water Shortage Contingency Plan contains all of the elements required and therefore approves and adopts the Water Shortage Contingency Plan and the methods stated therein for addressing water shortage conditions.

2. The General Manager or his designee is authorized and directed to file the MCWD Water Shortage Contingency Pan with the California Department of Water Resources, the Town of Mammoth Lakes, and the County of Mono within 30 days of its adoption.

3. The General Manager or his designee will make a copy of the District's adopted Water Shortage Contingency Plan available for public review during normal business hours within 30 days of its adoption.

PASSED AND ADOPTED by the Board of Directors of the Mammoth Community Water District at a regular meeting held on the 20th day of May 2021 by the following vote of the Board:

AYES:	Directors Creasy, Domaille, Smith, and Thompson
NOES:	None
ABSENT:	Director Cage
ABSTAIN:	None

MAMMOTH COMMUNITY WATER DISTRICT

s/ Thomas R. Smith

Thomas R. Smith, President
Board of Directors

ATTEST:

s/ Mark Busby

Mark Busby, Secretary
Board of Directors

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			
261001	Mammoth CWD	3,797	2,274
TOTAL		3,797	2,274
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

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)**		
NOTES:			

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	
Unit	AF
NOTES:	

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
NA
NOTES:

Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	21,650	24,126	26,603	29,080	31,566	
NOTES: Population served is determined by method to account for transient population. See Chaptre 3.4.1 Service Area Population explanation.						

Table 4-1 Retail: Demands for Potable and Non-Potable 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*
Single Family		Drinking Water	467
Multi-Family	Apt, Mobile Home, Condo, Condo with Irrigation	Drinking Water	736
Commercial	Comm, Comm/Res, Motel	Drinking Water	304
Institutional/Governmental	Public, District	Drinking Water	55
Landscape	Landscape Irrigation	Drinking Water	251
Other Non-Potable	Golf Course Irrigation, Raw	Raw Water	62
Losses		Drinking Water	148
		TOTAL	2,024
NOTES:			

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		487	507	527	547	
Multi-Family	Apt, Mobile Home, Condo, Condo with Irrigation	894	1,053	1,211	1,369	
Commercial	Comm, Comm/Res, Motel	381	458	536	613	
Institutional/Governmental	Public, District	128	202	275	348	
Landscape	Landscape Irrigation	236	164	177	189	
Other Non-Potable	Raw	67	67	67	67	
Losses		191	215	245	276	
	TOTAL	2,385	2,665	3,037	3,409	0
[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2]						
NOTES:						

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*	2,024	2,385	2,665	3,037	3,409	0
Recycled Water Demand[1] *From Table 6-4*	193	160	219	219	219	0
TOTAL WATER USE	2,217	2,545	2,884	3,256	3,628	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.*

NOTES:

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	72
01/2017	78
01/2018	140
01/2019	105
01/2020	148

[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:

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)*	Yes
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.	Water Shortage Contingency Plan
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES:	

Table 5-1 Baselines and Targets Summary *Retail Supplier or Regional Alliance Only*				**From SB X7-7 Verification Form**
Baseline Period	Start Year *	End Year *	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	*2001*	*2010*	*181*	*145*
5 Year	*2006*	*2010*	*163*	
**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)*				
NOTES: No change from the 2015 UWMP				

Table 5-2: 2020 Compliance *Retail Supplier or Regional Alliance Only*				**From SB X7-7 2020 Compliance Form**
2020 GPCD				
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* *(Adjusted if applicable)*	2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
94	*none*	*none*	*145*	*Y*
**All cells in this table are from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)*				

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
Fractured Rock	Mammoth Basin	591	261	156	151	790
	TOTAL	591	261	156	151	790
NOTES:						

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 2015 service area covered by wastewater collection system *(optional)*					
	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *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*
Mammoth Community Water District	Metered	1,407	Mammoth Community Water District	Mammoth Community Water District WWTP	Yes	No
Total Wastewater Collected from Service Area in 2020:		1,407				
NOTES:						

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
Mammoth	Laurel Pond	The Effluent	6B260103001	Other	Yes	Secondary,	1,045	1,045	0	0	NA
Mammoth			6B260903003		Yes	Tertiary	193	0	193	0	0
						Total	1,238	1,045	193	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: Laurel pond is considered a restricted recreational impoundment and is outside of the service area. The Wastewater treatment plant recieves septage outside of the service area on a case by case basis.

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		640	Irrigation of Sierra Star and Snowcreek golf course	Tertiary	191	157	216	216	216	
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)			Recycled Water Truck Program for Construction and landscape use		2	3	3	3	3	
				Total:	193	160	219	219	219	0
				2020 Internal Reuse						

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

NOTES:

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**	**2020 Actual Use[1]**
Agricultural irrigation		
Landscape irrigation (exc golf courses)		
Golf course irrigation	195	191
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)		2
Total	195	193
NOTE: Other: Construction		

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 *
		Total	0
NOTES:			

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

Submittal Table 6-8 Retail: Water Supplies — Actual				
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	Additional Detail on Water Supply	Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Surface water (not desalinated)		1,291	Drinking Water	
Groundwater (not desalinated)	Untreated well water	61	Other Non-Potable Water	
Groundwater (not desalinated)		729	Drinking Water	
Recycled Water		193	Recycled Water	
	Total	2,274		0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES:				

Submittal Table 6-9 Retail: Water Supplies — Projected											
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	Additional Detail on Water Supply	**2025**		**2030**		**2035**		**2040**		**2045** (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Surface water (not desalinated)		1,404		1,517		1,630		1,743			
Groundwater (not desalinated)		885		1,041		1,197		1,353			
Recycled Water		198		448		448		448			
Other	Raw Water	76		220		220		220			
	Total	2,563	0	3,226	0	3,495	0	3,764	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*											
NOTES											

Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
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	1940-2015	2,068	100%
Single-Dry Year	2015	1955	95%
Consecutive Dry Years 1st Year	2013	1989	96%
Consecutive Dry Years 2nd Year	2014	1959	95%
Consecutive Dry Years 3rd Year	2015	1955	96%
Consecutive Dry Years 4th Year	2013	1955	95%
Consecutive Dry Years 5th Year	2014	1955	95%

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:

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	2,563	3,280	3,495	3,764	0
Demand totals *(autofill from Table 4-3)*	2,548	2,884	3,256	3,628	0
Difference	15	396	239	136	0
NOTES:					

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	2,563	3,280	3,495	3,764	
Demand totals*	1,898	2,184	2,445	2,707	
Difference	665	1,096	1,050	1,057	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES:					

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	2,563	3,280	3,495	3,764	
	Demand totals	2,548	2,884	3,256	3,628	
	Difference	15	396	239	136	0
Second year	Supply totals	2,563	3,280	3,495	3,764	
	Demand totals	2,038	2,310	2,607	2,905	
	Difference	525	970	888	859	0
Third year	Supply totals	2,563	3,280	3,495	3,764	
	Demand totals	1,784	2,021	2,281	2,542	
	Difference	779	1,259	1,214	1,222	0
Fourth year	Supply totals	2,563	3,280	3,495	3,764	
	Demand totals	2,038	2,310	2,607	2,905	
	Difference	525	970	888	859	0
Fifth year	Supply totals	2,563	3,280	3,495	3,764	
	Demand totals	1,784	2,021	2,281	2,542	
	Difference	779	1,259	1,214	1,222	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:						

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	**Total**
Total Water Use	2,279
Total Supplies	1,989
Surplus/Shortfall w/o WSCP Action	(290)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	456
Revised Surplus/(shortfall)	166
Resulting % Use Reduction from WSCP action	20%

2022	Total
Total Water Use	2,342
Total Supplies	1,959
Surplus/Shortfall w/o WSCP Action	(383)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	468
Revised Surplus/(shortfall)	85
Resulting % Use Reduction from WSCP action	20%

2023	Total
Total Water Use	2,408
Total Supplies	1,955
Surplus/Shortfall w/o WSCP Action	(453)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	722
Revised Surplus/(shortfall)	269
Resulting % Use Reduction from WSCP action	30%

2024	Total
Total Water Use	2,476
Total Supplies	1,955
Surplus/Shortfall w/o WSCP Action	(521)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	743
Revised Surplus/(shortfall)	222
Resulting % Use Reduction from WSCP action	30%

2025	Total
Total Water Use	2,542
Total Supplies	1,955
Surplus/Shortfall w/o WSCP Action	(587)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	760
Revised Surplus/(shortfall)	173
Resulting % Use Reduction from WSCP action	30%

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** **(*Narrative description)***
1	Up to 10%	Level 0 - Permanent Water Restrictions are prohibition on end users that are always in places to conserve water.
2	Up to 20%	Level 1 - Reduces allowable irrigation run times, prohibits washing hard surfaces, prohibits installation of new lawn area, prohibits reseeding more than 5 % of existing lawn.
3	Up to 30%	Level 2 - Reduces allowable irrigation run times, reduces allocation for MAWA customers, prohibits any reseeding of existing lawn, lessens timeline for customer to repair leaks.
4	Up to 40%	Level 3 - Reduces allowable irrigation days, reduces allowable irrigation run times, reduces allocation for MAWA customers, lessens timeline for customer to repair leaks.
5	Up to 50%	Level 4 - Reduces allowable irrigation days, reduces allowable irrigation run times, reduces allocation for MAWA customers.
6	>50%	Level 5 - Prohibits irrigation, lessens timeline for customer to repair leaks, prohibits refilling pools or spas, limitations on vehicle washing.
NOTES:		

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*
Level 0 - 5	Provide Rebates on Plumbing Fixtures and Devices	Varies based on customer participation		No
Level 1 - 5	Implement or Modify Drought Rate Structure or Surcharge	Incentivizes customers to reduce water demand, reduction amount undetermined.		Yes
Level 0 - 5	CII - Lodging establishment must offer opt out of linen service	Reduction amount undetermined		Yes
Level 0 - 5	CII - Restaurants may only serve water upon request	Reduction amount undetermined		Yes
Level 0 - 5	Water Features - Restrict water use for decorative water features, such as fountains	Reduction amount undetermined	Must have recirculation system	Yes
Level 0 - 5	Other water feature or swimming pool restriction	Reduction amount undetermined	No Overfilling	Yes
Level 5	Other water feature or swimming pool restriction	Reduction amount undetermined	Filling Prohibited	Yes
Level 0-5	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Reduction amount undetermined	Time allowed for repairing leaks is shortened with increasing restrictions	Yes
Level 1-5	Other - Require automatic shut of hoses	Reduction amount undetermined		Yes
Level 1-5	Other - Prohibit use of potable water for washing hard surfaces	Reduction amount undetermined		Yes
Level 5	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Reduction amount undetermined		Yes
Level 0 - 5	Landscape - Restrict or prohibit runoff from landscape irrigation	Reduction amount undetermined	No misting, broken sprinkers or sprinklers out of alignment	Yes
Level 0 - 5	Landscape - Limit landscape irrigation to specific times	Reduction amount increases with each level of restriction		Yes
Level 0 - 5	Landscape - Limit landscape irrigation to specific days	Reduction amount increases with each level of restriction		Yes
Level 5	Landscape - Prohibit all landscape irrigation	>50%		Yes
Level 0 - 5	Other	Reduction amount undetermined	Hose end irrigation device must be equipped with timer	Yes

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			
NOTES: None			

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Town of Mammoth Lakes	Yes	Yes
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Mono County	Yes	Yes
NOTES:		

Table O-1A: 2016

Urban Water Supplier: *Mammoth Community Water District*

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

Retail Potable Deliveries

Table O-1A: Recommended Energy Reporting - Water Supply Process Approach

Enter Start Date for Reporting Period	1/7/2016	**Urban Water Supplier Operational Control**							
End Date	1/5/2017	**Water Management Process**						**Non-Consequential Hydropower (if applicable**	
☐ Is upstream embedded in the values reported?									
	Water Volume Units Used	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process	AF	*1744*	*1744*	*1744*	*1744*	*1744*	*1744*	*0*	*1744*
Energy Consumed (kWh)	*N/A*	*340405.2*	*0*	*320702.5*	*183641.85*	*420948.45*	*1265698*		*1265698*
Energy Intensity (kWh/vol.)	*N/A*	*195.2*	*0.0*	*183.9*	*105.3*	*241.4*	*725.7*	*0.0*	*725.7*

Quantity of Self-Generated Renewable Energy

0 kWh

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

Combination of Estimates and Metered Data

Data Quality Narrative:

Electricity data was collected from SCE for all pertinent meters. Each meter had a water supply process associated with it, and some facilities had multiple processes associated with a percentage breakdown for each process. Surface water treatment plant- 10% Extraction, 90% treatment. Groundwater treatment plants- 15% treatment, 85% distribution. Well 1 (direct to distribution)- 40% extraction, 20% treatment, 40% distribution. All other wells 50% extraction, 50% conveyance. All pump stations 100% distribution. Tank 6- 100% treatment. Water volume was annual Surface plus Groundwater, neglecting any system losses. The District does not have raw water storage tanks, all pumping to storage was included with distribution.

Narrative:

The District is located in a headwater region, and therefore on good snowpack years, the majority of our supply is from surface water, and distributed with gravity. The District has the ability to use groundwater when surface water is not available, but groundwater has to be extracted from wells, and pumped up into system. Drought years have heavy groundwater reliance, and energy intensity numbers are much higher during these times.

Table O-1A: 2017

Urban Water Supplier: *Mammoth Community Water District*

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

Retail Potable Deliveries

Table O-1A: Recommended Energy Reporting - Water Supply Process Approach

Enter Start Date for Reporting Period	1/6/2017	**Urban Water Supplier Operational Control**							
End Date	1/5/2018	**Water Management Process**						**Non-Consequential Hydropower (if applicable**	
☐ Is upstream embedded in the values reported?									
	Water Volume Units Used	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process	AF	*1989*	*1989*	*1989*	*1989*	*1989*	*1989*	*0*	*1989*
Energy Consumed (kWh)	*N/A*	*127845.8*	*0*	*106435*	*179417.9*	*245442.3*	*659141*		*659141*
Energy Intensity (kWh/vol.)	*N/A*	*64.3*	*0.0*	*53.5*	*90.2*	*123.4*	*331.4*	*0.0*	*331.4*

Quantity of Self-Generated Renewable Energy

0 kWh

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

Combination of Estimates and Metered Data

Data Quality Narrative:

Electricity data was collected from SCE for all pertinent meters. Each meter had a water supply process associated with it, and some facilities had multiple processes associated with a percentage breakdown for each process. Surface water treatment plant- 10% Extraction, 90% treatment. Groundwater treatment plants- 15% treatment, 85% distribution. Well 1 (direct to distribution)- 40% extraction, 20% treatment, 40% distribution. All other wells 50% extraction, 50% conveyance. All pump stations 100% distribution. Tank 6- 100% treatment. Water volume was annual Surface plus Groundwater, neglecting any system losses. The District does not have raw water storage tanks, all pumping to storage was included with distribution.

Narrative:

The District is located in a headwater region, and therefore on good snowpack years, the majority of our supply is from surface water, and distributed with gravity. The District has the ability to use groundwater when surface water is not available, but groundwater has to be extracted from wells, and pumped up into system. Drought years have heavy groundwater reliance, and energy intensity numbers are much higher during these times.

Table O-1A: 2018

Urban Water Supplier: *Mammoth Community Water District*

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

Retail Potable Deliveries

Table O-1A: Recommended Energy Reporting - Water Supply Process Approach

Enter Start Date for Reporting Period: 1/5/2018

End Date: 1/4/2019

☐ Is upstream embedded in the values reported?

		Urban Water Supplier Operational Control							
		Water Management Process						Non-Consequential Hydropower (if applicable	
	Water Volume Units Used	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process	AF	*2074*	*2074*	*2074*	*2074*	*2074*	*2074*	*0*	*2074*
Energy Consumed (kWh)	*N/A*	*104632.5*	*0*	*79733*	*160931.45*	*214618.05*	*559915*		*559915*
Energy Intensity (kWh/vol.)	*N/A*	*50.5*	*0.0*	*38.4*	*77.6*	*103.5*	*270.0*	*0.0*	*270.0*

Quantity of Self-Generated Renewable Energy

0 kWh

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

Combination of Estimates and Metered Data

Data Quality Narrative:

Electricity data was collected from SCE for all pertinent meters. Each meter had a water supply process associated with it, and some facilities had multiple processes associated with a percentage breakdown for each process. Surface water treatment plant- 10% Extraction, 90% treatment. Groundwater treatment plants- 15% treatment, 85% distribution. Well 1 (direct to distribution)- 40% extraction, 20% treatment, 40% distribution. All other wells 50% extraction, 50% conveyance. All pump stations 100% distribution. Tank 6- 100% treatment. Water volume was annual Surface plus Groundwater, neglecting any system losses. The District does not have raw water storage tanks, all pumping to storage was included with distribution.

Narrative:

The District is located in a headwater region, and therefore on good snowpack years, the majority of our supply is from surface water, and distributed with gravity. The District has the ability to use groundwater when surface water is not available, but groundwater has to be extracted from wells, and pumped up into system. Drought years have heavy groundwater reliance, and energy intensity numbers are much higher during these times.

Table O-1A: 2019

Urban Water Supplier: *Mammoth Community Water District*

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

Retail Potable Deliveries

Table O-1A: Recommended Energy Reporting - Water Supply Process Approach

Enter Start Date for Reporting Period: 1/5/2019

End Date: 1/4/2020

☐ Is upstream embedded in the values reported?

	Water Volume Units Used	Urban Water Supplier Operational Control							
		Water Management Process						Non-Consequential Hydropower (if applicable	
		Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process	AF	*1950*	*1950*	*1950*	*1950*	*1950*	*1950*	*0*	*1950*
Energy Consumed (kWh)	*N/A*	*107715.9*	*0*	*56862.5*	*243206.4*	*200906.2*	*608691*		*608691*
Energy Intensity (kWh/vol.)	*N/A*	*55.2*	*0.0*	*29.2*	*124.7*	*103.0*	*312.1*	*0.0*	*312.1*

Quantity of Self-Generated Renewable Energy

0 kWh

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

Combination of Estimates and Metered Data

Data Quality Narrative:

Electricity data was collected from SCE for all pertinent meters. Each meter had a water supply process associated with it, and some facilities had multiple processes associated with a percentage breakdown for each process. Surface water treatment plant- 10% Extraction, 90% treatment. Groundwater treatment plants- 15% treatment, 85% distribution. Well 1 (direct to distribution)- 40% extraction, 20% treatment, 40% distribution. All other wells 50% extraction, 50% conveyance. All pump stations 100% distribution. Tank 6- 100% treatment. Water volume was annual Surface plus Groundwater, neglecting any system losses. The District does not have raw water storage tanks, all pumping to storage was included with distribution.

Narrative:

The District is located in a headwater region, and therefore on good snowpack years, the majority of our supply is from surface water, and distributed with gravity. The District has the ability to use groundwater when surface water is not available, but groundwater has to be extracted from wells, and pumped up into system. Drought years have heavy groundwater reliance, and energy intensity numbers are much higher during these times.

Table O-1A: 2020

Urban Water Supplier: *Mammoth Community Water District*

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

Retail Potable Deliveries

Table O-1A: Recommended Energy Reporting - Water Supply Process Approach

Enter Start Date for Reporting Period: 1/7/2020

End Date: 1/5/2021

☐ Is upstream embedded in the values reported?

		Urban Water Supplier Operational Control							
		Water Management Process						Non-Consequential Hydropower (if applicable	
	Water Volume Units Used	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process	AF	*2020*	*2020*	*2020*	*2020*	*2020*	*2020*	*0*	*2020*
Energy Consumed (kWh)	*N/A*	*341527.3*	*0*	*297753*	*222304.7*	*466440*	*1328025*		*1328025*
Energy Intensity (kWh/vol.)	*N/A*	*169.1*	*0.0*	*147.4*	*110.1*	*230.9*	*657.4*	*0.0*	*657.4*

Quantity of Self-Generated Renewable Energy

0 kWh

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

Combination of Estimates and Metered Data

Data Quality Narrative:

Electricity data was collected from SCE for all pertinent meters. Each meter had a water supply process associated with it, and some facilities had multiple processes associated with a percentage breakdown for each process. Surface water treatment plant- 10% Extraction, 90% treatment. Groundwater treatment plants- 15% treatment, 85% distribution. Well 1 (direct to distribution)- 40% extraction, 20% treatment, 40% distribution. All other wells 50% extraction, 50% conveyance. All pump stations 100% distribution. Tank 6- 100% treatment. Water volume was annual Surface plus Groundwater, neglecting any system losses. The District does not have raw water storage tanks, all pumping to storage was included with distribution.

Narrative:

The District is located in a headwater region, and therefore on good snowpack years, the majority of our supply is from surface water, and distributed with gravity. The District has the ability to use groundwater when surface water is not available, but groundwater has to be extracted from wells, and pumped up into system. Drought years have heavy groundwater reliance, and energy intensity numbers are much higher during these times.