**REPORT TO THE BOARD OF DIRECTORS**
**BOARD MEETING OF June 8, 2021**
**AGENDA ITEM NO. 10.A.**

**AGENDA SECTION:** **PUBLIC HEARING**

**SUBJECT:** **2020 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN ADOPTION**

**PREPARED BY:** Adam Brown, Water Resources Manager

**APPROVED BY:** Jeff Nelson, Interim General Manager

## BACKGROUND

The Georgetown Divide Public Utility (District) has prepared this report in compliance with the Urban Water Management Planning Act (Act), as amended (California Water Code, Division 6, Part 2.6; §10610, et. seq. established by Assembly Bill 797, 1983). All urban water suppliers defined in Section 10617; 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 (ac-ft) annually are required to prepare an UWMP. Urban water suppliers are required to prepare and/or update their Urban Water Management Plan (UWMP) and submit a complete plan to the DWR every five years.

## DISCUSSION

The District held a public hearing during at the May 11, 2021, regular Board of Directors meeting. Public comments and input were received up until May 25, 2021. Comments were incorporated in the UWMP. The final UWMP is included as Attachment 1. In compliance with the Act formal resolutions adopting the UWMP and Water Shortage Contingency Plan (WSCP) are required and included in Attachment 2.

## FISCAL IMPACT

If the District did not meet State requirements, a fine could be levied against the District.

## CEQA ASSESSMENT

This is not a CEQA project.

## RECOMMENDED ACTION

Staff recommends that the Georgetown Divide Public Utility District Board of Directors adopt UWMP and WSCP resolutions.

## ATTACHMENTS

1. 2020 Urban Water Management Plan
2. Resolution

**RESOLUTION NO. 2021-21**

**OF THE BOARD OF DIRECTORS OF THE GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT ADOPTING THE URBAN WATER MANGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN**

**WHEREAS,** the California Legislature enacted Assembly Bill 797 (Water Code Section 10610 et seg., known as the Urban Water Management Planning Act during the 1983-1984 Regular Session, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan (UWMP), the primary objective of which is to plan for the conservation and efficient use of water; and

**WHEREAS,** the District is an urban supplier of water providing water to over 3,500 customers and a population of about 9,000 residents; and

**WHEREAS,** the UWMP shall be periodically reviewed at least once every five (5) years, and that the District shall make any amendments or changes to its plan which are indicated by the review; and

**WHEREAS,** the UWMP must be adopted by July 1, 2021, and after public review and hearing, filed with the Department of Water Resources (DWR) within thirty (30) days of adoption; and

**WHEREAS,** the District has therefore, prepared and circulated for public review the UWMP on April 22, 2021, and a properly noticed public hearing regarding the UWMP was held by the District on May 11, 2021; and

**WHEREAS,** the District will update and file the UWMP with the DWR by July 1, 2021; and

**WHEREAS,** the Water Shortage Contingency Plan (WSCP) is a standalone document contained within the UWMP.

**NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF DIRECTORS OF THE GEORGETOWN PUBLIC UTILITY DISTRICT THAT:**

1. The 2020 Urban Water Management Plan and the Water Shortage Contingency Plan is hereby adopted and ordered filed with the District Clerk;
2. The General Manager is hereby authorized and directed to electronically file the 2020 Urban Water Management Plan with the Department of Water Resources by July 1, 2021, and file with the California State Library and El Dorado County within thirty (30) days after this date;
3. The General Manager is hereby authorized and directed to implement the Water Conservation Program as set forth in the 2020 Urban Water Management Plan, which includes water shortage contingency analysis and recommendations to the District Board regarding necessary procedures, rules, and regulations to carry out effective and equitable water conservation;

4. In a water shortage, the General Manager is hereby authorized to declare a Water Shortage Emergency according to the Water Shortage Stages and Triggers indicated in the WSCP, and implement necessary elements of the WSCP; and
5. The General Manager shall recommend to the District Board of Directors additional regulations to carry out effective and equitable allocation of water resources.

**PASSED AND ADOPTED** by the Board of Directors of the Georgetown Divide Public Utility District at a meeting of said Board held on the 8th day of June 2021, by the following vote:

AYES:

NOES:

ABSENT/ABSTAIN:

_____
Michael Saunders, President, Board of Directors
GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

*Attest:*

_____
Jeff Nelson, Clerk and Ex officio
Secretary, Board of Directors
GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

## CERTIFICATION

I hereby certify that the foregoing is a full, true and correct copy of Resolution 2021-21 duly and regularly adopted by the Board of Directors of the Georgetown Divide Public Utility District, County of El Dorado, State of California, on this 8th day of June 2021.

_____
Jeff Nelson, Clerk and Ex officio
Secretary, Board of Directors
GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

**GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT**

# 2020 URBAN WATER MANAGEMENT PLAN

**June 2021**

Prepared By:

6425 Main Street
P.O. Box 4240
Georgetown, California 95634

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| | |
|---|---|
| ac-ft | acre feet |
| ACT | Urban Water Management Plan Act |
| amsl | above mean sea level |
| AWWA | American Water Works Association |
| CDS | Community Disposal System |
| cfs | cubic feet per second |
| CIP | Capital Improvement Program |
| CPUC | California Public Utility Commission |
| DMM | Demand Management Measures |
| DRA | Drought Risk Assessment |
| DWR | Department of Water Resources |
| EDWA | El Dorado Water Agency |
| ERP | Emergency Response Plan |
| General Plan | County of El Dorado General Plan |
| GPCD | gallons per capita per day |
| gpm | gallons per minute |
| LIRAP | Low-Income Rate Assistance Program |
| mgd | million gallons a day |
| NPDES | National Pollution Discharge Elimination System |
| RCAC | Rural Community Assistance Corporation |
| SMUD | Sacramento Municipal Utility District |
| the District | Georgetown Divide Public Utility District |
| USGS | United States Geological Survey |
| UWMP | Urban Water Management Plan |
| WRDMP | Water Resources Development and Management Plan |
| WSCP | Water Shortage Contingency Plan |
| WSDA | Water Supply and Demand Assessment |
| Zone | Auburn Lake Trail – On-site Wastewater Disposal System |

## LAY DESCRIPTION

The Georgetown Divide Public Utility District (the District) has prepared this 2020 Urban Water Management Plan (UWMP) to be utilized as a resource/planning document for the District and to meet State of California Department of Water Resources (DWR) requirements. The District is classified as an urban water supplier that provides treated water to approximately 3,800 customers and seasonal irrigation water to approximately 400 customers from a single surface water supply, Stumpy Meadows Reservoir.

Stumpy Meadows Reservoir is located along the Pilot Creek channel which is a tributary to Rubicon River and part of the larger American River Watershed. Mark Edson Dam, completed in 1962, impounds Stumpy Meadows Reservoir at a total capacity of 20,000 acre-feet (ac-ft). Supply is conveyed to the customers in the form of treated water and raw irrigation water by a canal/conduit system and distribution piping network. In 2020, the District supplied approximately 1,400 ac-ft of treated drinking water and 4,000 ac-ft of raw irrigation water. Projected 2040 approximate water use is calculated at 1,800 ac-ft for treated water and 5,000 ac-ft for raw irrigation water. Without accounting for improvements, total projected water uses in 2040, including treated and raw water losses, is estimated at approximately 9,500 ac-ft annually.

Based on historical dry year data, the District has adequate source of supply to meet 20-year demand projections, including for a single dry year and multiple dry year scenarios. Water conservation thresholds have been established to ensure these demands are met during multiple drought scenarios. The heart of water conservation methods is best management practices of annual raw irrigation water deliveries. Approximately 70 percent of District water deliveries include raw irrigation water. District policies call for an annual evaluation of the District's water supply so the District's Board of Directors can modify deliveries accordingly to ensure State of California and the District health and safety priorities are met to provide a reliable and consistent supply of safe drinking water to District customers. In addition, with the projected increase in demand the District actively evaluates demand measurement methods in order to ensure adequate and reliable water supply.

# 1.0 INTRODUCTION

The District has prepared this report in compliance with the Urban Water Management Planning Act (Act), as amended (California Water Code, Division 6, Part 2.6; §10610, et. seq. established by Assembly Bill 797, 1983). All urban water suppliers defined in Section 10617; 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 ac-ft annually are required to prepare an UWMP. Urban water suppliers are required to prepare and/or update their UWMP and submit a complete plan to the DWR every five years.

In January 2009, the Act was amended by Assembly Bill AB-1420, which required the implementation of demand management measures to be eligible for water grants or loans. The Act was then amended in November 2009 with the adoption of Senate Bill SBx7-7. The most significant revision in this amendment is the requirement for establishing per capita water use targets for 2015 and 2020. Since the 2015 UWMP, there are also six new additions to the California Water Code that water suppliers are required to address in the 2020 UWMP. These six new requirements discussed in the 2020 UWMP are summarized below:

- Five Consecutive Dry-Year Water Reliability Assessment;
- Drought Risk Assessment (DRA);
- Seismic Risk;
- Water Shortage Contingency Plan (WSCP);
- Groundwater Supplies Coordination; and
- Lay Description.

## 1.1 Report Organization

The remainder of this report is organized into the following sections:

*Section 2.0: Plan Preparation*

This section provides information on the processes used for developing the District's UWMP.

*Section 3.0: System Description*

This section provides a detailed description of the District's public water system.

*Section 4.0: Water Use Characterization*

This section provides description and quantifications of the District's past, current and future water use projections through 2040.

*Section 5.0: Water Conservation Baseline and Targets*

This section provides water conservation baseline and targets to meet Water Conservation Act of 2009 to achieve a 20-percent reduction by 2020.

*Section 6.0: Water Supply Characterization*

This section provides an analysis of the District's water supply reliability assessment under various hydrological and regulatory conditions.

*Section 7.0: Water Service Reliability and Drought Risk Assessment*

This section provides a rational basis for future decision-making related to supply management, demand management and project development.

*Section 8.0: Water Shortage Contingency Plan*

This section provides a detailed plan detailing how the District intends to act in the event of an actual water shortage condition.

*Section 9.0: Demand Measurement Measures*

This section provides actions the District can take to lower demand, improve water service reliability and help meet state and regional water conservation goals.

*Section 10.0: Plan Adoption, Submittal and Implementation*

This section details requirements for public hearings, adoption process and submittal.

# 2.0 PLAN PREPARATION

## 2.1 Basis for Preparing a Plan

This report has been prepared in compliance with the Act, and as amended (California Water Code, Division 6, Part 2.6; §10610, et. seq. established by Assembly Bill 797, 1983). All urban water suppliers as defined in Section 10617, 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 annually are required to prepare an UWMP. The District's water usage information is, shown on Table 2-1. Urban water suppliers are required to prepare and/or update their UWMP and submit a complete plan to the DWR every five years.

**Table 2-1: Public Water Systems**

| Public Water System Number | Public Water System Name | Number of Municipal Connections 2020 | Volume of Water Supplied 2020 |
|---|---|---|---|
| CA0910013 | Georgetown Divide Public Utility District | 3,689 | 1,813 |
| | **TOTAL** | 3,689 | 1,813 |

**NOTES:**
Units - Acre Feet

## 2.2 Individual Planning and Compliance

The District is a member of El Dorado Water Agency (EDWA). The EDWA is long-term water planning organization established by the El Dorado County Water Agency Act (California Water Code Appendix Section 96-1, et seq.). EDWA's Board of Directors is composed of representatives from both the El Dorado County Board of Supervisors and public water purveyors, including the District, within the County. EDWA has the power to take actions necessary to ensure sufficient water may be available for present and future beneficial uses within the agency boundaries, including the power to carry on technical and other necessary investigations pertaining to water supply, water rights and use of water within the agency. All land use planning and development approvals within the District's boundaries are the responsibility of El Dorado County. The District's service area does not include any incorporated cities. As detailed in Table 2-2, the District has prepared an individual UWMP.

| Table 2-2: Plan Identification | | | |
|---|---|---|---|
| **Select Only One** | **Type of Plan** | | **Name of RUWMP or Regional Alliance** *if applicable* *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)** | | |

## 2.3 Calendar Year and Units of Measure

The District is geographically isolated and; therefore, is only a retail supplier. All data presented in the 2020 UWMP represents a calendar year. All values presented in the 2020 UWMP are in ac-ft unless noted. Table 2-3 details the District's supplier identification information.

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

## 2.4 Wholesale Information

The District does not supply wholesale water.

# 3.0 SYSTEM DESCRIPTION

## 3.1 General Description

### 3.1.1 District Historical Background

The discovery of gold near the present site of Coloma by James W. Marshall in 1848 resulted in an influx of settlers to the Georgetown area. The general region now occupied by El Dorado County rapidly became one of the most populous areas of the State. The town of Georgetown was founded on August 7, 1849 by George Phillips. Gold valued in millions of dollars was taken from the area during the early years of the Gold Rush, and it was during this period that the original water system for the Georgetown Divide area was developed.

The initial diversions and ditches were constructed by three companies beginning in 1852. One of the companies, the Pilot Creek Ditch Company, later absorbed the other two, and expanded the system to supply water to nearly the entire area presently supplied by the District. In 1872, a group of San Francisco investors formed the California Water Company and purchased the Pilot Creek Ditch Company. The California Water Company subsequently constructed Loon Lake Dam making considerable improvements to the distribution system and established the first policy for furnishing water for irrigation purposes.

The name of this company was changed to the Loon Lake Water and Power Company in 1890, and shortly thereafter it was purchased by the Truckee General Electric Company. This company, in turn, changed its name to the Sierra Pacific Power Company in 1915. In 1931, the Georgetown Water Company, Ltd., was formed and purchased the water system serving the Georgetown area from Sierra Pacific.

In accordance with Ordinance Number 137 of the El Dorado County Board of Supervisors, formation of the Georgetown Divide Public Utility District was submitted to and approved by the electorate of the proposed District on June 4, 1946. The statutory authority enabling the District to construct, finance, maintain, and operate a water system is found in Section 16461 of the Public Utilities Code of California. By 1952, the District had purchased all of the facilities of the Georgetown Water Company. In 1961, these facilities were officially conveyed by deed to the District. The District sold all of its facilities and water rights in the Upper Rubicon Basin to the Sacramento Municipal Utility District (SMUD) in 1957. The proceeds of the sale were to be used by the District to develop an improved and enlarged source of supply on Pilot Creek. This development became known as the Stumpy Meadows Project and was financed by a loan under Public Law 984, with most of the loan to be repaid using the SMUD payments.

The Georgetown Water Company, the immediate predecessor to the District, as well as its antecedents, held certain rights to the South Fork Rubicon River and Pilot Creek. Pilot Creek is a tributary of the Rubicon River which is in turn a tributary to the Middle Fork American River. Water use from these sources had been established as early as 1852, and the owners of the Georgetown Water Company claimed pre-1914 rights by acquisition and use to waters of those streams and several other minor watersheds. In addition, the Company claimed and held title to facilities and properties related to providing water to the Georgetown Divide, including a storage reservoir at Loon Lake (completed about 1883), and a conveyance system to bring water from Loon Lake, re-diverting it from the South Fork Rubicon River into the Pilot Creek drainage, and re-diverting it at Stumpy Meadows (a meadow at that time, not a reservoir) to the Georgetown Divide Ditch. The water was primarily used for mining and agriculture along the Georgetown Divide although some was also used for domestic purposes.

After formation of the District in 1946, Application 12421 was filed in 1948. The District requested diversion and storage rights pertinent to the Loon Lake project, which was originally the Company's and then the District's major source of water. In addition, a diversion right of 50 cubic feet per second (cfs) and storage rights for 20,000 ac-ft per year were requested in the Pilot Creek watershed, as well as a number of storage sites in the service area. The District was then in the process of acquiring the Georgetown Water Company rights, facilities, and properties including Loon Lake Reservoir and ditches, to supply the Georgetown Divide service area. The facilities were finally acquired by the District in 1959. Application 12421 had been filed to formalize the rights that the District would eventually acquire from the Georgetown Water Company, and to provide for and protect a future potential water supply for the Georgetown Divide.

In the early 1950's, SMUD expressed a desire to acquire rights and facilities of the District in the Upper Rubicon Basin, including Loon Lake and the potential future water supply from the Rubicon River, for construction of the Upper American River Hydroelectric Project. In turn, SMUD offered to provide financial assistance for planning and construction and to assist in acquiring the necessary water rights for an alternate District water supply in the Pilot Creek Basin, including the 20,000 ac-ft reservoir proposed by the District, as well as a diversion of 50 cfs from Pilot Creek. In return, the District was to withdraw its applications for rights in the Upper Rubicon watersheds under A12421 in favor of SMUD, but the District was to keep that portion of the application related to the reservoir and diversions on Pilot Creek.

During the period of negotiation, the District filed Application 16212 (1955 and 1956) requesting additional necessary diversion rights for the alternative replacement water supply. The concepts regarding the various features of the replacement water supply had already been established, but only preliminary design studies and plans had been completed at that time. The project as originally proposed, envisioned the storage reservoir at Stumpy Meadows and direct diversion from Pilot Creek at the dam as described in A12421. In a later project revision, water was to be released from Stumpy Meadows Reservoir for re-diversion from Pilot Creek. The old Georgetown Divide ditch between

Stumpy Meadows and Tunnel Hill was to be abandoned, and a new conveyance system, the El Dorado Conduit, constructed.

Application 16212 requested an additional 50 cfs diversion from Pilot Creek and diversion rights totaling 25 cfs from the tributaries to Pilot Creek and Otter Creek that would be intercepted by the proposed conveyance system. The application also requested 3,000 ac-ft of storage at Mutton Canyon and 4,000 ac-ft of storage on an unnamed canyon along the conduit route, but these storage amounts were eventually denied. The District also filed A16688 to divert water from Onion Creek in a similar fashion to that being used by predecessors. Onion Creek water would be diverted into Pilot Creek for off-stream storage at Stumpy Meadows Reservoir and re-diverted from Pilot Creek into the El Dorado Conduit at a point near Mutton Canyon.

Decision 893, issued on March 18, 1958, allocated the various waters of the American River watershed including the waters of interest to the District and to SMUD. The District and SMUD had apparently reached agreement at this time as to the exchange of water facilities in the Rubicon River and Pilot Creek. Decision 893 resulted in permits 11304, 11305, and 11306 which approved the District's diversion and storage rights.

On June 25, 1958, the District filed for partial assignment of State Filing A5644, specifically to obtain an earlier filing date for at least certain portions of the Stumpy Meadows Project. The application requested:

1) 100 cfs direct diversion from Pilot Creek
2) 20,000 ac-ft storage on Pilot Creek as had been described in the Stumpy Meadows

A *Project Feasibility Report* was prepared by consultant Clair A. Hill. Permit No. 12827 dated June 30, 1961, approved the 100 cfs diversion and 20,000 ac-ft of storage. This permit was issued in compliance with the terms of Decision 1013.

### 3.1.2 Governance and Service Area

The District is a Public Utility District and operates under a governing five-member Board of Directors elected at-large for four-year overlapping terms. The District's management is under the direction of the General Manger, Clerk and ex-officio Secretary of the Board, who is appointed by, and serves at the pleasure of the Board.

The Georgetown Divide is situated on the west slope of the Sierra Nevada foothills, approximately 45 miles northeast of Sacramento, California in El Dorado County. It straddles a ridge which separates the drainage basin of the Middle Fork American River and the Rubicon River (a tributary to the Middle Fork of American River) on the north from the South Fork American River to the south. The District's sphere of influence is bounded on the north, south, and west by these rivers (see Figure 1). The sphere of influence covers about 173,000 acres (270 square miles). The existing service

area encompasses approximately 75,000 acres (112 square miles) with approximately 30,000 acres currently having some form of water service available.

The District currently provides treated water service to the communities of Georgetown, Buckeye, Garden Valley, Kelsey, Spanish Dry Diggins, Greenwood, Cool, and Pilot Hill. The entire service area is located within an unincorporated area of El Dorado County. Through combined and separate infrastructure, portions of these same communities also receive untreated water for irrigation purposes.

Elevations in the District's service area vary from 500 feet above mean sea level (amsl) at the southwestern boundary to 6,100 feet amsl at Silver Hill on the eastern boundary. The relief varies from rolling foothills in the west to steep slopes and deep canyons in the upper elevations. The community of Georgetown is located at the top of the Divide at an elevation of 2,654 feet amsl.

### 3.1.3 Source of Supply – Stumpy Meadows Surface Water Diversion

The primary source of water to the District is the Stumpy Meadows Project, which includes storage facilities, diversion structures, and a conveyance system to the service area. The project was completed in 1962 using funds from a Public Law 984 Loan administered by the Mid-Pacific Region of the U.S. Bureau of Reclamation.

Stumpy Meadows Reservoir is formed by a 162-foot-high rock and earth fill dam (Mark Edson Dam) located on Pilot Creek. The full pool operating level is the spillway crest of the dam at an elevation of 4,262 feet amsl, with a storage capacity of 20,000 ac-ft and a surface area of approximately 330 acres. The minimum pool elevation is 4,170 feet amsl with a dead pool storage of 1,200 ac-ft, and a usable storage of approximately 18,800 ac-ft. The outlet structure is a screened, 25 square-foot precast reinforced concrete intake tower with a sill elevation of 4,132 feet amsl (130 feet below the crest of the spillway). Water released from the reservoir is funneled through a 30-inch-diameter welded steel pipeline which discharges to Pilot Creek. Flows are controlled by a Howell-Bunger valve at the discharge end of that line, with the water being redirected into Pilot Creek. The catchment area of the watershed supplying the Stumpy Meadows project is approximately 11.7 square miles, ranging in elevation from 4,170 to 6,190 feet amsl (Figure 2). The spillway is an unregulated over pour section constructed in a horseshoe configuration. The spillway discharges into a concrete chute which rejoins Pilot Creek approximately 500 feet below the toe of the dam.

Water is released into Pilot Creek and is re-diverted into the District's water supply system by the Pilot Creek Diversion Dam located approximately two miles downstream of Edson Dam, near the mouth of Mutton Canyon Creek. The Pilot Creek Diversion Dam is a 110 by 20-foot reinforced concrete structure which diverts water into the El Dorado Conduit. A 36-inch-wide sluice gate controls the flow into an open concrete channel that conveys the flow into a 48-inch RCP conduit. The inlet structure is screened by a trash rack constructed of No. 8 rebar on 9-inch centers. The

flow is then deviated into the El Dorado Conduit. The portion of the watershed above the diversion structure is not included in the Stumpy Meadows Reservoir watershed is about 4.1 square miles.

Diversion structures along the El Dorado Conduit divert water from cross drainages between Mutton Canyon and Tunnel Hill. Some of the en-route drainage is also intercepted by the conveyance ditch. These en-route cross diversions provide a minimal supplementary supply to the District's system, and drain, in total, approximately three square miles of watershed above Tunnel Hill. The small watersheds tapped by the Stumpy Meadows Project below the reservoir are in a lower elevation region where snow accumulation and melt have a lesser impact on time-distribution of runoff, rendering the available water supply from these diversions less dependable and entirely secondary to the primary supply of the reservoir.

### 3.1.4 Description of Domestic Water System

Raw water from the Stumpy Meadows Reservoir is released down Pilot Creek, where it is diverted and conveyed through approximately 70 miles of supply ditch/conduits throughout the District. The first diversion is to Walton Lake, a raw water surface impoundment. Walton Lake supplies raw water to the Walton Lake Water Treatment Plant. The plant is located four miles east of Georgetown and has a production capacity of approximately three million gallons per day (mgd). The Walton Lake Treatment Plant distribution system serves the communities of Georgetown and portions of Greenwood, Kelsey and Garden Valley.

Following Walton Lake, raw water is delivered through a system of pipes and open ditches to another 10 ac-ft surface water impoundment that serves the Sweetwater Treatment Plant (formerly known as the Auburn Lake Trails Treatment Plant). In December 2019, the construction of a new three mgd water treatment plant was completed to comply with State Water Resources Control Board filtration requirements. The Sweetwater Treatment Plant serves the western portion of the District's service area including the communities of Cool, Pilot Hill and portions of Greenwood.

The District's treated water distribution system consists of eight generalized pressure zones, 11 treated water storage tanks, 200 miles of distribution mains and six water pumping stations. The District water system is linear in nature, generally relying on topographic relief for conveyance from the Stumpy Meadows Reservoir to the east and a system of pipes and ditches to convey water down slope to the west to various places of use. The District operates several small regulating reservoirs; however, with a break or outage in the primary transmission system, the potential exists for water supply disruptions if the outage lasts for multiple days. Future water supply options should consider the ability to improve redundancy, the level of water service reliability and storage, in addition to meeting projected water demands.

### 3.1.5 Water System Reliability

In 2002, KASL Engineering completed a *Water System Reliability Study* for the District that identified and prioritized repairs, upgrades and measures to ensure raw water and treated water distribution and storage networks reliably meet customer demands. Projects are regularly incorporated into the Districts Capital Improvement Program (CIP) and are completed as funds become available.

## 3.2 Service Area Boundary Maps

A series of maps are provided as detail below:

- Figure 1 shows the treated water service area boundary and sphere of influence;
- Figure 2 shows the Pilot Creek watershed;
- Figure 3 shows the treated water distribution system; and
- Figure 4 shows the raw water conveyance system.

## 3.3 Service Area Climate

The District is located within 38 degrees latitude north and is classified as a Mediterranean climate which is characterized by hot, dry summers and cool, wet winters. Service area elevations extend from approximately 1,200 feet amsl in Pilot Hill to approximately 3,000 feet amsl in Buckeye in the Sierra Nevada Foothills. Precipitation varies greatly through the District due to orographic lifting.

### 3.3.1 Historical Precipitation Data

Precipitation in the Pilot Creek drainage tributary to Stumpy Meadows Reservoir averages about 66-inches per year. Much of the precipitation occurs as rain, particularly in the lower elevations. Snow-pack accumulates in western portion of the watershed. Often the time distribution of the runoff hydrograph is controlled by snow accumulation and snow melt. Rainfall within the District's service area ranges from an annual average of 38.79 inches in Pilot Hill to 53.13 inches in Georgetown. Average annual snowfall in the eastern portion is approximately 16.6 inches. Most of the precipitation falls between late October and mid-April.

### 3.3.2 Climate Change Supply Reliability Summary

Similar to many water purveyors located along the western slope of the Sierra Nevada Mountains, the District recognizes the climate change impacts and how it will impact supplies. As discussed in the following sections, the District expects future years to have downwards trends of total precipitation along with a trend towards more rainfall and less snowfall resulting in a shift in spring runoff occurring earlier in the season. The District has safeguards to protect treated water reliability

during both single and multiple year dry periods. These safeguards are discussed in detail in the following Sections.

## 3.4 Service Area Population and Demographics

The District provides treated water to a total of 3,689 active customers. Customers are tracked under five water use categories: residential; multi-family; commercial; governmental/institutional and large landscape service. The District also provides irrigation water service.

### 3.4.1 Customers

In 2020, treated water customers consisted primarily of residential customers, with 96% of the District's accounts serving single family (3,595 accounts) dwellings. The District also had 10 multi-family units accounts serving 94 households. The District is fully metered with the exception of three the unmetered governmental connections. The District had 138 commercial/governmental accounts in 2020, which represent 4% of the total treated water accounts in the District. There were also seven large landscape accounts account for 0.2% of the total treated water accounts. The seven large landscape accounts included a nine-hole golf course owned by the Auburn Lake Trails Property Owner's Association, two other landscape accounts, two cemeteries and one Georgetown Divide Recreation District Park.

In 2020, there were 382 irrigation accounts where the District provided untreated raw water representing 74% of total water usage by the District. Irrigation water is used in a variety of ways on the Divide, including: Christmas tree farms, vineyards, pasture, orchards and hay production. This untreated raw water usage is not included in the analysis of the treated water system demands; however it is discussed in the DRA.

### 3.4.2 Population

To estimate the 2020 population in the District's service area, we used the persons per household factor of 2.47 developed in the 2015 UWMP. The State approved methodology is included in Appendix A. Using a residential and multi-family residential households total of 3,689, the District's estimated service area population in 2020 is calculated to be 9,112.

### 3.4.3 Population Projections

The County of El Dorado's 2014 *General Plan* last amended in December 2019 (General Plan) cited an annual growth rate of 1.03 percent. We applied this factor to the District's population growth projections. This annual growth rate generally mirrors the District's observed growth rate. Between 1995 and 2020 the average annual growth rate in the District boundaries was estimated at 1.05 percent. Due to topography, zoning, water supply, and sewage disposal constraints, the District's

growth rate is not expected to significantly increase in the coming years. Table 3-1 presents the estimated population growth between 2020 and 2045 based on an occupancy rate of 2.47 persons per household and a 1.05 percent growth rate.

**Table 3-1: Population - Current and Projected**

| | 2020 | 2025 | 2030 | 2035 | 2040 | 2045*(opt)* |
|---|---|---|---|---|---|---|
| Population Served | 9,112 | 9,600 | 10,115 | 10,657 | 11,228 | 11,830 |

### 3.4.4 Other Demographic Factors

The communities of Georgetown, Garden Valley, Kelsey, Greenwood, Cool and Pilot Hill make up the majority of the District's customers. With the exception of Georgetown and Cool, the majority of parcels within the District are greater than two acres reflective of a large geographical distribution of customers. The Auburn Lake Trails subdivision, located in the community of Cool, has approximately 1,200 customers, and makes up nearly one-third of the District's customer base.

The California Public Utilities Commission classified portions of Georgetown, Garden Valley and Kelsey in 2018 as disadvantaged community.

## 3.5 Land Uses Within Service Area

The General Plan, identifies land use areas within the District's boundaries as: agricultural lands; commercial; low, medium and high density residential; rural residential; and multi-family residential and are described as follows.

**Commercial:** Commercial zoned areas are limited to the communities of Georgetown, Kelsey, Garden Valley, Greenwood, Cool and Pilot Hill. With the exception of Georgetown and Cool, less than ten commercial parcels are designated in each community. Georgetown and Cool have approximately 20 parcels each.

**Agricultural Lands:** Agricultural lands are largely located between Georgetown and Garden Valley and a majority of the parcels have been developed.

**Residential / Rural Residential / Multi-Family Residential:** The majority of land within the District's service boundary consists of low density residential developments with limited areas of medium, high and rural residential. A few parcels of multi-family residential are developments located in Georgetown and Cool.

The goal of the General Plan is as follows: "*Protection and conservation of existing communities and rural centers; creation of new sustainable communities; curtailment of urban/suburban sprawl; location and intensity of future development consistent with the availability of adequate infrastructure; and mixed and balanced uses that promote use of alternate transportation systems.*" Future land use within the District's service area is expected to consistent with the General Plan.

# 4.0 WATER USE CHARACTERIZATION

## 4.1 Non-Potable Versus Potable Water Use

The District supplies both treated and irrigation/agricultural water to our customers.

## 4.2 Past, Current, and Projected Water Use by Sector

This section details the District's overall historical, current and projected water use between sectors.

### 4.2.1 Water Use Sectors Listed in Water Code

The District supplies treated water to approximately 3,900 customers who include:

- Single-Family Residential;
- Multi-Family Residential;
- Commercial;
- Institutional/Governmental; and
- Landscape

The District also provides seasonal irrigation water to approximately 400 customers.

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

During 2020, with the exception of one temporary water transfer, the District did not supply water to other water use sectors. During the months of August and September 2020, the District transferred approximately 2,000 ac-ft of raw water to Westland Water District. The water transfer was a one-time transfer. Potential future water transfers will be determined on a year-by-year basis depending on source supply availability and downstream demand.

### 4.2.3 Past Water Use

Between 2016 and 2019, water use at the district was generally stable and ranged from 11,606 to 12,220 ac-ft. The gross treated water usage was 164 gallons per capita per day (GPCD) in 2016 and 159 GPCD in 2019. Water usage amounts for this period are detailed on Table 4-1.

| Table 4-1: Historical Water Use | | | | | |
|---|---|---|---|---|---|
| ***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* | Level of Treatment When Delivered *Drop down list* | 2016 | 2017 | 2018 | 2019 |
| Single Family | Drinking Water | 1,062 | 1,161 | 1,094 | 1,027 |
| Multi-Family | Drinking Water | 13 | 16 | 13 | 14 |
| Commercial | Drinking Water | 40 | 45 | 37 | 48 |
| Institutional/Governmental | Drinking Water | 86 | 92 | 97 | 83 |
| Landscape | Drinking Water | 71 | 62 | 55 | 54 |
| Agricultural irrigation | Raw Water | 4,654 | 4,654 | 4,256 | 4,055 |
| Losses | Drinking Water | 329 | 272 | 297 | 391 |
| Losses | Raw Water | 1,800 | 2,084 | 2,897 | 2,459 |
| | **TOTAL** | 10,072 | 10,404 | 10,765 | 10,150 |
| **NOTES:** Units - Acre Feet | | | | | |

### 4.2.4 Distribution System Water Loss

The District operates and maintains approximately 200 miles of a pressurized water distribution system. The most recent water audit completed for the calendar year 2019 calculated real and apparent losses at approximately 390 ac-ft. At the time of preparation of this UWMP, a water loss standard has not yet been adopted. Average annual water losses for our pressurized treated water distribution system between 2016 and 2020 are estimated to be approximately 322 ac-ft. Estimated water losses for 2020 are detailed on Table 4-2.

| Table 4-2: 12 Month Water Loss Audit Reporting | |
|---|---|
| Reporting Period Start Date (mm/yyyy) | Volume of Water Loss* |
| 01/2016 | 329.4 |
| 01/2017 | 272.4 |
| 01/2018 | 296.8 |
| 01/2019 | 390.7 |
| ** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.* | |
| **NOTES:** Units - Acre Feet | |

In addition to treated water losses, the District tracks losses associated with raw/irrigation water conveyance system. In 2020 estimated raw/irrigation water conveyance losses was approximated at 3,900 ac-ft.

### 4.2.5 Current Water Use

Current water uses for 2020 totaled 11,367 ac-ft and including residential, commercial, industrial, institutional, landscape, irrigation, the temporary water transfer and water losses associated with the distribution of both treated and raw water. Treated and irrigation water demand is detailed on Table 4-3.

**Table 4-3: Demands for Potable and Non-Potable Water - Actual**

| Use Type *(Add additional rows as needed)* | 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 | 1,188 |
| Multi-Family | | Drinking Water | 15 |
| Commercial | | Drinking Water | 37 |
| Institutional/Governmental | | Drinking Water | 89 |
| Landscape | | Drinking Water | 61 |
| Agricultural irrigation | | Raw Water | 3,941 |
| Sales/Transfers/Exchanges to other agencies | | Raw Water | 2,000 |
| Losses | Treated Water Distribution System | Drinking Water | 416 |
| Losses | Raw Water Conveyance System | Raw Water | 3,619 |
| | | **TOTAL** | 11,366 |

**NOTES:** Drinking water losses are associated with pressurized distribution system. Raw water losses are associated with raw water conveyance system that includes concrete lined/unlined open ditch and pipe.
Units - Acre Feet

### 4.2.6 Projected Water Use

Projected water use was calculated based on the District's estimated 2020 population, the referenced water use categories and actual water usage. The District does not project the addition of more customer use classes. The treated and irrigation water use projections include the following customer classes: single family, multi-family, commercial, institutional/governmental, landscape and irrigation. Projections also include treated water distribution losses and raw/irrigation water conveyance losses. Water loss projections were calculated using the average losses observed between 2016 and 2020. Treated and irrigation water projections are detailed on Table 4-4.

| Table 4-4: Use for Potable and Non-Potable Water - Projected | | | | | | |
|---|---|---|---|---|---|---|
| Use Type *(Add additional rows as needed)* | Additional Description | Projected Water Use *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) |
| Single Family | | 1,249 | 1,317 | 1,388 | 1,461 | 1,539 |
| Multi-Family | | 17.6 | 18.6 | 19.6 | 20.6 | 21.7 |
| Commercial | | 39.7 | 41.9 | 44.1 | 46.4 | 48.9 |
| Institutional/Governmental | | 95.5 | 100.8 | 106.1 | 111.7 | 117.7 |
| Landscape | | 66.1 | 69.8 | 73.5 | 77.3 | 81.5 |
| Agricultural irrigation | Raw Water | 4,794 | 4,794 | 4,794 | 4,794 | 4,794 |
| Losses | Treated Water | 341 | 341 | 341 | 341 | 341 |
| Losses | Raw Water | 2,572 | 2,572 | 2,572 | 2,572 | 2,572 |
| | **TOTAL** | 9,175 | 9,256 | 9,338 | 9,424 | 9,516 |
| **NOTES:** Raw water conveynace and treated water loss based on 5-year average.<br>Units - Acre Feet | | | | | | |

The District completed a temporary water transfer in 2020 which resulted in an above average total gross water use in 2020. The 20-year projection does not include future temporary water transfers. Future temporary water transfers will be determined by supply availability and demand, on a year-by-year annual basis. Total gross water use is detailed on Table 4-5.

| Table 4-5: Total Gross 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* | 11,366 | 9,175 | 9,256 | 9,338 | 9,424 | 9,516 |
| Recycled Water Demand* *From Table 6-4* | 0 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL WATER USE** | 11,366 | 9,175 | 9,256 | 9,338 | 9,424 | 9,516 |
| **Recycled water demand fields will be blank until Table 6-4 is complete.* | | | | | | |
| **NOTES:**<br>Units - Acre Feet | | | | | | |

### 4.2.7 Characteristic Five-Year Water Use

The District developed a five-year water trend for treated and irrigation water based on current population and demand utilizing the DWR's planning tool. During 2020, water use was calculated to be 11,366 ac-ft. Based on this methodology, District water use is estimated to be 9,175 ac-ft in 2025.

## 4.3 Worksheets and Reporting Tables

The District utilized the DWR developed planning tool methodology and spreadsheet. The completed spreadsheet is included in Appendix B.

## 4.4 Water Use for Lower Income Households

The District offers a Low-Income Rate Assistance Program (LIRAP) to residential customers. The LIRAP provides a discount on the base rate charge for treated water. A total of 255 customers are enrolled in the program and account for approximately 0.06% of water usage during the 2020 report period. Low-income usage is included demand projections and is detailed in Table 4-6.

**Table 4-6: Inclusion in Water Use Projections**

| | |
|---|---|
| Are Future Water Savings Included in Projections?<br>(Refer to Appendix K of UWMP Guidebook)<br>*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, etc… utilized in demand projections are found. | |
| Are Lower Income Residential Demands Included In Projections?<br>*Drop down list (y/n)* | Yes |

## 4.5 Climate Change Considerations

On October 21, 2019, EDWA a completed *Water Resources Development and Management Plan* (WRDMP) to serve as a comprehensive resource and planning document for water purveyors in El Dorado County. The WRDMP is included in Appendix C. Key components of the WRDMP address water reliability in relation to climate change. The District has limited resources to develop a similar plan and therefore, is utilizing EDWA's WRDMP to understand and plan for the anticipated climate change impacts along El Dorado County's west slope and impacts specifically related to the District. Key climate change indicators identified in the plan along the west slope include:

**Water Supply – Demand Imbalance:** The WRDMP found climate change will likely result in increased runoffs during winter months, and a reduced snowmelt in spring months. This would likely result in earlier filling of Stumpy Meadows Reservoir and earlier use of storage.

**Vulnerability During Droughts:** The west-slope generally relies on surface water as a primary source of supply. Similarly, the District relies on a single surface water supply and is geographically isolated from neighboring purveyors. The District employs documents such as the UWMP and drought contingency plans to manage water supplies during periods of drought.

**Impacts of Wildfires:** In 2014, the King Fire burned a significant portion of the Pilot Creek watershed that supplies Stumpy Meadows Reservoir. The King Fire represented damaging impacts of severe wildfire due to drought periods, an overly dense forest and prolonged drought periods.

**Limited Groundwater Resources:** The District has no plans to use groundwater as a source of supply to augment current surface water supply. Rationale for this strategy is further detailed in Section 6.2.2.

# 5.0 WATER CONSERVATION BASELINE AND TARGETS

This section provides the District's methodology as to how we met the requirements of the *Water Conservation Act of 2009,* as known as the SB X7-7. This act required the District to reduce urban GPCD use by 20 percent by the year 2020. In order to determine if the District met the SB X7-7 baseline, GPCD was calculated as presented in Section 5.2.

## 5.1 2020 UWMP Updated Calculations

The District did not experience any of the following changes that would have resulted in an updated calculation:

- Distribution area expansion caused by mergers;
- Distribution area contraction; or
- Distribution area expansion by annexation of already developed areas.

## 5.2 Baseline and Target Summary

The District's treated water production is estimated by the volume of treated water measured at the outlets of the District's two water treatment plants. The District's total estimated treated water production includes water used for fire hydrant flushing, fire-fighting, un-metered connections and water losses. Water production does not include the untreated irrigation water distributed by the District through its canal system.

The average baseline GPCD was calculated at 203 GPCD for the 10-15 (1999-2008) year baseline period and 207 GPCD for the five-year baseline period resulting in 2020 target usage of 178 GPCD. Table 5-1 summaries baselines and targets. The 2015 UWMP included a target of 167 GPCD for 2020 using Method 3. The District has met the 167 GPCD target every year since 2013 with the exception of 2017 and 2020 with usages at 170 and 178 GPCD, respectively.

**Table 5-1: Baselines and Targets Summary**
*Retail Supplier or Regional Alliance Only*

| Baseline Period | Start Year | End Year | Average Baseline GPCD* | Confirmed 2020 Target* |
|---|---|---|---|---|
| 10-15 year | *1999* | *2008* | *203* | *178* |
| 5 Year | *2004* | *2008* | *207* | *178* |
| *All values are in Gallons per Capita per Day (GPCD) | | | | |

A higher than expected GPCD was recorded in 2020 and is likely due to the effects of the global pandemic that occurred in 2020 and continues into 2021. The residential treated GCPD water use increased 14% between 2019 and 2020 from 102 GPCD to 118 GPCD. The District's GPCD increase between 2015 and 2019 averaged approximately three percent. Using the prior four-year average, the estimated GPCD for 2020 is 164 which meats the target stated in the 2015 UWMP. Table 5-2 details the Districts 2020 compliance target. SBX7-7 verification forms are included in Appendix D.

**Table 5-2: 2020 Compliance**
*Retail Supplier or Regional Alliance Only*

| Actual 2020 GPCD* | Optional Adjustments to 2020 GPCD Enter "0" if no adjustment is made *From Methodology 8* | | | | | 2020 GPCD* *(Adjusted if applicable)* | Did Supplier Achieve Targeted Reduction for 2020? Y/N |
|---|---|---|---|---|---|---|---|
| | Extraordinary Events* | Economic Adjustment* | Weather Normalization* | TOTAL Adjustments* | Adjusted 2020 GPCD* | | |
| 178 | 14 | 0 | 0 | 14 | 164 | 164 | Yes |

**All values are in Gallons per Capita per Day (GPCD)*

An extraordinary event adjustment was warranted due to limited employment opportunities in the District service area; therefore, majority of residences work outside the District. Remote work environments and in home schooling likely contributed to the increase of residential water use. The District expects once the global pandemic ends the District will continue to meet GPCD goals.

## 5.3 Service Area Population

As discussed in Section 3.4, the District utilized the person-per-household method to calculate the service area population. The method was developed in the 2015 UWMP and the documentation indicating the DWR approval of this approach is included in Appendix A. An occupancy rate of 2.47 was used to calculate GPCD.

# 6.0 WATER SUPPLY CHARACTERIZATION

## 6.1 Water Supply Analysis Overview

The primary source of water to the District is the Stumpy Meadows Project which includes storage facilities, diversion structures and a conveyance system to the service area as shown on Figure 4. Stumpy Meadows impounds 20,000 ac-ft of surface water runoff by utilizing a 162-foot high rock and earth fill dam with a spillway crest elevation of 4,262 feet amsl.

The District utilized the optional planning tool developed by the DWR to plan for normal year, single dry year and droughts lasting up to five consecutive years. The District supplies treated water year round and irrigation water 5 of 12 months (May-September). Based on District supply and demand conditions a water shortage condition would not occur during a normal, single and 5-year drought scenario. A description of DWR's optional planning tool is included in Appendix B.

## 6.2 Water Supply Characterization

Water supply used for consumption purposes can be generated from many sources. The following sections detail the District's water supply.

### 6.2.1 Purchased or Imported Water

The District is unable to purchase or import water because the District is geographically isolated from other sources and the cost to import water is prohibitive.

### 6.2.2 Groundwater

District is not planning to use groundwater as a source of water to supplement its sole surface water source because the local ground water resources are not of sufficient quality or quantity to be a viable augmenting resource.

On the western slope of El Dorado County, groundwater occurs primarily in hard rock. Throughout the County, as in other parts of the Sierra Nevada foothills, alluvium consisting of unconsolidated deposits of clay, silt, sand, and gravel are laid down by surface flows and only occurs in small areas and are usually too thin to provide a significant amount of groundwater storage. Thus, the amount of usable groundwater is limited. A cooperative study entitled Georgetown Divide Water Management Study prepared by the DWR describes water supply alternatives available to the Georgetown Divide area and includes a discussion of the groundwater situation on the western slope. The following is an excerpt from that study:

*"Many wells are drilled in hard crystalline rock that lies at or near the ground surface or under the thin layers of alluvium. In rock formations water moves through, and is stored in, fractures in the rock mass. The width of each fracture usually decreases with depth, causing diminished water flow and storage capacity. The amount of water that can be stored and transmitted in such fractures is generally small compared to the amount that can be held and conveyed in a porous alluvial aquifer. The survey showed that while many residential wells produced 4 to 10 gallons per minute (gpm), many had flow rates less than one gpm and some had gone dry. Other reports substantiate the limitation of groundwater as a dependable source of water for supplementing public water supply or augmenting surface water storage during droughts. In fact, the contrary may be true where users of groundwater may look to the Districts for service when their wells go dry during droughts. Surveys also indicate that groundwater quality, though satisfactory in most 24 areas of the western slope, is often marginal. As future development occurs in areas beyond pipeline service, both quantity and quality of groundwater sources could be threatened."*

The Department of Water Resources' 2003 Bulletin 118 also characterizes groundwater in the foothills as follows:

*"Groundwater development in the fractured rocks of the foothills of the southern Cascades and Sierra Nevada is fraught with uncertainty. Groundwater supplies from fractured rock sources are highly variable in terms of water quantity and water quality and are an uncertain source for large-scale residential development."*

### 6.2.3 Surface Water

Similar to many purveyors located along the west slope of the Sierra Nevada the District's primary water supply is a surface water impoundment; in the District's case, the Mark Edson Dam to the Stumpy Meadows Reservoir.

#### 6.2.3.1 Yield Analysis

In order to determine the adequacy of the District's water supply system, yield analyses were determined. Sierra Hydrotech an engineering firm specializing in water system evaluations, analyzed yield of the water supply system. The results of this analysis are described in a report entitled *Stumpy Meadows Project Safe Yield Analysis*, dated June 1985, Revised 1986. This report describes project yield delivered to the service area with deficiencies taken in a critically dry year. The analysis was conducted by a computer model using a monthly reservoir operation simulation that, included diversions and losses in the conveyance system. The DWR re-analyzed the project yield data with virtually the same results.

#### 6.2.3.1.1. Definition of Yield

When used in conjunction with water supply projects, the term "yield" generally refers to an annual quantity of water that can be made available to the potential project service area on a specified delivery schedule. Since this is only a general definition, more specific descriptions are required to distinguish the different types of yield. In this report, two types of yield will be discussed.

- **Safe Yield** is defined as "*the maximum quantity of water that can be made available without deficiency each and every year without any adverse effects and under hydrologic conditions similar to those in the historic record*." From the "*2009 Options to Increase Water Supply*" report the existing safe yield of Stumpy Meadows is 10,541 ac-ft and represents the maximum quantity of water that can be made available without deficiency each and every year of the historic record.
- **Firm Yield** is defined as "*the maximum annual quantity of water that can normally be made available each year under historic hydrologic conditions. Exceptions are allowed in critical and some dry years when a deficiency may be imposed.*" Based on available hydrologic data and operation studies performed by the District, Sierra Hydrotech and the DWR, it was determined that the period from 1975 through 1978 continues to be the most critical dry hydrologic period for the Stumpy Meadows Project as configured and has been used as the critical period for determining the firm yield of the source.

#### 6.2.3.1.2. Stumpy Meadows Project Firm Yield

The objective of the firm yield analysis was to guide the District in operating of the Stumpy Meadows system for the period 1927 through 1983 for various levels of deficiencies in treated and untreated deliveries. The system was operated similarly to the safe yield analysis with the exception that during dry periods such as 1976 and 1977, deficiencies were applied to the water requirements.

The firm yield of the 20,000 ac-ft Stumpy Meadows Reservoir is calculated to be 12,200 ac-ft, which allows for critical dry year deficiencies in both raw water and treated water deliveries. The District Board of Directors adopted this criterion on May 13, 1997 and reaffirmed it on January 10, 2006. Actual water supply is detailed in Table 6-1.

| Table 6-1: Water Supplies — Actual | | | | |
|---|---|---|---|---|
| Water Supply | Additional Detail on Water Supply | 2020 | | |
| ***Drop down list*** *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool* | | Actual Volume | Water Quality *Drop Down List* | Total Right or Safe Yield *(optional)* |
| *Add additional rows as needed* | | | | |
| Surface water (not desalinated) | Stumpy Meadows Reservoir | 20,000 | Drinking Water | 12,200 |
| | **Total** | 20,000 | | 12,200 |
| **NOTES:** Units in acre-feet | | | | |

The firm yield analysis indicates that the District's water supply system meets both the treated water and irrigation water demands in a normal water year through 2045. This analysis includes anticipating an increase in irrigation demand during that time period. (total anticipated demand of 9,516 ac-ft). When the irrigation demands are calculated based on District ordinance 2005-01, the total demand in 2045 is estimated to be 4,794 ac-ft. The projected water supply to 2045 is detailed in Table 6-2.

| Table 6-2: Water Supplies — Projected | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Water Supply | Additional Detail on Water Supply | Projected Water Supply *Report To the Extent Practicable* | | | | | | | | | |
| ***Drop down list*** *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool* | | **2025** | | **2030** | | **2035** | | **2040** | | **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) | Stumpy Meadows Reservoir | 20,000 | 12,200 | 20,000 | 12,200 | 20,000 | 12,200 | 20,000 | 12,200 | 20,000 | 12,200 |
| | **Total** | 20,000 | 12,200 | 20,000 | 12,200 | 20,000 | 12,200 | 20,000 | 12,200 | 20,000 | 12,200 |
| **NOTES:** Units in acre-feet | | | | | | | | | | | |

### 6.2.4 Stormwater

There are no stormwater capture systems located within the District boundaries and there are no plans to develop such systems. Based on previous studies, stormwater capture is not viable option to augment the District's water supply.

### 6.2.5 Wastewater and Recycled Water

There is currently no recycled water being used in the District's service area. The District is the managing entity for the on-site wastewater disposal system in the Auburn Lake Trails Subdivision. Treatment from these systems is limited to septic tank treatment and disposal is mainly via leach fields. The District has studied the feasibility of recycling wastewater and it was determined the development of a recycled water supply from the Auburn Lake Trails Subdivision disposal system is not practical nor economically feasible.

#### 6.2.5.1 Auburn Lake Trails Wastewater Disposal Systems

In 1984, as part of class action legal settlement, the District became the regulatory agency responsible for wastewater disposal within the 1,100 lot Auburn Lake Trails Subdivision in Cool, and the owner of the Community Disposal System (CDS) serving 139 smaller lots in the subdivision. The Auburn Lake Trails On-Site Wastewater Disposal Zone (Zone) was formed on March 19, 1985. The purpose of the Zone is to preserve and protect the environment and public health through an approved management program for individual and small community waste disposal systems in lieu of an area-wide sewage collection, treatment and disposal system. As set forth in the Resolution 84-6, the District "*shall investigate, test, design, operate, monitor, inspect and if necessary, maintain and repair the On-Site Wastewater Disposal Systems within the Zone at the individual homeowner's expense*". The Auburn Lake Trails Zone was one of the first of its type in the State and served as a model for other Zones in the State and in the nation.

There are currently 1,031 developed lots within the Zone. The type of individual on-site wastewater disposal system utilized on a particular lot is dependent on site-specific soil conditions. Disposal systems currently utilized in the Subdivision are the conventional leach field, mound, pressure dosed, intermittent sand filter, and alternative wastewater disposal systems. The CDS was used for the remaining 139 lots that could not support any of the previously mentioned systems. The CDS collects only septic tank effluent from each residential unit's septic tank. This partially treated wastewater flows by gravity or is pumped up to the effluent lift station. From the pump station, the effluent is pumped to a large tank for distribution to the leach fields. The wastewater effluent is not chemically treated prior to disposal. The system also includes a total of 38 manholes that are 13,360 feet of collection line, a pump station and wet well, and approximately 1,800 feet of force main all connected to the community leach fields. The pump station is equipped with an emergency generator and a failsafe electrical backup system. The community leach fields consist of approximately 11,600 lineal feet of leach line. Presently, there are 137 homes connected to the CDS. An ultrasonic flow meter continuously monitors the wastewater flow to the CDS fields. Average dry weather wastewater flows from this CDS system have been about 30,961 gallons per day for the past five years. At build-out, it is anticipated that the wastewater flows will be approximately 32,000 gallons per day. This wastewater is not disinfected and is classified as primary wastewater.

#### 6.2.5.2 Recycled Water Evaluation

In 2005, the Auburn Lake Trails Property Owner's Association and the District evaluated the potential for utilizing recycled water from the CDS system to irrigate the property owner's association golf course. The existing nine-hole golf course presently uses treated District water for irrigation purposes and for the past five years, the peak daily demand during the summer is about 94,000 gallons per day. It was determined that it was cost prohibitive at this time to develop a recycled water system for the following reasons:

- The wastewater system did not produce sufficient water during the summer months to meet the irrigation water demands of the golf course; and
- A small ultra-filtration/disinfection plant would need to be installed to meet the State's recycled water standards.

The District will continue to explore funding mechanisms to recycle the CDS wastewater for beneficial uses.

### 6.2.6 Desalinated Water

The District does not have any opportunities to develop desalinated water due to its remote location from any ocean water, brackish water, or high salinity groundwater.

### 6.2.7 Water Exchanges and Transfers

The District is geographically isolated from its neighboring water purveyors by the two forks of the American River. There are also no existing intertie facilities or source of supply watershed connections that would allow for the District to argument supply.

In 2020, the District executed a temporary water transfer for beneficial use downstream of the Pilot Creek watershed. A total of 2,050 ac-ft was delivered to Folsom Lake utilizing the Rubicon and American Rivers. The District will continue to evaluate future temporary water transfers and their associated agreements based on supply and demand of downstream water users demand on a year-to-year basis.

## 6.3 Future Water Projects

Inevitably, if the District continues to grow and the demand for treated and irrigation water increases, a supplemental supply to the Stumpy Meadows Project will be necessary to meet District-wide demands. A supplemental water supply would also reduce the magnitude and the frequency of projected water supply deficiencies during a critical drought period.

### 6.3.1 Potential Water Supply Projects

In April 2009 a report entitled, *Options to Increase Water Supply* was developed by California Water Consulting, Inc. of Roseville, California. This report is included in Appendix E. The report investigated projects to augment water supplies for the District. A total of nine options were evaluated initial cost, annual cost, total cost, total additional yield and cost of water yield criteria. Options included:

1. Conveyance Canal Loss Reduction;
2. Enlarging Stumpy Meadows Reservoir;
3. Upper Stumpy Meadows Reservoir;
4. Rubicon River Diversion;
5. North Fork American River Pumping Plant;
6. Canyon Creek Reservoir;
7. Mutton Canyon;
8. Onion Creek; and
9. Modification to Allowable Demand Deficiency.

The District has determined that many of the additional water supply options identified above are cost prohibitive, institutionally challenging and/or subject to third party permission and agreement by governmental entities whose favorable participation cannot be relied upon. The North Fork American River Pumping Plant (aka American River Pump Station) water supply project likely represents the most feasible new supply source in the long run, even with its limitations and high cost. A more detailed evaluation is included in the District's CIP and is scheduled to be completed.

In the interim, the District continues to focus on reducing conveyance system losses through lining portions of the unlined open canal sections, repairing lined portions of the canal, repairing leaking pipes, and implementing/developing a plan to replace aging water meters. In the past five years, the District has lined approximately 16,100 feet of canal.

## 6.4 Special Conditions

Special conditions that will likely impact the District's supply and demand include climate change and regulatory conditions.

### 6.4.1 Climate Change Effects.

District partners including the EDWA identified the four primary criteria likely to impact the west slope water reliability due to climate change effects.

**Water Supply – Demand Imbalance:** The WRDMP found climate change will likely result in increased runoffs during winter months, and a reduced snowmelt in spring months. This would likely result in earlier filling of Stumpy Meadows Reservoir and earlier use of storage.

**Vulnerability During Droughts:** West slope purveyors generally rely on surface water as the primary source of supply. Similarly, the District relies on a single surface water supply and is geographically isolated from neighboring purveyors. The District follows documents such as the UWMP and drought contingency plans to manage water supplies during periods of drought.

**Impacts of Wildfires:** In 2014, the King Fire burned a significant portion of the Pilot Creek watershed that supplies Stumpy Meadows Reservoir. The King Fire represented damaging impacts of severe wildfire due to drought periods, overly dense forest and prolonged drought periods.

**Limited Groundwater Resources:** The District has no plans to use groundwater as a source of supply to augment current surface water supply. Rationale is further detailed in Section 6.2.2.

The WRMP is included in Appendix C.

### 6.4.2 Regulatory Conditions

Primary regulatory conditions include the development of Water Loss Standards and Model Water Efficient Landscape Ordinance in response to Senate Bill 606 and Assembly Bill 1668. The goals of the legislation are as follows:

- Develop indoor water use standard that is regulated by purveyor;
- Develop water loss standard; and
- Develop outdoor water use standard.

Each goal will impact the District. Refer to Section 9.0 that in part addresses District activities to meet regulatory conditions.

*Making Water Conservation a California Way of Life*, prepared by DWR is included in Appendix F.

## 6.5 Energy Intensity

The District's hydrological model, with few exceptions, largely relies on gravity for water deliveries for both raw water conveyance and treated water distribution. Six pump stations are located throughout the District that supply a small percentage of customers. Thus, energy intensity from source to point of use is relatively minimal. The District's primary sources of energy consumption are the District's two water treatment plants.

Two non-consequential hydropower facilities are located in the District's raw water conveyance system. The District also operates a wastewater pump station as described in Section 6.22. Energy intensity tables are included in Appendix F.

# 7.0 WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

The District has historically taken and continues to take steps to improve water service reliability. The District has an ongoing CIP to address system reliability, increase water conservation and maximize the available water supply in the future.

In addition to forecasting domestic water demands, the District is also accounting for irrigation water demand for the next 20 years. The District adopted Ordinance 2005-01 in 2005 which allows District staff to respond to reliability issues predicted by the General Plan estimations of growth in irrigation water service. A copy of this ordinance can be found in Appendix H.

Requests for irrigation water service and associated demand are evaluated each April based on the estimated available supply. Irrigation water commitments will not be permitted unless there is sufficient capacity to meet the service requested. Regardless of the estimated available water supply, the maximum number of miner's inches allocated to irrigation customers is limited to the equivalent of approximately 5,000 ac-ft.

During a normal water year, the operation of the irrigation water system begins in about the middle of April when additional supply water from Stumpy Meadows is introduced into the conveyance system. All regulating reservoirs along the system are filled and the ditches are saturated and usually are ready for delivery of irrigation water to irrigation customers by May 1. Irrigation water is delivered to customers through standard orifices and is measured in miner's inches. The contracted amount is delivered at a continual rate, with each customer managing the usage of water.

The irrigation season is generally from May 1 through September 30 of each year but can be shortened if there is a drought declaration or insufficient water to meet the full season demand. For example, in 2015, the irrigation season was shortened by approximately 41% to 63 days (June 1 through August 2, 2015) resulting the reduction in delivery (or conservation) of nearly 2,800 ac-ft of water to irrigation customers.

The District has ongoing management practices and conservation programs to reduce losses in the water conveyance system by lining ditches with concrete and gunite, replacing ditches with pipelines, and improving operations that affect losses. This program helps the District conserve water and in increase the life of the District's water supply. In 2020, the District estimated operational losses in the ditch conveyance system of approximately 3,619 ac-ft of water. Improved water conservation practices will continue to decrease the amount of water losses in our system. However, conservation alone may not be sufficient to meet the longer-term (>20 years) projected demands within the District's service area, and eventually, identification of an additional water supply to supplement the Stumpy Meadows Project may be necessary to meet the District's future demands.

## 7.1 Water Service Reliability Assessment

This section describes the reliability of the District's water supply and its vulnerability to seasonal or climatic shortages.

With the exception of small creeks located along the District's upper canal, the District's primary supply of water is the Pilot Creek watershed which drains into Stumpy Meadows Reservoir. Because this is a surface water supply, it is subject to significant reductions during dry years. However, there are no other legal, environmental or water quality limits on this source of supply.

The average annual runoff into the Stumpy Meadows reservoir is 17,885 ac-ft. The total reservoir capacity is 20,000 ac-ft. The District determines water year allocation by measuring Stumpy Meadows the reservoir level during the second week of April each year. During a normal water year, the reservoir would be full at the time of this measurement. The lowest reservoir level measured at this time was in 1977 when the reservoir's volume was only 11,060 ac-ft. The District has elected to use the 1977 level as the worst-case single year condition and for forecasting the minimum water supply five-year condition. The estimated minimum available five-year water supply is detailed in Table 7-1.

**Table 7-1: 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 | 20000 | 12200 | 100% |
| Single-Dry Year | 11060 | 10400 | 52% |
| Consectutive Dry Years 1st Year | 11060 | 10400 | 52% |
| Consectutive Dry Years 2nd Year | 11060 | 10400 | 52% |
| Consectutive Dry Years 3rd Year | 11060 | 10400 | 52% |
| Consectutive Dry Years 4th Year | 11060 | 10400 | 52% |
| Consectutive Dry Years 5th Year | 11060 | 10400 | 52% |

**NOTES:**
Units - Acre Feet

As discussed in Section 4.0, the District has projected water supply availability to meet treated water demands. Approximately seventy percent of the District water use, included loss is dedicated to irrigation water. The irrigation customer allocation is limited to a maximum of 5,000 ac-ft; therefore, the projected demand of raw water remains the same from year to year. Table 7-2 details the normal water year where a total of 18,800 ac-ft is available to treated and irrigation use between 2020 and 2045.

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

| | 2025 | 2030 | 2035 | 2040 | 2045 *(Opt)* |
|---|---|---|---|---|---|
| Supply totals *(autofill from Table 6-9)* | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 |
| Demand totals *(autofill from Table 4-3)* | 9,175 | 9,256 | 9,338 | 9,424 | 9,516 |
| Difference | 10,825 | 10,744 | 10,662 | 10,576 | 10,484 |

**NOTES:**
Units - Acre Feet

Based on the 1977 historical dry year, 20-year supply and demand totals were calculated. At the end of the 20-year period a surplus of 4,440 ac-ft would be available. The single dry year supply and demand comparison is detailed in Table 7-3. In addition, the five-year multiple dry year was applied to the 20-year projection. At the end of the five-year multiple dry year scenario, our 20-year projection shows a surplus of 4,440 ac-ft. Our multiple dry years supply and demand comparison is detailed in Table 7-4.

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

| | 2025 | 2030 | 2035 | 2040 | 2045 (Opt) |
|---|---|---|---|---|---|
| Supply totals | 11,060 | 11,060 | 11,060 | 11,060 | 11,060 |
| Demand totals | 9,175 | 9256 | 9,338 | 9,424 | 9,516 |
| Difference | 1,885 | 1,805 | 1,722 | 1,636 | 1,544 |

**NOTES:**
Units - Acre Feet

| Table 7-4: Multiple Dry Years Supply and Demand Comparison | | | | | | |
|---|---|---|---|---|---|---|
| | | 2025 | 2030 | 2035 | 2040 | 2045 (Opt) |
| First year | Supply totals | 11,060 | 11,060 | 11,060 | 11,060 | 11,060 |
| | Demand totals | 9,175 | 9,256 | 9,338 | 9,424 | 9,516 |
| | Difference | 1,885 | 1,805 | 1,722 | 1,636 | 1,544 |
| Second year | Supply totals | 11,060 | 11,060 | 11,060 | 11,060 | 11,060 |
| | Demand totals | 9,180 | 9,261 | 9,343 | 9,429 | 9,521 |
| | Difference | 1,880 | 1,800 | 1,717 | 1,631 | 1,539 |
| Third year | Supply totals | 11,060 | 11,060 | 11,060 | 11,060 | 11,060 |
| | Demand totals | 9,185 | 9,266 | 9,348 | 9,434 | 9,526 |
| | Difference | 1,875 | 1,795 | 1,712 | 1,626 | 1,534 |
| Fourth year | Supply totals | 11,060 | 11,060 | 11,060 | 11,060 | 11,060 |
| | Demand totals | 9,189 | 9,270 | 9,352 | 9,438 | 9,530 |
| | Difference | 1,871 | 1,791 | 1,708 | 1,622 | 1,530 |
| Fifth year | Supply totals | 11,060 | 11,060 | 11,060 | 11,060 | 11,060 |
| | Demand totals | 9,194 | 9,275 | 9,357 | 9,443 | 9,535 |
| | Difference | 1,866 | 1,786 | 1,703 | 1,617 | 1,525 |
| **NOTES:** Units - Acre Feet | | | | | | |

## 7.2 Drought Risk Assessment

DRA allows for the District to plan for future water reliability and provides for short- and long-term water management decisions.

### 7.2.1 Data, Methods, and Basis for Water Shortage Condition

The DRA provides an evaluation based on the five driest consecutive years on record. As discussed throughout the 2020 UWMP, the District experienced a historically dry year in 1977 when the Stumpy

Meadows reservoir level was recorded at 11,060 ac-ft. In the event of water shortage conditions, water allocations and water conservation methods are enacted. Water conservation methods are discussed in Section 8.0.

### 7.2.2 Water Source Reliability

Stumpy Meadows is the District's only source of water supply. Being a surface water storage facility, year to year water availability relies solely on annual precipitation (e.g., rainfall and snowpack). Stumpy Meadows has proven to be a relatively reliable surface water source. The District does not have water wholesale obligations or does not rely on a purchased supply.

### 7.2.3 Total Water Supply and Use Comparison

In order to calculate a water supply and use comparison the District utilized the optional planning tool developed by DWR. This planning tool spreadsheet is included in Appendix B. Supply use inputs included both treated and irrigation use. The District classifies treated use as; single family residential, multi-family residential, commercial, institutional and governmental and landscape irrigation. In addition, distribution (treated) and conveyance (irrigation) losses were calculated. Dry year total gross water use was calculated at 9,200 ac-ft in year one and 9,278 ac-ft in year five. In each of the five-year consecutive dry year scenarios treated and irrigation use was calculated below historically dry supply year of 11,060 ac-ft.

For each dry year scenario, a Stage 4 water shortage contingency plan would be triggered. WSCP, demand reduction actions would be applied to total gross water use. Demand reductions include approximately 2,500 ac-ft of irrigation water and 957 ac-ft of treated water. For each dry year scenario demand reduction measure result in 37 to 38 percent surplus of stored water. The five-year drought risk assessment is detailed in Appendix B and Table 7-5.

| Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b) | |
|---|---|
| **2021** | **Total** |
| Gross Water Use | 9,200 |
| Total Supplies | 11,060 |
| Surplus/Shortfall w/o WSCP Action | 1,860 |
| Planned WSCP Actions (use reduction and supply augmentation) | |
| WSCP - supply augmentation benefit | 0 |
| WSCP - use reduction savings benefit | 3,457 |
| Revised Surplus/(shortfall) | 5,317 |
| Resulting % Use Reduction from WSCP action | 38% |
| | |
| **2022** | **Total** |
| Gross Water Use [Use Worksheet] | 9,219 |
| Total Supplies [Supply Worksheet] | 11,060 |
| Surplus/Shortfall w/o WSCP Action | 1,841 |
| Planned WSCP Actions (use reduction and supply augmentation) | |
| WSCP - supply augmentation benefit | 0 |
| WSCP - use reduction savings benefit | 3,457 |
| Revised Surplus/(shortfall) | 5,298 |
| Resulting % Use Reduction from WSCP action | 37% |
| | |
| **2023** | **Total** |
| Gross Water Use [Use Worksheet] | 9,239 |
| Total Supplies [Supply Worksheet] | 11,060 |
| Surplus/Shortfall w/o WSCP Action | 1,821 |
| Planned WSCP Actions (use reduction and supply augmentation) | |
| WSCP - supply augmentation benefit | 0 |
| WSCP - use reduction savings benefit | 3,457 |
| Revised Surplus/(shortfall) | 5,278 |
| Resulting % Use Reduction from WSCP action | 37% |
| | |
| **2024** | **Total** |
| Gross Water Use [Use Worksheet] | 9,258 |
| Total Supplies [Supply Worksheet] | 11,060 |
| Surplus/Shortfall w/o WSCP Action | 1,802 |
| Planned WSCP Actions (use reduction and supply augmentation) | |
| WSCP - supply augmentation benefit | 0 |
| WSCP - use reduction savings benefit | 3,457 |
| Revised Surplus/(shortfall) | 5,259 |
| Resulting % Use Reduction from WSCP action | 37% |
| | |
| **2025** | **Total** |
| Gross Water Use [Use Worksheet] | 9,278 |
| Total Supplies [Supply Worksheet] | 11,060 |
| Surplus/Shortfall w/o WSCP Action | 1,782 |
| Planned WSCP Actions (use reduction and supply augmentation) | |
| WSCP - supply augmentation benefit | 0 |
| WSCP - use reduction savings benefit | 3,457 |
| Revised Surplus/(shortfall) | 5,239 |
| Resulting % Use Reduction from WSCP action | 37% |
| **Notes:** | |
| Units - Acre Feet | |

# 8.0 WATER SHORTAGE CONTINGENCY PLAN

Water shortage contingency planning is a strategic planning process to prepare for and respond to water shortages. Good planning and preparation can help the District maintain reliable supplies and reduce the impacts of supply interruptions. These shortages could be caused by dry years, natural or man-made disasters, system interruptions or failures, water quality emergencies or regulatory action. The District's WSCP documents the process used by the District to anticipate water supply disruptions and shortages and is the operating manual used to prevent catastrophic service disruptions through proactive, rather than reactive, management.

The WSCP is a stand-alone document that can be amended as needed without amending the corresponding UWMP and is included in the 2020 UWMP as is required by law. The plan describes the District's staged response to address potential short and long-term water shortage conditions due to drought. The plan also describes the District's planned emergency response to sudden water shortages or water quality emergencies due to climate change or, natural or man-made disasters. This response plan is also included in the District's Water Supply Emergency Response Plan.

## 8.1 New Water Shortage Contingency Plan Requirements

In response to the severe drought of 2012 to 2016, new legislation in 2018 created a WSCP mandate replacing the water shortage contingency analysis required under former law. The three major regulatory changes include the following:

- Six standard water shortage levels corresponding to progressive ranges of up to 10-, 20-, 30-, 40-, and 50-percent shortages and a greater than 50-percent shortage [Water Code Section 10632 (a)(3)(A)]. The District's 2015 WSCP included four water shortage levels;
- Beginning in 2022, an annual water supply and demand assessment report must be submitted to the California DWR by July 1. [Water Code Section 10632 (a)(2)]; and
- Beginning January 1, 2020, the UWMP shall include a seismic risk assessment and mitigation plan. [Water Code Section 10632.5 (a)].

## 8.2 Water Supply Reliability Analysis

With the exception of small creeks located along the District's upper canal, the District's primary supply of water is surface water from the 20,000 ac-ft Stumpy Meadows Reservoir. Because this is a surface water supply, it is subject to significant reductions during dry years. However, there are no other legal, environmental or water quality limits on this source of supply.

Historically, the lowest reservoir level recorded during the second week of April was in 1977 when the reservoir's water storage level was recorded at 11,060 ac-ft. To be conservative, the District has elected to use the worst-case single year condition from 1977 as the basis for estimating the worst-case five-year condition. As shown in Table 7-1, there is adequate water available for treated use for the next five years based on the worst-case five-year condition described above. The 20-year analysis also shows there would be an adequate supply of treated water based on projected water demands. Seventy percent of the District water use is for irrigation water, with annual irrigation demand of approximately 5,000 ac-ft.

It is important to note that the District is geographically separated from neighboring water purveyors by the south, middle and north forks of the American River. Consequently, there is no immediate mechanism for the transfer of water into or out of the District through a mutual aid agreement should the need arise.

### 8.2.1 Water Quality Impacts on Reliability

The existing water quality of the District's surface water source continues to be excellent and therefore does not and should not affect the supply reliability between now and 2040. The District's 2020 Consumer Confidence Report is included in Appendix I. Stumpy Meadows Reservoir is a 20,000 ac-ft capacity reservoir located with a crest elevation of 4,262 feet amsl. The Pilot Creek basin watershed supplying the Stumpy Meadows Reservoir is approximately 11.7 square miles in size, and ranges in elevation from 4,170 feet amsl to 6,190 feet amsl (Figure 2). Land uses within the watershed area located above the Walton Lake Water Treatment Plant are predominately forested, undeveloped and low density residential. Public access is very limited and much of the watershed is gated and locked.

## 8.3 Annual Water Supply and Demand Assessment

The District determines annual water availability based on the Stumpy Meadows Reservoir water storage level measured during the second week of April. New regulations require that the District submit an annual Water Supply and Demand Assessment (WSDA) on July 1, 2022 and annually thereafter.

The District depends on one surface water supply to provide customers with up to approximately 5,000 ac-ft of irrigation water and approximately 1,500 ac-ft of treated water annually. Stumpy Meadows has a storage capacity of 20,000 ac-ft with a firm yield of 12,800 ac-ft. Key inputs into the District WSDA include:

- Supply availability (e.g., Stumpy Meadows Reservoir storage during the second week of April of each year);

- Demand (treated and irrigation);
- Population demographics (development, immigration/emigration);
- Conveyance losses; and
- Climate conditions.

The DWR has provided an example WSDA in Appendix A of the 2020 UWMP Guidebook.

The District has provided a similar report annually to its Board of Directors every February in compliance with El Dorado County Ordinance No. 4325, which was enacted in March 1994. This ordinance directed water purveyors of El Dorado County to prepare annual supply and demand assessments.

## 8.4 Six Standard Water Shortage Stages

The District has responded in the past, and will continue in the future to water supply shortages on an annual basis and as they develop. Generally, in the event of a drought or any other long-term water supply shortage, the District implements a program of water conservation measures that will result in water use restrictions proportional to the severity of the reductions needed. In the past, such use restrictions have been associated with droughts. Although the circumstances surrounding future droughts (or any other long-term supply shortages) may not be identical to the droughts that the District has faced in the past fifty years, the programs of voluntary and mandatory demand and use restrictions developed in response to the increasingly severe actual shortages experienced in 1977-79 and more recently in 2013-16 provide the District with a model for planning future responses to severe water shortages.

The reservoir storage level measured on the second week of April will be used to determine if it is necessary to trigger the declaration of a water shortage stage. These stages range from voluntary to mandatory water use reduction goals for both treated water and irrigation accounts. Regardless of water supply availability or service conditions, the Board of Directors reserves the right to set water conservation goals and modify stage declarations as necessary, based on reservoir levels and/or the impact to the environment or statewide water shortage conditions to align with regional or state water conservation policies, agreements, declarations or legal requirements anytime of the year.

Based on new State regulations, the District has revised its previous four shortage stages to the six standard shortage stages as defined below in Section 8.5. Shortage thresholds are detailed in Table 8-1.

| Table 8-1: Water Shortage Contingency Plan Levels | | |
|---|---|---|
| Shortage Level | Complete Both | |
| | Percent Shortage Range[1] *Numerical value as a percent* | Water Shortage Condition (*Narrative description*) |
| *Add additional rows as needed* | | |
| 1 | Up to 10% | 18,000 AF (93% of Normal) |
| 2 | Up to 20% | 16,000 AF (83% of Normal) |
| 3 | Up to 30% | 14,000 AF (72%of Normal) |
| 4 | Up to 40% | 12,000 AF (60% of Normal) |
| 5 | Up to 50% | 10,000 AF (52% of Normal) |
| 6 | >50% | <10,000 AF (<52% of Normal) |
| [1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.* | | |
| **NOTES:** The amount of storage in Stumpy Meadows reservior on the second week in April triggers the declaration of drought stages.<br>Units - Acre Feet | | |

### 8.4.1 Applicable Water Codes

During times of water shortage, there are actions the District may take that are not solely based upon internal policies and regulations. Several California Water Code Sections and California Codes of Regulation grant authority to or mandate the water purveyor to declare drought conditions and implement drought stages. Included below are summaries of specific actions required during water shortage conditions; however, the official California Water Code or California Code of Regulations should be referenced for the complete language of the section.

**Title 23, California Code of Regulation, Section 865:** Mandatory Actions by Water Suppliers – To promote water conservation, each urban water supplier shall implement all requirements and actions of the stage of its water shortage contingency plan that imposes mandatory restrictions on outdoor irrigation of ornamental landscapes or turf with treated water.

**Section 350:** The governing body of the water purveyor may declare a water shortage emergency condition whenever it determines that ordinary demands cannot be satisfied without depleting supplies to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

**Section 351:** The declaration shall be made only after a public hearing is held, at which consumers have an opportunity to protest and to present their respective needs to the governing body. There is an exception for a breakage or failure that causes an immediate emergency.

**Section 352:** At least seven days prior to the date of the public hearing, a notice of the time and place of the hearing shall be published in a newspaper that is distributed within the water purveyor's service area. Section 353 – When the governing body has declared a water shortage emergency condition within its service area, it shall adopt regulations and restrictions on the delivery and consumption of water supplied for public use in order to conserve water supply for the greatest public benefit, with particular regard to domestic use, sanitation, and fire protection.

**Section 354:** After allocating the amount of water, which in the opinion of the governing body will be necessary to supply domestic use, sanitation, and fire protection, the regulations may establish priorities in the use of water for other purposes – without discrimination between consumers using water for the same purpose.

**Section 355:** These regulations and restrictions shall remain in effect during the water shortage emergency condition, and until the water supply has been replenished or augmented.

**Section 356:** These regulations and restrictions may prohibit new or additional service connections and authorize discontinuing service to consumers willfully in violation of a regulation or restriction.

**Section 357:** These regulations and restrictions prevail over any conflicting laws governing water allocations while the water shortage emergency condition is in effect.

**Section 22257:** An irrigation district may impose equitable rules and regulations, including controls on the distribution and use of water, as conditions of ongoing service to its customers.

### 8.4.2 Drought and Water Management Tools

There are resources available to aid water purveyors and individuals before, during, and after a drought. Below is a brief description of a few of these tools.

**California Urban Drought Guidebook:** A publication providing help to water managers facing water shortages by showing them how to use tried-and-true methods of the past, such as demand management, conservation analysis, and fiscal considerations; as well as new methods and technology such as ET controllers and cooling system efficiencies.

**DWR Office of Water Use Efficiency:** Makes available technical expertise, manages the CIMIS weather station network, carries out demonstration projects and data analysis to

increase efficiency where possible, and provides loans and grants to achieve efficiency in water and energy. This information can be found at www.owue.water.ca.gov.

**DWR Drought Conditions:** A webpage providing State and regional updates with regards to water conditions. More information can be found at http://www.water.ca.gov/waterconditions/

**U.S. Bureau of Reclamation Drought Program:** Aids federal water contractors and other interested parties in a wider view of drought conditions, encompassing the western United States. Staff from this program will also provide technical assistance, grant and loan funding, and expertise in drought planning. Information on this Bureau program can be found at www.usbr.gov/drought.

**California Urban Water Conservation Council:** An organization serving water purveyors and environmental stakeholders through a collaborative process. Provides best management practices (BMPs) for municipal water conservation, as well as technical expertise for the implementation of these BMPs. More information can be found at www.cuwcc.org.

## 8.5 Shortage Response Actions

The reservoir water storage level is reviewed annually by the District's Board of Directors during the regular April Board meeting held on the second Tuesday in April. Based on this water storage level, the Board of Directors declares the type of water year the District will be facing prior to the release of irrigation water in May. Historically, the reservoir storage observed during the second week of April has triggered the declaration of drought stages by the District Board of Directors. These stages range from voluntary to mandatory reduction goals for both treated water and irrigation accounts of up to 50%. It should be noted that the District Board of Directors can declare, modify or end a water shortage declaration based on remaining supply and forecasted weather conditions anytime of the year.

The six stages of the WSCP correspond to progressively increasing estimated shortage conditions and align with response actions the District would implement to meet the severity of the impending shortages. There are a number of voluntary and mandatory demand reduction measures the District can implement as response actions to address shortage levels, these measures and are identified in Table 8-2. Based on experience gained during the last drought, the specific response actions identified are aligned with a shortage level and should address the anticipated gaps between normal supply and demand conditions. For example, Level 1 response actions are expected to reduce overall water use by 10%.

**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 to you.* | How much is this going to reduce the shortage gap? *Include volume units used.* | Additional Explanation or Reference *(optional)* | Penalty, Charge, or Other Enforcement? *Drop Down List* |
|---|---|---|---|---|
| *Add additional rows as needed* | | | | |
| 1 | Other - Shorten the irrigation season for all non-potable irrigation customers in alignment with shortage level | 10%-500 AF; 20%-1000 AF; 30%-1500 AF; 40%-2000 AF; 50%-2500 AF | 10% shorter season for Level 1 up to no irrigation for Levels 4-6 | Yes |
| 1 | Other - Restrict or prohibit runoff from landscape irrigation | Unknown | Enforce Water Waste Ordinance; Wasteful practices will be prohibited | Yes |
| 1 | Other - Require automatic shut off hoses | Unknown | Enforce Water Waste Ordinance | Yes |
| 1 | Other - Customers would be required to repair leaks, breaks and malfunctions in a timely manner. | Unknown | Enforce Water Waste Ordinance | Yes |
| 1 | Landscape - Limit landscape irrigation to specific times. | Unknown | Enforce Water Waste Ordinance | Yes |
| 1 | Decrease Line Flushing | 0.3 AF | Routine line flushing wil cease; Main flushing only on complaint basis | No |
| 1 | Expand Public Information Campaign | Residential Savings: 10%-150 AF; 20%-300 AF; 30%-450 AF; 40%-600 AF; 50%-750 AF | Inform the public using various media to conserve water; All sectors will be asked to reduce their usage by 10% to 50% depending on shortage level | No |
| 1 | Improve Customer Billing | Unknown | Provide bill inserts on water conservation; include GPCD | No |
| 2 | Offer Water Use Surveys | Unknown | The largest water users will be identified and provided with BMPs | No |
| 2 | Limit landscape irrigation to specific days | 50 AF from Large landscape users; 1 AF from residential | 2-3 days/week; Large landscape users will be restricted | Yes |
| 2 | CII - Lodging establishments must offer opt out of linen service | Unknown | | Yes |
| 2 | CII-Restaurants may only serve water upon request. | Unknown | | Yes |
| 2 | Pools and Spas-Require covers for pools and spas | Unknown | | Yes |
| 2 | Water features - Restrict water use for decorative water features | Unknown | Water for non-recycling decorative water features, fountain and ponds are prohibited | |
| 3 | Pools and Spas - Allow filling of swimming pools only when an appropriate cover is in place | Unknown | No filling of new pools | |
| 3 | Increase Frequency of Meter Reading | Unknown | The largest water users will be identified for more frequent meter reading and given BMPs | Yes |
| 3 | Moratorium or Net Zero Demand Increase on New Connections | 0.33 AF/year/new connection | Prohibit new domestic connections | Yes |
| 3 | Increase Water Waste Patrols | Unknown | Distribution staff will increase patrols of largest water users | Yes |
| 3 | Other - Prohibit use of potable water for washing hard surfaces | Unknown | | Yes |
| 3 | Other - Prohibit vehicle washing except at facilities using recycled water | Unknown | | Yes |
| 3 | Other - Prohibit use of potable water for construction and dust control | 3 AF | | Yes |
| 4 | Other - Prohibit all landscape irrigation except trees | 4 AF | | Yes |
| 5 | Other - Residental users allotted water for health and safety uses only | Residential users limited to 55 gallons/day/person; Estimated savings 900 AF | Residential customers wil be limited to indoor water use for health and safety only | Yes |

**NOTES:** Implementation of the stages are cumulative meaning that the declaration of a higher stage shall also include implementation of all the conservation methods described in the provious stages.

There are other operational changes and supply augmentation measures the District can implement and they are included in Table 8-3. As stated in previous sections, water used by irrigation customers represents 70% of the overall water demands during a normal water season. The District can augment the water supply by shortening the irrigation water season or terminate the season in a Stage 5 or 6 Water Emergency. Irrigation season generally runs between May 1 and September 30, but it can be shortened depending on the water shortage condition. Minimum supply for the next three years is detailed in Table 8-4.

**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 volume units used.* | Additional Explanation or Reference *(optional)* |
|---|---|---|---|
| 1 | Other - Shorten the irrigation season for all non-potable irrigation customers in alignment with shortage level | 10%-500 AF; 20%-1000 AF; 30%-1500 AF; 40%-2000 AF; 50%-2500 AF | 10% shorter season for Level 1 up to no irrigation for Levels 4-6 |
| 1 | Expand Public Information Campaign | Residential Savings: 10%-150 AF; 20%-300 AF; 30%-450 AF; 40%-600 AF; 50%-750 AF | Inform the public using various media to conserve water; All sectors will be asked to reduce their usage by 10% to 50% depending on shortage level |
| 1 | Improve Customer Billing | Unknown | Provide bill inserts on water conservation; include GPCD |
| 1 | Reduce System Water Loss | 50 AF | |
| 1 | Decrease line flushing | 0.3 AF | Routine line flushing wil cease; Main flushing only on complaint basis |
| 2 | Offer Water Use Surveys | Unknown | The largest water users will be identified and provided with BMPs |
| 3 | Increase Frequency of Meter Reading | Unknown | The largest water users will be identified for more frequent meter reading & given BMPs |
| 3 | Increase Water Waste Patrols | Unknown | Distribution staff will increase patrols of largest water users |
| 3 | Moratorium or Net Zero Demand Increase on New Connections | 0.33 AF/year/new connection | Prohibit new domestic connections |
| 4 | Other - Prohibit all landscape irrigation except trees | 4 AF | |
| 5 | Other - Residental users allotted water for health and safety uses only | Residential users limited to 55 gallons/day/person. Estimated savings 900 AF | Residential customers wil be limited to indoor water use for health and safety only |

**Table 8-4: Minimum Supply Next Three Years**

| | 2021 | 2022 | 2023 |
|---|---|---|---|
| Available Water Supply | 11,060 | 11,060 | 11,060 |

**NOTES:**
Units - Acre Feet

The following summarizes drought stage responses:

| | | |
|---|---|---|
| **Stage 1 (Water Alert)** | Up to 10% 18,000 ac-ft | Water supply is slightly restricted. Customers are informed of possible shortages and asked to voluntarily conserve up to 10 percent |
| **Stage 2 (Water Warning)** | Up to 20% 16,000 ac-ft | Water supply is moderately restricted. Additional voluntary and mandatory measures are implemented to achieve a demand reduction goal of up to 20 percent; |
| **Stage 3 (Severe Crisis)** | Up to 30% 14,000 ac-ft | Water supply is severely restricted. The enforcement of mandatory measures to achieve a demand reduction goal of up to 30 percent |
| **Stage 4 (Critical Shortage)** | Up to 40% 12,000 ac-ft | Shortage would require measures to reduce water use by 40%; |
| **Stage 5 and 6 (Water Emergency)** | Up to 50% 10,000 ac-ft >50% <10,000 ac-ft | Water supply is extremely restricted. This would require water rationing for health and safety purposes in order to achieve a 50 percent reduction of demands. |

State law dictates that public health and safety be prioritized over irrigation and agriculture in very serious water shortage conditions. Public health and safety needs rely on the treated water system and include fire protection, sanitation, medical/health clinics and other critical needs.

The priority of domestic water over irrigation water is a long-standing policy in the District and has been successfully used during periods of reduced water supply. No new irrigation accounts will be accepted during Drought Stages 2 to 6. However, the Board has the discretion to limit new irrigation customers at any time when it is deemed necessary. Stage response action reductions will be applied to untreated irrigation customers by implementing a shortened season either by starting the season later than May 1 or end the season before September 30 or both to meet conservation targets or if there is a water emergency, the irrigation season could be terminated completely.

No new domestic accounts will be accepted during Stage 3 unless the parcel has been assessed for improvements through a legal process; but during Stage 4 to 6, no new domestic accounts will be accepted. Treated water for street washing never occurs in the District's service area because there is no public entity to provide such a service. Implementation of the stages are cumulative meaning that the declaration of a higher stage shall also include implementation of all the conservation methods described in previous stages. These actions shall be used as a starting point to meet targets and shall be monitored, as described later in this plan, for performance.

The District has not had to implement punitive enforcement measures, such as fines, during past droughts. An extensive public outreach program coupled with voluntary compliance by District

customers was successful in achieving the required conservation goal in the past. However, the District can initiate enforcement actions at any time if voluntary compliance doesn't achieve the required target conservation level.

### 8.5.1 Drought Guidelines and Definitions

There are a number of circumstances during a drought in which the District would be required to make and implement decisions that are not solely based upon water supply availability, such as how long to stay in a drought stage, and how demand reductions should be quantified. It is also important to clearly define in advance the base periods that will be employed for each user class during the drought event.

#### 8.5.1.1 Overall Guidelines

Below is a list of drought guidelines developed to assist staff in managing the water shortage event:

1) The District will strive to stay within each stage of drought for a complete billing cycle; (2 months) for effective public outreach and the equitable implementation of drought rates (if applicable).
2) Drought stage demand reductions will be quantified by output at the water treatment plants during all stages; however, in Stages 4 to 6, meter reads may also be necessary to determine compliance with individual allocations and reduction targets.
3) This Water Shortage Contingency Plan shall be reviewed and updated every year (or as needed) due to changes in water supplies, operations, expected water demands or other relevant factors.

#### 8.5.1.2 Base Period Definitions

Below is a list of base period definitions developed to assist staff with the implementation of water use restrictions and demand reduction measures during a drought or other District or State mandated requirements.

1) The base period for single-family residential customers is defined as the District-wide average consumption per household – calculated using a three-year average of the consumption data for all single-family residential customers, divided by the total number of residential customers.
2) The base period for multi-family residential customers is defined as the District-wide average consumption per dwelling unit – calculated using a three-year average of the consumption data for all multi-family residential customers, divided by the total number of dwelling units.

3) The base period for commercial, governmental, and institutional customers, with meters serving both building and landscape, is defined as the three-year average of the individual customer's consumption data.

The base period for landscape irrigation only customers is defined as the three-year average of the individual customer's consumption data.

### 8.5.2 Water Supply Emergency Response Plan

The District's Emergency Response Plan (ERP) was prepared to guide the District's response to a sudden water shortage or water quality emergency such as might occur in the event of significant system damage from a major earthquake, or during a prolonged power outage, a fire, or in the event of a water quality emergency from bacteriological or chemical contamination of the water supply. Key provisions of the plan are summarized below.

The District's primary emergency operations center would be created at the District office, at 6425 Main St. Georgetown CA. The District office is equipped with radios, telephones, telemetry equipment, emergency equipment, and supplementary documents and supplies. The emergency operations center would be the central point of coordination for government services, communications, and emergency public information. Communication protocols have been established and damage evaluation procedures have been defined. In the immediate period following a major disaster, such as a fire, the District's initial task would be to evaluate the water supply system and to isolate breaks in order to minimize storage losses as quickly as possible.

The emergency operating center staffing would include the General Manager or his/her designee plus additional staff to help coordinate disaster control activities and communicate with the public. Other key District personnel would be assigned specific roles depending on the magnitude of the emergency as well as the time of occurrence. On non-business days and after hours, the District maintains 24-hour response capability with the assignment of trained on-call workers, which can be summoned by calls from the District emergency phone service or the local Police and Fire Departments.

The District has assembled an inventory of equipment and spare parts and maintains key vehicles in a "ready to respond" condition. The District also has arrangements with vendors to obtain a backhoe to perform emergency and underground work, if needed. Crews would assemble at the District Office and be taken to the emergency work site by District personnel who would also be responsible for operating any valves necessary to isolate a water main break and oversee the emergency repair work.

The goal of the District's post disaster response actions is to ensure the water transmission and storage system remains intact and operational to the greatest extent possible. Emergency response

protocols specify the leadership role of the on-call worker if the emergency occurs off-hours. The response plan is very specific with regard to operating protocols for the supply pumps and the monitoring of tank levels to ascertain the presence of significant leaks or pipeline breaks.

Any repair or shut down work would be coordinated from the District Office and field crews would report progress to the emergency operations team. Regular progress reports would then be filed with the appropriate Police and/or Fire Department personnel.

### 8.5.3 Seismic Risk Assessment and Mitigation Plan

In accordance with Water Code Section 10632.5 (a), the 2020 UWMP must now include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities. El Dorado County Office of Emergency Services developed a *Local Hazard Mitigation Plan* pursuant to the requirements of the Disaster Mitigation Act of 2000. This Plan was adopted by the El Dorado County Board of Supervisors on April 23, 2019 and Federal Emergency Management Agency in March 2019 and assessed the County's vulnerability to the impacts of natural hazards which included a seismic risk assessment. The *Local Hazard Mitigation Plan* is included in Appendix J.

According to this Plan, there has been "no major earthquake recorded within the County, although the county has felt ground shaking from earthquakes with epicenters located elsewhere. Data from the U.S. Geological Survey (USGS) Seismic Hazard Maps indicates that the expected severity of earthquakes in the region is somewhat limited." The California Division of Mines and Geology has developed maps that show the expected relative intensity of ground shaking and damage in California from anticipated future earthquakes. The District falls in the lowest probability for earthquake damage. Because the seismic risk is very low, the District has not developed a specific mitigation plan, however the District's ERP is adequate for addressing natural disasters.

## 8.6 Communication Protocols

Public outreach and information are integral to the implementation a successful WSCP and management of a drought event. Public education is the most important activity when a drought does occur, because water demand management will not be successful if customers are not adequately informed regarding the water situation and the requirements of the District. The most important time for public outreach and education is at the beginning of a Stage 1 drought condition. The District will use bill inserts, social media, the District's website, newsletters, phone notification and any other means to inform the public during a water shortage. Ongoing actions include but are not limited to the following activities:

- Educate customers regarding water saving devices and practices;

- Educate customers regarding the overall challenges of providing a reliable water supply in a semi-arid climate;
- Educate customers regarding drought stages through bill inserts or a printed message on the bill, an article in newsletters, e-mail messages, social media, drought website, direct mail post cards, and newspaper advertisements;
- Inform customers about potential drought rates, if applicable;
- Develop and/or maintain a webpage for "Drought Stage" and "Water Conservation" information, including an easy-to-understand explanation of when a drought is called and when a drought has ended; and
- Educate customers on how to read their water meters in order to determine their own monthly usage during times of demand restrictions.

## 8.7 Compliance and Enforcement

The District adopted a water waste ordinance in 1982 (Appendix H) which authorizes abatement procedures to curtail blatant water waste. According to the ordinance, the District may require the installation of flow devices as a step prior to termination of service if wasteful conditions are not corrected within five days after giving the customer written notice. If conditions warrant, the Board can enact more stringent measures to supplement the ordinance and can do what is required to ensure reasonable apportionment of water supplies during times of limited supply. The existing block rate schedule also provides the basis for penalizing excessive use. Under normal water conditions and during all drought stages, the District's water waste ordinance will be enforced. All wasteful practices or unreasonable uses of water, whether willful or negligent are always prohibited. The following practices are considered wasteful practices or unreasonable uses of treated water during normal water conditions as well as during all water drought stages:

- Customers must repair leaks, breaks, faulty sprinklers and malfunctions within 72 hours of occurrence;
- Landscaping shall only be watered between the hours of 8:00 p.m. and 8:00 a.m. to reduce evaporation and prevent landscape runoff. Care shall be taken not to water past the point of saturation;
- No landscape watering shall occur during rain/snow or within 48 hours after a 1/4" or more of precipitation;
- The washing of hard surfaced areas by direct hosing without an automatic shut-off nozzle, except as necessary for public health and safety reasons is prohibited;
- Hoses used to wash cars, boats, trailers or other vehicles and machinery must have automatic shut off nozzles;

- Unauthorized use of hydrants shall be prohibited. Authorization for use must be obtained from the District; and
- All new landscaping shall, at a minimum, adhere to the specifications outlined in the State's Model Water Efficient Landscape Ordinance adopted by the California Department of Water Resources in 2010. This ordinance requires that all new construction with significant landscape area have efficient irrigation systems and include the use of low water use plants.

## 8.8 Legal Authorities

In accordance with the California Water Code, Chapter 3 (commencing with Section 350), the District Board of Directors shall declare a water shortage emergency, if necessary, at the District's regular board meeting, held on the second Tuesday in April. This determination will depend on the Stumpy Meadows reservoir water level measured earlier that day. The District staff will enforce its local ordinance to ensure compliance with the specific water shortage stage. The District's existing Ordinance 82-1, Section 7.5, does allow the District to discontinue service in the event the wasteful condition is not corrected within 5 days. Typically, the District charges $25 for any violation of the ordinance. The District can establish penalties and charges above and beyond those that already exist as the water shortage stage increases. With the growing impact of climate change, District water reliability and State regulations the District intents to evaluate water waste prevention and update accordingly.

## 8.9 Financial Consequences of Water Shortage Contingency Plan

The 2013-2016 drought in California did impact District revenues. In fiscal year 2014/15, operating revenue decreased by 7 percent due to reduced water sales. There was a slight increase in expenditures for public outreach and updating the District's website. The District has general reserves available to respond to water shortage situations. The District Board of Directors can also defer capital improvement projects and reduce operational expenses where necessary to cover increased costs of implementing the WSCP. Implementation of any stage of water rationing does not affect the minimum base meter charge even though water usage will be reduced. The rate increase resulting from the block rate increase schedule is usually sufficient to compensate for the reduction in water sold. The sole exception was the 2013 to 2016 drought when there was a Stage 3 water declaration by the District Board, resulting in a 50% demand reduction in irrigation water and a State mandated 32% treated water demand reduction. The District may consider embedding a drought charge in future rate increases to fund a drought shortage fund. There will be no change in water cost to the District since the sole source of supply at this time is the District owned Stumpy Meadows Reservoir. Based on 2020 total water revenue the following details impact on revenue for each stage action response:

| | |
|---|---|
| **Stage 1 (Water Alert)** | Ten percent water conservation would result in a five percent impact on revenue. |
| **Stage 2 (Water Waring)** | Twenty percent water conservation would result in a 10 percent impact on revenue. |
| **Stage 3 (Severe Crisis)** | Thirty percent water conservation would result in a 15 percent impact on revenue. |
| **Stage 4 (Critical Shortage)** | Forty percent water conservation would result in a 21 percent impact on revenue. |
| **Stage 5 and 6 (Water Emergency)** | Fifty percent water conservation would result in a 26 percent impact on revenue. |

## 8.10 Monitoring and Reporting

All Georgetown Divide Public Utility District customers are metered, and the sources of supply are metered, the District is able to measure the effectiveness of any water shortage contingency plan that is implemented. The District collects sufficient data, in the normal course of operations, to determine actual reductions in sales, by user category, as compared to a given base year. The District's new billing software also allows comparison to prior usage and can help the customer determine if their water conservation measures are meeting the water reduction goals.

### 8.10.1 Normal Monitoring Procedure

In normal water supply conditions, treated water figures are recorded daily. Totals are reported monthly to the Operations Manager and incorporated into the water supply report.

### 8.10.1 Stage 1 and 2 Water Shortages

During a Stage 1 or 2 water shortage, daily production figures are reported to the Water Treatment Plant Supervisor. The Supervisor compares the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports are then forwarded to the Operations Manager. Monthly reports are sent to the General Manager. If reduction goals are not met, the General Manager will notify the Board of Directors so that corrective action can be taken.

### 8.10.2 Stage 3 to 6 Water Shortages

During a Stage 3 to 6 water shortage, the procedure listed above will be followed, with the addition of a daily production report to the Operations Manager. Additionally, the usage patterns of the largest water users in each sector will be evaluated and targeted for additional outreach.

### 8.10.3 Disaster Shortage

During a disaster shortage, production figures will be reported to the Operations Manager hourly, and to the General Manager daily. Reports will also be provided to the Board of Directors and the El Dorado County Office of Emergency Services as necessary.

## 8.11 Water Shortage Contingency Plan Refinement Procedures

The District recognizes that the WSCP is an adaptive management plan and should be evaluated annually to determine if revisions and/or refinements are necessary. Once a water shortage declaration has been lifted, the water use and demand restrictions should be evaluated for effectiveness and the WSCP implementation costs should be identified so the Plan can be updated and refined.

## 8.12 Special Water Feature Distinction

In accordance with California Water Code Section 10632 (b), water features that are not pools or spas are analyzed and defined separately from pools and spas in the WSCP. Pools and spas must use treated water for health and safety considerations. For purposes of definition in the WSCP, any non-pool and non-spa will be called a decorative or recreational water feature and will have specific response actions.

## 8.13 Plan Adoption, Submittal, and Availability

The WSCP was adopted by the District's board of directors during the regular board meeting on June 8, 2021. Adoption resolution is included in Appendix K. The WSCP was submitted to the Water Efficiency Office in the Department of Water Resources, as required by law electronically through WUEdata, (a State online submittal tool), State Department of Water Resources by July 1, 2021. The final WSCP will be assessable through the District's website.

# 9.0 DEMAND MANAGEMENT MEASURES

Water conservation is a fundamental component of policy and operation at the District. As our Gold Rush era water system has evolved to meet the challenging needs and demands of the people it serves, the District is committed to promoting conservation and maximizing operational efficiency.

## 9.1 Existing Demand Management Measures for Retail Suppliers

Demand Management Measures (DMMs) are mechanisms the District can implement to increase water conservation and water reliability on the Georgetown Divide. The following sections detail the District's DMMs.

### 9.1.1 Water Waste Prevention Ordinances

District Ordinance 82-1 included in Appendix H details water waste prevention. The ordinance was originally adopted in 1982 as part of the large regulations for water service by and within the District. With the growing impact of climate change, District water reliability and State regulations the District intents to evaluate water waste prevention and update accordingly.

### 9.1.2 Metering

One hundred percent of District customers have a meter installed to measure water consumption. Currently the majority of meters in use within the District are nearly 30 years old and have exceeded their useful life expectancy. It is estimated that the current water meters are under recording water use by much as 25%. To mitigate apparent losses and promote water conservation the District is in the final stages of obtaining State Revolving Fund low interest loan. Funding from the loan will be used to replace all existing analog meters with automated smart meters. Full implementation of the meter replacement program with the installation of automated meters is expected to begin in the first quarter 2022.

### 9.1.3 Conservation Pricing

In 2017, the District retained the Rural Community Assistance Corporation (RCAC) to prepare a rate study as required by the California State Water Resources Control Board. The October 2017 Rate Study, entitled *Georgetown Divide PUD Water Financial Analysis* is included in Appendix L. Following a Proposition 218 process, the District Board of Directors adopted Resolution 2017-30 that modified the District's existing rate structure (Appendix K). The rate structure established both a base rate and usage rate per cubic foot. The usage rate is intended to promote water conservation.

### 9.1.4 Public Education and Outreach

The District has multiple pathways to communicate with residents of the Georgetown Divide, the pathways are detailed as follows:

- **Water Bills** – Water bill clearly detail water use during current billing period and historical water use;
- **Information Booths** – District staff hosts information booths during community events. Events include Georgetown annual Founders Day celebration and Friends of the Nature Area, Nature Fest;
- **Educational Programs** – District staff participates in El Dorado County Library Georgetown Branch and Rotary Club of Georgetown Divide information events; and
- **Online Tools** – Primary District outreach utilizes website posting, email list service and social media postings.

Moving forward the District plans on continuing public education and outreach programs to keep Georgetown Divide residences informed of District activities, especially those related to water conservation.

### 9.1.5 Programs to Assess and Manage Distribution System Real Loss

Following the guidance of our 2015 UWMP the District has been focused on reducing water losses within the treated water system distribution and raw water conveyance system. District staff is routinely evaluating water consumption to determine water loss. The following programs detailed below are actively being managed by District staff to limit real water to the extent feasible:

- **DWR Water Audit** – The District prepares a water loss audit using an American Water Works Association (AWWA) template worksheet for submittal to DWR. The worksheet provides a detailed evaluation of real and apparent losses within treated water distribution system. As discussed in Section 9.1.2 one key deficiencies in the treated water system is the District's use of old analog meters that under report water usage by our customers. For the past three years, the District has been in the process of acquiring both a State Revolving Fund loan and grants to fund, purchase and installation of new automated meters (Smart Meters). Another clear deficiency is the length and age of treated water main distribution lines. The District tracks water main breaks throughout the system and targets problem areas for repairs to reduce real losses;
- **Canal Monitoring** – The District's raw water conveyance system covers approximately 70-miles to deliver raw water to our two water treatment plants and to our raw water irrigation customers. Large sections of the canal/ditch are unlined. In an effort to mitigate water losses along the ditch/canal conveyance system, the District has installed water flow monitoring points throughout the system. The monitoring points enable the District to target areas to repair with the greatest observed water loss;

- **Supply and Demand Report** – The District prepares an annual supply and demand report that includes and analysis of treated, irrigation, conveyance loss and operation loss. The report provides a look at District demand and adjustments are made accordingly; and
- **National Pollution Discharge Elimination System (NPDES)** – As required by the NPDES program, the District tracks releases from the treated water distribution system including water from hydrant flushing, pipe breaks and tank flushing.

Each of these programs help the District identify sectors of operations that guide our CIP development. In addition, key findings from the programs will be used to help comply with water loss standards being develop by the SWRCB.

## 9.2 Implementation over the Past Five Years

In the past five years, the District's primary DMM's were the implementation of a base rate water bill component and the more frequent monitoring of canal flows. In addition, the other DMM's discussed earlier in this section have been implemented over the last five years. The District plans to continue to implement these and other DMM's over the next five years.

## 9.3 Implementation to Achieve Water Use Targets

With exception of the 2020 extraordinary event, water use targets have historically been met. Enhanced canal monitoring and the upcoming automated meter project will ensure the District continues to meet these targets. It is important to note the District evaluates water use targets annually. In the event water use targets are not being met, additional demand measurement measures will be implemented to meet targets.

## 9.4 Water Use Objectives (Future Requirements)

As discussed earlier in this Section, implementation of the DMMs will be designed to meet future water use targets.

# 10.0 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

## 10.1 Inclusion of all 2020 Data

The 2020 UWMP includes all data generated during the 2020 calendar year and is incorporated within the UWMP for planning purposes.

## 10.2 Notice of Public Hearing

### 10.2.1 Notice to Cities and Counties

The EDCWA and El Dorado County Development Services Division were notified on March 3, 2021, informing them the District was updating the UWMP for 2020 and that a public would be held on May 11, 2021, during the District's regular board meeting. Notification to cities and counties are included on Table 10-1. Letters of correspondence are included in Appendix M.

**Table 10-1: Notification to Cities and Counties**

| City Name | 60 Day Notice | Notice of Public Hearing |
|---|---|---|
| *Add additional rows as needed* | | |
| | ☐ | ☐ |
| | ☐ | ☐ |
| | ☐ | ☐ |
| **County Name** *Drop Down List* | **60 Day Notice** | **Notice of Public Hearing** |
| *Add additional rows as needed* | | |
| El Dorado County | ☑ | ☑ |
| | ☐ | ☐ |

Notes: 60-day and notice of public hearing corresponce was distributed to El Dorado County Water Agency and El Dorado County Planning Division.

### 10.2.2 Notice to the Public

A notice of hearing was published in the Georgetown Gazette weekly newspaper for two consecutive weeks detailing the time and location of the public hearing. The newspaper notice is included in Appendix N.

## 10.3 Public Hearing and Adoption

### 10.3.1 Public Hearing

The UWMP public hearing occurred on May 11, 2021, at the District's regular board meeting. Any comments received were evaluated, and if warranted, were incorporated into the final 2020 UWMP.

### 10.3.2 Adoption

The final 2020 UWMP and WSCP was adopted by the District's board of directors during the regular board meeting on June 8, 2021. Adoption resolution is included in Appendix K.

## 10.4 Plan Submittal

The 2020 UWMP was submitted to the Water Efficiency Office in the Department of Water Resources, as required by law electronically through WUEdata, (a State online submittal tool), State Department of Water Resources by July 1, 2021. It was also filed with the California State Library, El Dorado County, California Public Utilities Commission (CPUC) no later than 30 days after adoption.

## 10.5 Planned Implementation 2020-2025

This UWMP will be used by the District staff to guide the District's water conservation efforts through the year 2025. As required by §10621 (a) of the Water Code, the District will update the Plan again by July 1, 2026.

The District's per capita water usage in 2020 was 164 gpcd which met the 2020 compliance target of 167 gpcd. The District is dedicated to meet or exceed this target in the future by applying the DMM's discussed in Section 9.0. Furthermore; the *Water Shortage Contingency Plan* presented in Section 8.0 acts as a living document and will be amended if necessary.