MCKINLEYVILLE COMMUNITY SERVICES DISTRICT

2020

URBAN WATER MANAGEMENT PLAN

Prepared by: MCSD Staff

Adopted By the MCSD Bord
August 4, 2021

McKinleyville Community Services District

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ABBREVIATIONS AND ACRONYMS

ADD	Average Daily Demand
AFY	Acre Feet per Year
AWWA	American Water Works Association
CDP	Census Designated Place
CIP	Capital Improvement Plan
CWC	California Water Code
DMM	Demand Management Measures
DOF	Department of Finance
District	McKinleyville Community Services District
DWR	California Department of Water Resources
ERP	Emergency Response Plan
GIS	Geographic Information Services
GPCD	Gallons per Capita per Day
HBMWD	Humboldt Bay Municipal Water District
MDD	Maximum Daily Demand
MCSD	McKinleyville Community Services District
MG	Million Gallons
MGD	Million Gallons per Day
NOAA	National Oceanic Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
PWS	Public Water System
SWRCB	State Water Resources Control Board
UWMP	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan
WWMF	Wastewater Management Facility

1. INTRODUCTION

The McKinleyville Community Services District's (MCSD or District) 2020 Urban Water Management Plan (UWMP) has been prepared in accordance with the California Water Code and California Urban Water Management Planning Act of 1983 (AB 797) (UWMP Act) as amended, including amendments made per the Water Conservation Bill of 2009 (SBX7-7). The overall intent of the UWMP is to provide a framework for long term water planning and to inform the public of long-term resource planning that ensures adequate water supplies for existing and future demands.

The data used for preparing this report comes primarily from District financial records and water system statistics reported annually to the Department of Water Resource (DWR) and State Water Resources Control Board (SWRCB). Figures relating to climate were obtained from the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA) Climate Resilience Evaluation and Awareness Tool (CREAT). Service area population estimates for the year 2020 were developed by using Census Bureau data, California Department of Finance population estimates, and the persons-per-connection method outlined in methodology 2 of the Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use.

1.1. Executive Summary

McKinleyville Community Services District (MCSD) is a retail water supplier located in Humboldt County California with a mixture of urban and rural land uses. These land uses include urban development areas, a commercial town center, rural areas, and undeveloped forest and timber land.

The District operates a retail water distribution system and provides treated drinking water to approximately 5,730 customers. MCSD purchases wholesale treated drinking water from Humboldt Bay Municipal Water District (HBMWD), the regional supplier.

System Supplies

The HBMWD operates Ruth Reservoir about 79 miles east of the coastal areas. This reservoir impounds only about 3% of the watershed and fills at a very rapid rate in normal rainfall years. Approximately 11 MGD is delivered to the municipal/district customers and entitlement is limited by actions taken during water shortage emergencies. Of the delivered water, a peak flow rate of 2.6 MGD is committed to serve the MCSD customers.

Table 1. MCSD Annual Supply and Demand Projections.

	2025	2030	2035	2040
Water Source Supplies MG	949	949	949	949
Projected Demands MG	471	492	517	541

Water Use Current and Projected

MCSD provides potable water to the following water use sectors, single-family residential, multi-family residential, commercial, sales/transfers to another agency, institutional and government, bulk water sales, and landscape water. MCSD does not sell raw or recycled water to customers.

The 2020 Average Daily Demand (ADD) for the entire MCSD water system is 1.42 MG, the Maximum Daily Demand (MDD) is 2.52 MG. The current ADD is not expected to increase much over the next ten years due to McKinleyville getting close to full build out.

Table 2. Water use types, current and projected demands.

Use Type	Level of Treatment	2020 Volume MG	Projected 2025	Projected 2030	Projected 2035	Projected 2040
Single-Family	Drinking Water	298	307	316	326	336
Muti-Family	Drinking Water	81	90	100	112	124
Commercial	Drinking Water	40	41	41	42	43
Institutional/Government	Drinking Water	16	17	18	18	18
Transfer to Other Agencies	Drinking Water	8	8	8	9	9
Landscape	Drinking Water	4	4	4	4	4
Bulk Water Sales	Drinking Water	3	4	5	6	7
	TOTAL Water Demand	450	**471**	**492**	**517**	**541**

The 2020 Gallons Per Capita Per Day (GPCD) for the MCSD service area is **72**. The 10-year baseline GPDC calculated in the 2015 UWMP was 114, the goal of 80% reduction (91 GPCD) by 2020 was achieved. The 2020 gross water use is 450 MG with a population of 17,190 providing a GPCD of 72. The 2020 GPDC is total water use within the service area, divided by population, and is measured in gallons.

Table 3. 2020 SBX7-7 Compliance.

2020 Gross Water Use MG	Population	2020 GPCD
450	17,190	72

Actions to Manage Demand

MCSD utilizes the following demand management measures to ensure supplies are sufficient to meet current and projected demands.

- Metering
- Conservation pricing
- Water waste prevention ordinance (MCSD Ordinance 2021-06)
- Public education and outreach
- Programs to assess and manage distribution system loss.

Water Shortage Contingency Planning

The WSCP establishes water use restrictions and prohibitions to be implemented during times of declared water shortages or declared water shortage emergencies. It establishes six levels of response actions to be implemented in times of shortage, with increasing restrictions on water

use in response to worsening drought conditions or decreasing available supplies. The MCSD Board of Directors, upon recommendation by the General Manager, shall determine and declare by resolution the stage of response action necessary. Notice of such determination shall be published in a newspaper of general circulation and shall be effective within five (5) days from the date the declaration is made.

Table 4. Water shortage contingency planning stages and reduction goals.

Stage	Demand Reduction Goals
Stage 1 – Voluntary Consideration	Up to 10%
Stage 2 – Voluntary Conservation	Up to 20%
Stage 3 – Mandatory Conservation	Up to 30%
Stage 4 – Emergency Water Shortage	Up to 40%
Stage 5 – Emergency Mandatory Rationing	Up to 50%
Stage 6 – Critical Water Shortage Emergency Rationing	Greater than 50%

Plan Adoption and Submittal

The MCSD 2020 UWMP and WSCP have been prepared in accordance with the California Water Code (CWC) and the 2020 Urban Water Management Plan Guidebook for Urban Water Suppliers. MCSD has included water use and planning data for the entire year 2020.

MCSD shall hold a public hearing prior to adopting the UWMP. MCSD provided written notice of their UWMP review and updating at least 60 days prior to the public hearing to the water wholesaler HBMWD, Humboldt County, City of Arcata, City of Eureka, City of Blue Lake, Fieldbrook-Glendale CSD, and Manila CSD.

2. PLAN PREPARATION

2.1. Basis for Preparing an UWMP

CWC 10617 defines an "urban water supplier" as a public or privately owned supplier, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet per year. CWC 10620(b) further requires that, "every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it became an urban water supplier." Urban water suppliers are required to complete an UWMP and update the plan at least every five years, on or before December 31, in years ending in five and zero, except that the 2020 UWMP shall be updated and submitted by July 1, 2021 (CWC 10621).

MCSD is a California Special Services District that operates a Public Water System (PWS), system number 1210016, with approximately 5,730 water service connections and thus is required to prepare an UWMP.

Submittal Table 2-1. Public Water System.

Submittal Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 *
Add additional rows as needed			
1210061	McKinleyville Community Services	5,730	450
	TOTAL	5,730	450
**** Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: Units for Volume of Water supplied is MG			

2.2. Regional Planning

The UWMP was developed in cooperation with Humboldt Bay Municipal Water District (HBMWD), the regional wholesaler, and with other urban water suppliers who are also wholesale customers of HBMWD. Each wholesale customer shared resources and information to ensure compatible individual plans that provide a planning document for individual communities and if needed, could be merged to review regional needs. Coordinating agencies included the City of Eureka, the City of Arcata, Humboldt Community Services District, Humboldt County Community Services Development Department Planning Division, and Humboldt Bay Municipal Water District.

2.3. Individual or Regional Planning and Compliance

MCSD and other local agencies formed a workgroup to ensure individually prepared UWMPs are comparable and compatible. Each agency dedicated to preparing their individual UWMP in a similar format to allow for ease of comparison on a regional scale. It was determined that each individual agency was in compliance with SBX7-7 and a regional approach to compliance was not necessary.

Submittal Table 2-2. Plan Identification.

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

2.4. Reporting Years and Unit of Measure

The 2020 UWMP is reported on a calendar year basis. Water volume is volume is reported in million gallons (MG). This report includes water use and supply data from calendar year 2020.

Submittal Table 2-3. Supplier Identification.

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

2.5. Coordination with Other Agencies and the Community

MCSD has prepared this plan in cooperation with HBMWD, the regional wholesaler, and the other regional suppliers. MCSD has provided notice to Humboldt County Planning Department, HBMWD and the City of Arcata on its intent to review and update the MCSD UWMP as required by CWC Section 10642, on March 9, 2021. Retail agencies, such as MCSD, are required to provide their wholesaler with projected water demand from the wholesaler for the

next 20 years, in five-year increments. Water demand projections for the next 20 years have been provided to HBMWD on March 29, 2021.

MCSD has encouraged public participation throughout the development and update of the UWMP and will provide time for public review and comment prior to plan adoption by the MCSD Board of Directors.

Submittal Table 2-4. Water Supplier Information Exchange.

Submittal Table 2-4 Retail: Water Supplier Information Exchange
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631.
Wholesale Water Supplier Name
Add additional rows as needed
Humboldt Bay Municipal Water District (HBMWD)

MCSD has prepared this plan in cooperation with the following agencies and consultants:

- California DWR, agency;
- Humboldt Bay Municipal Water District, regional wholesaler;
- The City of Arcata, regional retailer;
- The City of Eureka, regional retailer;
- Humboldt Community Services District, regional retailer;
- Humboldt County Planning Department, McKinleyville planning authority; and
- Freshwater Environmental Services, consultant.

3. SYSTEM DESCRIPTION

3.1. General Description

McKinleyville Community Services District was formed on April 7, 1970 as an independent Special Services District. Initially, the District had authority to serve water and treat sewer wastes, in 1972 the voters added street lighting powers. In 1985 the voters added parks and recreational powers. The District is governed by a five-member Board of Directors elected by McKinleyville voters. The Board meets monthly on the first Wednesday of each month to set policy, consider projects and resolve disputes. The Board's directives are implemented by the District's 27 full-time and 42 part-time employees. The District office is located at 1656 Sutter Road; just east of Central Avenue.

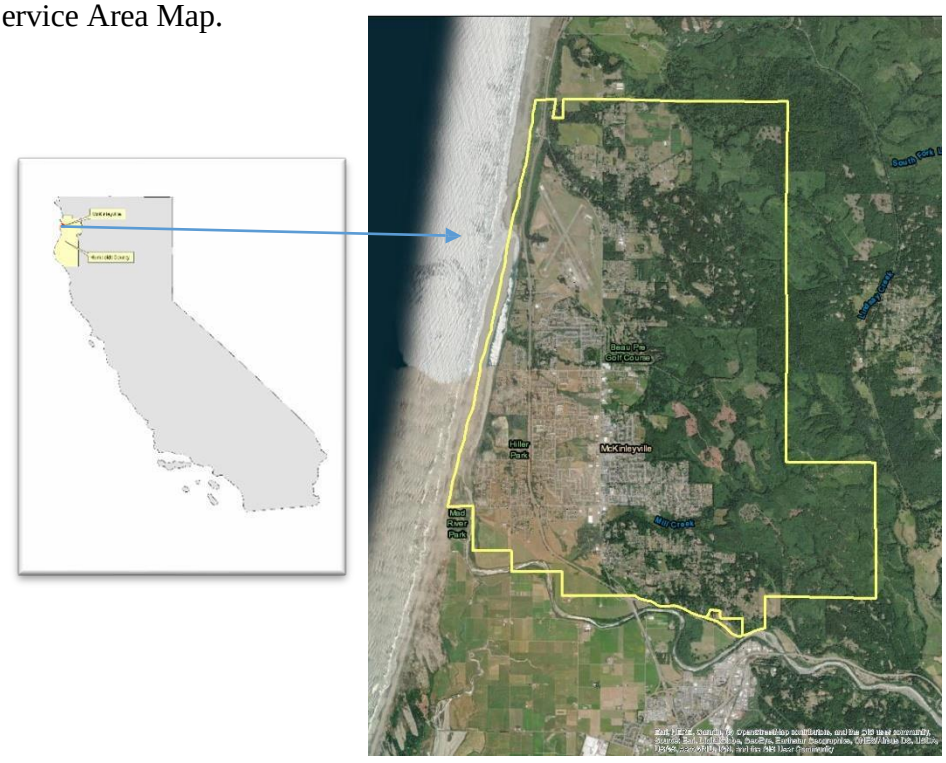
McKinleyville is a small northern California coastal community located 280 miles north of San Francisco and is part of unincorporated Humboldt County CA. The District boundary encompasses 12,616 acres ranging from North Bank Road on the south to Patrick's Creek Dr. on the north (See 3.2 Service Area and Map). The McKinleyville water system has four pressure zones, six storage tanks (5.25MG), two booster stations and 87.86 miles of distribution mains.

MCSD service area has a mix of residential, and commercial water use customers with a small institutional/governmental sector. McKinleyville has mostly residential dwellings served by a small commercial urban area. There is a U.S. Coast Guard Air Station, Federal Courthouse, and a Regional Airport within the service area. There are no industrial zoned parcels or accounts.

3.2. Service Area Boundary Map

MCSD provides water to Public Water System number 1210016.

Figure 1. Service Area Map.



3.3. Service Area Climate

The climate for McKinleyville is coastal maritime with high humidity prevailing the entire year. There are definite rainy and dry seasons. The rainy season begins in October and continues through April, accounting for about 90% of the annual precipitation. The dry season from April through September is marked by considerable fog or low cloudiness that usually clears in the late morning giving way to sunny weather in the afternoon. Temperatures are moderate the entire year, although, record highs have reached the mid 80's and record lows near 20 degrees. The usual yearly range is from lows in the mid 30' to highs in the mid 70's.

Table 5. Evapotranspiration, Precipitation and Temperature Data.

Month	Monthly Average Evapotranspiration (inches/month)	Mean Precipitation (inches)	Mean Temperature (Fahrenheit)
January	0.92	6.47	47.3
February	1.39	5.32	48.1
March	2.63	5.40	49.2
April	3.33	3.11	50.5
May	4.08	1.73	53.2
June	4.96	0.65	55.8
July	4.92	.015	57.3
August	4.20	0.28	58.1
September	3.04	0.76	57.2
October	2.42	2.76	54.7
November	1.30	5.62	50.7
December	0.93	7.09	47.1
Climate data provided by Western Regional Climate Center and the National Oceanic and Atmospheric Administration. Rainfall and temperature data are for the period January 1990 to December 2019. Evapotranspiration data provided by and California Irrigation Management Information System (CIMIS) operated by the Office of Water Use Efficiency under the Department of Water Resources.			

3.4. Service Area Population and Demographics

Service area population for 2020 was developed by MCSD staff using Census Bureau data, California Department of Finance population estimates, and the persons-per-connection method outlined in Methodology 2 of the Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use. The McKinleyville CDP does not match the service area boundary therefore, Geographic Information System (GIS) data was used to determine the number of residential water service connections within the service area. The number of connections was then multiplied by 3.0 persons-per-connection (persons per connection calculated from 2010 census data and MCSD service records).

The service area population for 2020 was estimated at 17,190. This population is projected to increase slowly over the next 20 years as the MCSD service area nears full buildout. From 2015 to 2020 the number of service connections grew at an annual rate of 0.74%. The annual growth rate of 0.74% was then projected to 2040. By the year 2040 the service area population is anticipated to increase to 18,778.

Submittal Table 3-1. Water Supplier Information Exchange

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	17,190	17,836	18,406	18,591	18,778	

3.5. Land Use within Service Area

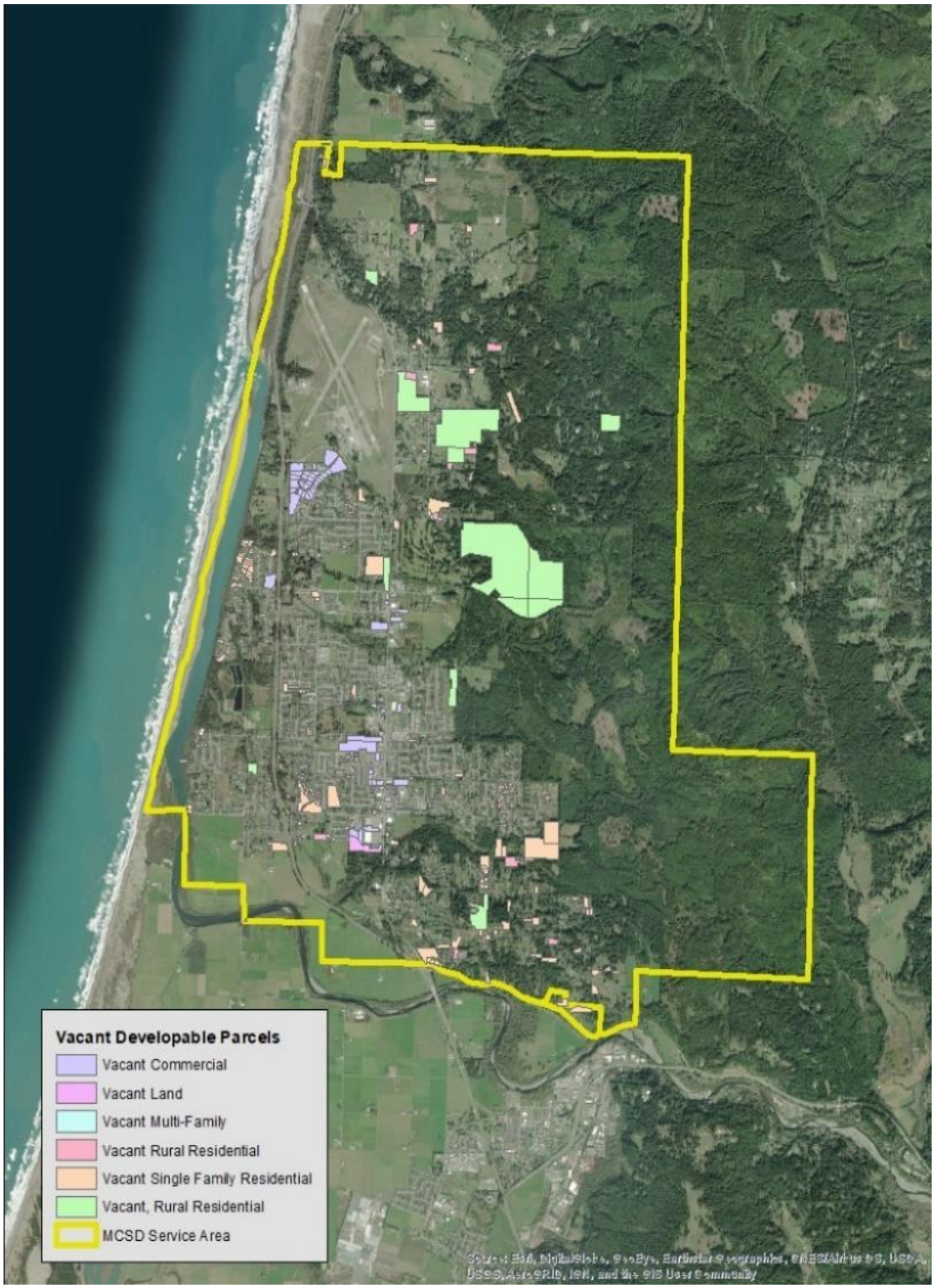
McKinleyville is a mixture of urban and rural land uses. These land uses include urban development areas, a commercial town center, rural areas, and undeveloped forest and timber land. Land use designations applied to the rural areas of McKinleyville are based on the protection of agricultural and timberland, with the concentration of new development around existing sewer, public water, and safe roads. Lands within and beyond the Urban Expansion Area are considered rural. Residential development in these rural areas is limited due to resource production.

The urban and residential areas of McKinleyville have been slowly filling in over the past 20 years. McKinleyville's service area is not expected to expand beyond the current service area boundary due to the terrain and geography of the area. There are several vacant parcels within the service area. These parcels have been reviewed by the county and have the capability to be developed in the future. The development of these parcels is not expected to have impacts on local water resources or climate considerations.

Table 6. Vacant lands within the McKinleyville service area.

Land Use Designation	Number of Parcels	Acres
Vacant Residential Single-Family	333	222.27
Vacant Residential Multi-Family	5	1.64
Vacant Rural Residential	25	354.7
Vacant Commercial	56	89.37
Vacant Land	3	9.63

Figure 2. Vacant lands within the McKinleyville Service Area.



4. SYSTEM WATER USE

4.1. Non-Potable Versus Potable Water Use

MCSD provides potable water to the following water use sectors, single-family residential, multi-family residential, commercial, sales/transfers to another agency, institutional and government, bulk water sales, and non-billed water. MCSD does not sell raw or recycled water to customers.

Due to our proximity to the Pacific Ocean, the climate, and abundance of precipitation there is no demand for raw and recycled water apart from agricultural beneficial uses. The MCSD wastewater treatment facility uses a secondary disinfected treatment process which does not provide the level of treatment required for recycled wastewater use within parks or on lawns. The District does utilize reclaimed wastewater to irrigate three pastures for beneficial agricultural use to grow fodder crops (*see section 6.5 for recycled water use*).

4.2. Past Current and Projected Water Use by Sector

Past, current, and projected water uses are derived from MCSD billing records. The average daily demand (ADD) for the MCSD distribution system from 2016- 2020 is approximately 1.35 million gallons per day (MGD) (*MCSD service records*). In 2019 the ADD was the highest at 1.40 million gallons, and the lowest in 2016 with an ADD of 1.28 million gallons. In 2012, the ADD was 1.52 million gallons showing a slow decline in the ADD for the system over the past 10-years. This is possibly due to water savings from codes, standards, ordinances, land use plans, rate increase, water meter replacement project, and people irrigating/using less water to conserve. Over the past twenty years the McKinleyville community has converted several larger parcels, which irrigated gardens and small livestock to residential communities. The ADD is not expected to increase much over the next ten years due to McKinleyville getting close to full build out. Currently there are no plans for expansion of the service area or the annexation of additional customers. There are no future plans for industrial development within the service area. MCSD is planning on constructing one new water tank providing 4.5MG of additional storage for fire flow and emergency planning.

District wide water usage was projected from 2020-2040 at a 0.62% annual growth rate. The annual growth rate of 0.62% was determining by calculating the annual growth rate of customer connections from 2016 to 2020 then applying that rate of growth to the water use total for 2020, then out to 2040.

Submittal Table 4-1. Demands for Potable Water 2020.

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable[1] Water - Actual

Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume[2]
Add additional rows as needed			
Single Family		Drinking Water	298
Multi-Family		Drinking Water	81
Commercial		Drinking Water	40
Institutional/Governmental		Drinking Water	16
Sales/Transfers/Exchanges to other Suppliers		Drinking Water	8
Landscape		Drinking Water	4
Other Potable	Bulk Water Sales	Drinking Water	3
		TOTAL	450

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.*
[2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*

Submittal Table 4-2. Potable water demands projected.

Submittal Table 4-2 Retail: Use for Potable and Non-Potable[1] Water - Projected						
Use Type	Additional Description (as needed)	Projected Water Use[2] *Report To the Extent that Records are Available*				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Single Family		307	317	327	337	
Multi-Family		90	100	112	125	
Commercial		40	41	42	43	
Institutional/Governmental		16	17	18	18	
Sales/Transfers/Exchanges to other		8	8	9	9	
Landscape		4	4	4	4	
Other Potable	Bulk Water Sales	4	5	6	7	
	TOTAL	469	492	518	543	0

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*

Single-Family Residential

Single-family residential customers account for 60% of the total annual usage for the year 2020. From 2010-2015 the average annual usage was 314 MG with a high of 328 MG (2010) and a low of 286 MG (2015). From 2015 to 2020 the average annual usage was 279 MG showing a decrease in annual usage from the previous 5-years. McKinleyville is a "bedroom" community and historically single-family residential customers account for most of the usage within the service area. Over the past 20 years McKinleyville has converted several acres of rural land to residential neighborhoods and is getting close to full build out. Currently there are 343 vacant single-family residential parcels within the service area. These parcels are 0.12 – 10 acres in size totaling 343 Acres. Humboldt county planning department requires a minimum lot size of 0.17 acres within the land use designations and zoning ordinances. If all vacant lots were to be developed at the highest density of 0.17 acre/lot that would generate 2,017 more single-family residential connections adding an annual usage of 120 million gallons of drinking water. This scenario generates the highest projected demand for single-family residential customers.

Single-Family Residential water usage was projected from 2020-2040 at a 0.62% annual growth rate. The annual growth rate of 0.62% was determined by calculating the annual growth rate of customer connections from 2016 to 2020 then applying that rate of growth to the water use total for 2020 then out to 2040.

Table 7. Single-Family Historic and Projected Water Use.

Historic Water Use MG	**2010**	**2015**	**2020**	
Single-Family	328	286	297	
Projected Water Use MG	**2025**	**2030**	**2035**	**2040**
Single-Family	307	316	326	336

Multi-Family Residential

Multi-family residential customers account for 16% of the total annual usage for the year 2020. The annual average usage for multi-family connections from 2010-2015 is 86 MG. From 2015-2020 the average annual usage for multi-family connections has decreased to 79 MG. Over the past 5-years approximately 43 new multi-family units have been developed compared to 21 new units from 2010-2015. Multi-Family developments are a requirement of Humboldt County General Plan although, there are currently 5 vacant multi-family zoned parcels within the service area ranging from 0.71acres – 0.19acres. The decrease in usage is possibly due to the development of smaller units, low flow fixtures, and customer conservation. This sector is not expecting much growth in the future due to the limited amount of multi-family zoned parcels available within the service area.

Multi-Family Residential water usage was projected from 2020-2040 at a 2.2% annual growth rate. The annual growth rate of 2.2% was determined by calculating the annual growth rate of customer connections from 2016 to 2020 then applying that rate of growth to the water use total for 2020 then out to 2040.

Table 8. Multi-Family Historic and Projected Water Use.

Historic Water Use MG	**2010**	**2015**	**2020**	
Multi-Family	90	79	81	
Projected Water Use MG	**2025**	**2030**	**2035**	**2040**
Multi-Family	90	100	112	124

Commercial

Commercial customers account for 8% of the total annual usage for the year 2020. MCSD has a small commercial area of shops, stores, restaurants, two small shopping centers, and a newly developed airport commercial area. The average annual usage for commercial connections from 2010-2015 was 39 MG from 2015-2020 the average annual usage for commercial connections was 38 MG. In 2016 the annual usage for commercial customers was 35 MG increasing to 42 MG in 2020. From 2015 to 2020 the number of commercial connections increased by five, with an average annual usage of 36 MG in 2016 to 40 MG in 2020. There are currently 56 vacant commercial parcels within the service area ranging from 0.17 acres to 11 acres. Most of these vacant parcels are located at the airport business park just outside the McKinleyville urban area. Over the past 20-years several commercial businesses have come and gone, many were small shops with very little demand for drinking water. Moderate growth is anticipated from 2020 to 2040 considering the availability of vacant commercial parcels and the proximity of these parcels to the McKinleyville urban area.

Commercial water usage was projected from 2020-2040 at a 0.33% annual growth rate. The annual growth rate of 0.33% was determined by calculating the annual growth rate of customer connections from 2016 to 2020 then applying that rate of growth to the water use total for 2020 then out to 2040. Connection growth in the commercial sector is slower than in the residential sectors due to limited new commercial space within the service area.

Table 9. Commercial Historic and Projected Water Use.

Historic Water Use MG	2010	2015	2020	
Commercial	44	39	40	
Projected Water Use MG	**2025**	**2030**	**2035**	**2040**
Commercial	41	41	42	43

Institutional / Government

Institutional government water use sector includes all water used by MCSD buildings, stations, facilities, a Coast Guard Air Station, Federal Courthouse, County Airport, two elementary schools, a middle and a high school. Institutional/Government water use accounts for 3% of the total annual usage for the year 2020. From 2016 to 2020 the lowest annual usage was 15 MG in 2018 and the highest annual usage was 18 MG in 2019. There has been slow growth within this sector over the past 20 years. There are currently no plans to develop or build additional facilities or parks within the service area.

Institutional/Government water usage was projected from 2020-2040 at a 0.1% annual growth rate. The annual growth rate of 0.1% was determined by calculating the annual growth rate of customer connections from 2016 to 2020 then applying that rate of growth to the water use total for 2020 then out to 2040. Connection growth in the institutional/government sector is slower than in other sectors due to limited space within the service area. Demand within this sector is not expected to increase due to the limited potential for development and the proximity to existing county institutional/government facilities.

Table 10. Institutional/Government Historic and Projected Water Use.

Historic Water Use MG	2010	2015	2020	
Institutional/Government	Not Tracked	18	16	
Projected Water Use MG	**2025**	**2030**	**2035**	**2040**
Institutional/Government	17	18	18	18

Transfers to Other Agency

McKinleyville and the City of Arcata's water supply are vulnerable to natural disaster, therefore, an emergency intertie was constructed to allow for the flow of water to occur between both systems if necessary. This line remains stagnant when not in use, therefore, a 5/8-inch bypass was installed which allows the water within the intertie to turnover and maintain its chlorine residual. All water that passes through the bypass is metered and currently enters into the City of Arcata's water system from the McKinleyville system. The City of Arcata is then billed at the same wholesale price as if they were to receive the water directly from Humboldt Bay Municipal Water District (regional supplier). This transfer of water to the City of Arcata accounts for 2% of the total annual usage for 2020. For the calendar year 2020 the amount of water that passed through the meter from McKinleyville to Arcata was 7 MG or 23 AF (acre-feet) well below the 3000 AF to be considered a wholesale transfer. Usage for this sector is not expected to increase

considering the intertie water line is for emergency use only and the current usage is for maintaining the drinking water quality.

Transfers to other agencies water usage was projected from 2020-2040 at a 0.1% annual growth rate. The annual growth rate of 0.1% was determined by calculating the annual growth rate of customer connections from 2016 to 2020 then applying that rate of growth to the water use total for 2020 then out to 2040. Demand within this sector is not expected to increase.

Table 11. Transfers to Other Agencies Historic and Projected Water Use.

Historic Water Use MG	**2010**	**2015**	**2020**	
Transfers	Not Tracked	4	4	
Projected Water Use MG	**2025**	**2030**	**2035**	**2040**
Transfers	4	4	4	4

Bulk Water Sales

Bulk water sales account for 1% of the total annual usage for 2020. Bulk water sales have grown significantly over the past 5-years. In 2016 the annual usage for bulk sales was .469 MG; in 2020 the annual usage was 3.462 MG. This increase is due to water delivery services becoming available and the rural nature of McKinleyville. Residents in the rural areas of McKinleyville have increased their water storage capabilities in response to the drought. This sector is expected to grow as climate change continues to effect rainfall within the area. The average annual usage growth within this sector from 2016-2020 is 3.9%. Therefore, predictions for 2020-2040 were estimated at a 3.9% annual growth.

Bulk water sales were projected from 2020-2040 at a 3.9% annual growth rate. The annual growth rate of 3.9% was determined by calculating the annual growth rate of bulk water sales from 2016 to 2020 then applying that rate of growth to the water use total for 2020 then out to 2040. Demand within this sector is expected to increase.

Table 12. Bulk Water Sales Historic and Projected Water Use.

Historic Water Use MG	**2010**	**2015**	**2020**	
Transfers	Not Tracked	.469	3	
Projected Water Use MG	**2025**	**2030**	**2035**	**2040**
Transfers	4	5	6	7

Landscape

The landscape water use sector includes all MCSD facilities, open space irrigation, and sports sites irrigation. Landscape water use sector accounts for 1% of total annual usage for 2020. All landscape sites are metered and recorded through MCSD billing records. Landscape sector projections were calculated using MCSD billing records. From 2015 to 2020 landscape water has decreased. In 2016 landscape water use was 4.3 MG; in 2020 landscape water use was 4.1 MG.

There are several meters dedicated to landscape irrigation throughout the service area. All new subdivisions forming open space zones are required to install meters and encouraged to install drip systems and plant native plants that need little to no watering. Typically, once the landscape is established irrigation is no longer required. The District manages twenty-eight such open space zones plus the Hiller Sports Site, Pierson Park, and Larissa Park and ensures that conservation measures are met. The District encourages landscape watering via separate meters and drip systems. Residential subdivisions are often required to have landscape zones maintained through benefit assessment fees. The MCSD had accepted many of the open space and landscape zones as a condition of development.

Landscape water usage was projected from 2020-2040 at a 0.1% annual growth rate. The annual growth rate of 0.1% was determined by calculating the annual growth rate of landscape usage from 2016 to 2020 then applying that rate of growth to the water use total for 2020 then out to 2040. Demand within this sector is not expected to increase.

Table 13. Landscape Historic and Projected Water Use.

Historic Water Use MG	**2010**	**2015**	**2020**	
Landscape	Not Tracked	4	4	
Projected Water Use MG	**2025**	**2030**	**2035**	**2040**
Landscape	4	4	4	4

Submittal Table 4-3. Total water use (Potable and Non-Potable)**.**

Submittal Table 4-3 Retail: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable *From Tables 4-1R and 4-2 R*	450	469	492	518	543	0
Recycled Water Demand[1] *From Table 6-4*	107	200	206	212	219	0
Optional Deduction of Recycled Water Put Into Long-Term Storage[2]	0	0	0	0	0	0
TOTAL WATER USE	557	669	698	730	762	0

[1] Recycled water demand fields will be blank until Table 6-4 is complete

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

4.3. Characteristic Five-Year Water Use

Table 14. Characteristic Five-Year Water Use.

Characteristic 5-Year Water Supply and Demand					
Year	**2021**	**2022**	**2023**	**2024**	**2025**
Total Water Demand MG	452	455	458	461	465
Total Water Supply MG	946	946	946	946	946

4.4. Distribution System Water Losses

MCSD distribution system water losses were calculated using the American Water Works Association (AWWA) water loss reporting worksheet and were calculated for calendar year 2019. The calculated water loss (real loss) for 2019 is 36 MG (AWWA Water Loss Worksheet) (Appendix A).

Submittal Table 4-4. Last 5-years of water loss.

Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss [1,2]
12/2015	12
12/2016	43
12/2017	48
12/2018	54
12/2019	36

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

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

The MCSD meters **ALL** customer usage and records **ALL** water sales and uses for parks and District facilities. System leaks are infrequent and are immediately repaired. The water distribution system is only about 45 years old, and the system is kept in excellent condition. The District experiences only a few service leaks per year and very infrequent main leaks.

The District monitors our system closely and consider our response level to be more than adequate. MCSD tracks and contacts customers about unusual increases in their monthly usage and talks to them about any possible leaks and how to check their meters and plumbing.

McKinleyville Community Services District replaced all customer water meters with radio read meters from 2015 to 2017. The meters have a +/- 0.01% error factor. Replacing the meters has helped reduce water loss and continue our efforts to manage leaks and assist customers with locating leaks easier.

4.5. Estimating Future Water Savings

Due to the service areas proximity to the ocean, the local climate, and abundance of precipitation MCSD does not include future water savings into the local codes, standards, ordinances, or transportation and land use plans.

4.6. Water Use for Lower Income Households

The MCSD service area falls within unincorporated Humboldt County. The Humboldt County Association of Governments (HCAOG) has prepared a Regional Housing Needs Allocation (RHNA) Plan (2019) which assessed and projected Humboldt County housing needs for 2018 to 2027. From 2014-2019, 33% of Humboldt County's housing needs were for low-income units. The RHNA determination, based on projected population and projected households for Humboldt County, indicated 547 low and very low-income housing units needed throughout the unincorporated Humboldt County area from 2018 to 2027. Vacant land zoned for multifamily low-income housing remains in short supply within McKinleyville. There are currently 5 vacant multi-family zoned parcels and limited vacant residential parcels with potential for low-income housing development within the service area. Water use for low-income households is not tracked through MCSD service records, it is included in usage for single and multi-family residential sectors. Estimated projected water use for lower-income housing units is not anticipated to be significantly different than average residential water uses in the service area. Water use for low-income households was included in projected water demands for single-family and multi-family water use projections.

Submittal Table 4-5. Inclusion in water use projections.

Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	No

4.7. Climate Change Considerations

McKinleyville is located on the California north coast where there is an abundant supply of water and the terrain is rural. The changing climate is likely to increase the need for water but reduce the supply. Rising temperatures will increase the rate at which water evaporates into the air from soils and surface waters raising the demand for irrigation of agricultural lands, lawns, and gardens. Higher temperatures and drought are likely to increase the severity, frequency, and extent of wildfires. The eastern portion of McKinleyville is heavily forested with timber land, the increased risk of wildfires would require additional storage and demand for firefighting needs. Sea level is likely to rise 8-9 inches by 2040. Though McKinleyville sits on a coastal bluff, it is still vulnerable to sea level rise. The main pump station rests at approximately 50 feet elevation along the mad river and is potentially vulnerable to seal level rise and flooding. MCSD utilized the Environmental Protection Agency (EPA) Climate Resilience Evaluation and Awareness Tool (CREAT) to develop climate scenarios and to assess climate-related risk (EPA CREAT Report Appendix B).

5. SBX7-7 BASELINES TARGETS AND 2020 COMPLIANCE

With the adoption of the Water Conservation Act of 2009, also known as the SBX7-7 the State is required to set a goal of reducing urban water use by 20% by the year end 2020. The current usage and percent reduction is measured by calculating the Gallons per Capita per Day. Gallons per Capita per Day (GPCD) is the total water use within a service area (residential, commercial, institutional, etc.) minus allowable exclusions, divided by the population. This is used in UWMPs for purposes of the Water Conservation Act of 2009.

In 2008 MCSD did not have at least 10% of its 2008 measured retail water demand met through recycled water, therefore, used a 10-year baseline to calculate the 2020 target.

5.1. Submitted 2015 UWMP No Change to Service Area

MCSD has submitted a 2015 UWMP with the SBX7-7 verification form. There have been no changes to the service area therefor MCSD does not need to recalculate the baselines and targets for this 2020 UWMP.

5.2. Baseline Periods

The 10-year continuous base period used for the 2015 UWMP is, 1996 through 2005. The 5-year continuous base period is from 2003 through 2007. The years chosen capture the highest consumption years and contain the largest annual population growths, therefore, capturing the widest range of GPCD.

5.3. Service Area Population

Service area population estimates for the year 2020 were developed by MCSD staff using Census Bureau data, California Department of Finance population estimates, and the persons-per-connection method outlined in Methodology 2 of the Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use. The McKinleyville CDP does not match the service area boundary therefore, Geographic Information System (GIS) data was used to determine the number of residential water service connections within the service area. The number of connections was then multiplied by 3.0 persons-per-connection (persons per connection calculated from 2010 census data and MCSD records). The 2020 estimated population for the MCSD service area is 17,190.

Population projections for 2020-2040 were developed by calculating the annual percent change in residential connections between 2000 and 2020 then applying that annual percent change to population estimates for 2020-2040. The average annual growth rate for McKinleyville from 2000-2010 was 1.1%, from 2010-2015 the average annual growth rate dropped to 0.8%, then from 2015 to 2020 service records indicate an average annual growth of 0.56%. Therefore, when calculating population projections from 2020-2030, a multiplier of 0.56% was used and from 2030-2040 a multiplier of 0.11% was applied to account for the continued decline in annual growth projected in the Humboldt County General Plan Population Projections. California Department of Finance projections indicate an anticipated average annual growth of 0.41% from 2020 to 2040.

5.4. Gross Water Use

Gross water use is reported for each calendar year in the baseline periods as well as 2020, the compliance year. Gross water use and each baseline calendar year was calculated using Methodology 1: Gross Water Use, from the *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use 2016* manual.

5.5. Baseline Daily Per Capita Water Use

Daily per Capita Water Use is the amount of water used per person per day. In the MCSD 2015 UWMP calculations, this is total water use within the service area, divided by population and is measured in gallons. Daily per Capita Water Use is reported in gallons and is referred to as "Gallons per Capita per Day" or "GPCD". The GPCD is calculated for each year in the baseline periods and for the compliance year 2020.

The 10-year base period selected for the 2015 UWMP is from 1996-2005 (SBX7-7 Table 5). The rolling average GPCD for the 10-year base period was calculated using target method one and is 113.78 GPCD.

2015 and 2020 Targets

To calculate the 2015 and 2020 targets MCSD used target methodology 1, 20% reduction of the 10-year rolling average for the minimum target, and 95% of the rolling 5-year average for the maximum allowable 2020 target required by the CWC. The 2015 interim target is the mid-point between the 10-year baseline and the 2020 target.

10-year base GPCD 114
80% of 10-year base GPCD **91 The 2020 target GPCD for MCSD**

2015 interim target 102
2015 actual GPCD 78

5.6. 2020 Compliance Daily Per Capita Water Use

The 2020 GPCD for the MCSD service area is **72**. The 10-year baseline GPDC calculated in the 2015 UWMP was 114, the goal of 80% reduction (91 GPCD) by 2020 was achieved. The 2020 gross water use is 450 MG with a population of 17,190 providing a GPCD of 72. The 2020 GPDC is total water use within the service area, divided by population, and is measured in gallons.

Submittal Table 5-5. 2020 Gallons per capita per day (GPCD).

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water *Fm SB X7-7 Table 4*	2020 Population *Fm SB X7-7 Table 3*	2020 GPCD
450	17,190	**72**

6. SYSTEM SUPPLIES

Portions of Chapter 6 addressing surface water, existing and planned sources of water, and climate change impacts to water supply were provided by Humboldt Bay Municipal Water District, the regional wholesaler.

6.1. Purchased or Imported Water

The MCSD Service Area has one primary water source and one emergency inter-tie connection providing water to the distribution system. Wholesale water is purchased from Humboldt Bay Municipal Water District and delivered to the Ramey Pump Station on North Bank Rd. The water distributed by HBMWD is from the Mad River. The R.W. Mathews dam, located in Trinity County, impounds water to form Ruth Reservoir. The Mad River flows from Trinity County into Humboldt County where water is diverted at HBMWD's Essex pumping facility located approximately 75 miles downstream from the dam. MCSD does not purchase or import water from any other source.

6.2. Ground Water

MCSD does not pump any groundwater or draw surface water from any sources. The local stormwater system is separate from both the water and wastewater systems and is not currently utilized to meet local water supply demands. MCSD has no plans to explore groundwater sources.

Submittal Table 6-1. Ground water volume pumped.

Submittal Table 6-1 Retail: Groundwater Volume Pumped	
☑	Supplier does not pump groundwater. The supplier will not complete the table below.

6.3. Surface Water

HBMWD has appropriative water rights permits from the State Water Resources Control Board through the year 2029 for surface water storage and diversion. HBMWD water rights permits allow it to store and divert a combined 75 million gallons a day (MGD) from the Mad River. This totals 84,000 Acre feet per year (AFY), which represents 8.5% of the average annual runoff (982,600 AFY) of the Mad River Basin for the period from 1963 to 2020 (average annual runoff data provided by USGS at Gage Station 1148100 on the Mad River near Arcata, CA).

The HBMWD operates Ruth Reservoir about 79 miles east of the coastal areas. This reservoir impounds only about 3% of the watershed and fills at a very rapid rate in normal rainfall years. Approximately 11 MGD is delivered to the municipal/district customers and entitlement is limited by actions taken during water shortage emergencies. Of the delivered water, a peak flow rate of 2.6 MGD is committed to serve the MCSD customers.

Submittal Table 6-8. Water supplies actual.

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply		2020		
Drop down list May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Detail on Water Supply	Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Purchased or Imported Water		450	Drinking Water	949
Total		450		949
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*				

Submittal Table 6-9. Retail water supplies projected.

Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply		Projected Water Supply * Report To the Extent Practicable									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Detail on Water Supply	2025		2030		2035		2040		2045 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Purchased or Imported Water		949		949		949		949			
Total		949	0	949	0	949	0	949	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent thro ughout the UW AP as reported in Table 2-3.*											

6.4. Stormwater

MCSD does not utilize stormwater to meet local water supply demands. The stormwater collection system within the MCSD service area is a standalone system managed and maintained by Humboldt County Public Works.

6.5. Wastewater and Recycled Water

MCSD owns and operates the only wastewater management facility (WWMF) for the service area. All wastewater collected is from within the MCSD service area. Due to the rural nature of McKinleyville, approximately 15% of residents within the service area are on septic systems.

The wastewater management facility is a secondary disinfected treatment process facility that consists of a collection system with 68.92 miles of collection mains, five lift stations, wastewater treatment facility, and effluent disposal and land reclamation systems. The average dry weather design flow of the treatment facility is 1.37 million gallons per day (MGD) and the wet weather peak capacity is 3.08 MGD (*MCSD Wastewater NPDES Permit*).

Submittal Table 6-2. Wastewater collected within the service area.

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2020 service area covered by wastewater collection system *(optional)*					
	Percentage of 2020 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected from UWMP Service Area 2020 *	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
McKinleyville Community Services District	Metered	335	McKinleyville Community Services District	Wastewater Management Faciltiy	Yes	No
Total Wastewater Collected from Service Area in 2020:		335				
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3* **.**						

In accordance with the Districts National Pollution Discharge Elimination System (NPDES) permit, MCSD disposes treated wastewater to six approved locations: Mad River, percolation ponds, lower Fischer ranch, upper Fischer ranch, Pialorsi ranch, and Hiller storm water treatment wetland and forested area. Three of the disposal locations; lower Fischer ranch, upper Fischer ranch, and Pialorsi ranch, provide seasonal agricultural irrigation for fodder crop production. Generally, these locations are irrigated during the summer months of May to October. Due to high rainfall and river flows during the winter months, MCSD discharges directly to the Mad River. Discharge to all five approved land locations is utilized during the summer months or if the river flow is below 200 cubic feet per second (cfs). For calendar year 2020, 107 MG of recycled wastewater was utilized for beneficial agricultural irrigation.

Submittal Table 6-3. Wastewater treatment and discharge.

Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020											
☐	**No wastewater is treated or disposed of within the UWMP service area.** The supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)* [2]	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area? *Drop down list*	Treatment Level *Drop down list*	2020 volumes [1]				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
MCSD	Percolation	Percolation	1B820840HUM	Percolation	No	Secondary,	87	87	0	0	0
MCSD	Fischer	Fischer	1B820840HUM	Land disposal	No	Secondary,	89	0	89	0	0
MCSD	Fischer	Fischer	1B820840HUM	Land disposal	No	Secondary,	7	0	7	0	0
MCSD	Pialorsi	Pilaorsi	1B820840HUM	Land disposal	No	Secondary,	11	0	11	0	0
MCSD	Hiller	Hiller	1B820840HUM	Land disposal	No	Secondary,	4	4	0	0	0
MCSD Wastewater Treatment Facility	Mad River	Mad River	1B820840HUM	River or creek outfall	No	Secondary, Disinfected - 2.2	134	134	0	0	0

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

Submittal Table 6-4. Recycled water direct beneficial uses within the service area.

Name of Supplier Operating the Recycled Water Distribution System:	McKinleyville Community Services Dsitrict									
Supplemental Water Added in 2020 (volume) *Include units*										
Source of 2020 Supplemental Water										
Beneficial Use Type *Insert additional rows if needed.*	**Potential** Beneficial Uses of Recycled Water (Describe)	Amount of **Potential** Uses of Recycled Water (Quantity) *Include volume units* [1]	General Description of 2020 Uses	Level of Treatment *Drop down list*	2020 [1]	2025 [1]	2030 [1]	2035 [1]	2040 [1]	2045 [1] (opt)
Agricultural irrigation	Used to irrigate fodder crops	107 MG	Used to irrigate foder crops	Secondary, Disinfected - 2.2	107	200	206	212	219	
Landscape irrigation (exc golf courses)										
Golf course irrigation										
Commercial use										
Industrial use										
Geothermal and other energy production										
Seawater intrusion barrier										
Recreational impoundment										
Wetlands or wildlife habitat										
Groundwater recharge (IPR)										
Reservoir water augmentation (IPR)										
Direct potable reuse										
Other (Description Required)										
				Total:	107	200	206	212	219	0
				2020 Internal Reuse						

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

NOTES: The Percolation Ponds are planned to be removed by 2023. Wastewater disposed at the percolation ponds will become land disposal for agricultural irrigation starting in 2023. Future projections account fo the removal of the percolation ponds and the transfer of recycled water use to agricultural irrgation.

Submittal Table 6-5. 2015 UWMP recycled water use projection compared to 2020 actual.

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
☐	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below. If recycled water was not used in 2020, and was not predicted to be in 2015, then check the box and do not complete the table.	
Beneficial Use Type	**2015 Projection for 2020** [1]	**2020 Actual Use** [1]
Insert additional rows as needed.		
Agricultural irrigation	102	107
Landscape irrigation (exc golf courses)		
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)		
Total	102	107

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

Due to McKinleyville's proximity to the Pacific Ocean, the climate, and the abundance of precipitation, there is little demand for recycled water within the service area. Dual systems for recycled water use would be extremely expensive and are not being considered at this time. The MCSD wastewater treatment facility produces secondary disinfected treatment that is beneficially utilized for agricultural irrigation but is not currently capable of producing high quality effluent for further recycled water use.

Submittal Table 6-6. Methods to expand future recycled water use.

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use	
☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.

6.6. Desalinated Water

Due to the regional climate and abundance of precipitation there are no plans within the region or MCSD service area for consideration of desalinated water.

6.7. Water Exchanges and Transfers

MCSD currently does not exchange or transfer water with any other regional water suppliers. There is an emergency intertie connecting the MCSD and City of Arcata water systems that is for emergency use only. The intertie is explained in detail in section 4.2.

6.8. Future Water Projects

There are no legal, environmental, water quality, or climatic factors resulting in an inconsistent water supply in the Service Area. The Mad River water source has been very consistent and adequate water rights exist to meet demand projections for the planning period of the 2020 UWMP.

MCSD is in the process of building a new 4.5-million-gallon water tank within the service area. The project is currently under environmental review and is expected to be completed by 2023. The development of a new 4.5-million-gallon tank would increase the District's storage capacity, enhance fire flows during peak summer usage and provide additional system capacity to meet projected water supply needs.

Submittal Table 6-7. Water supply projects or programs.

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs	
☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.

6.9. Summary of Existing and Planned Sources of Water

MCSD receives 100% of its water from HBMWD, the regional supplier. MCSD currently has no plans to explore additional sources of water.

6.10. Energy Use

Energy intensities for MCSD water supplies were calculated and reported for the calendar year 2020. Water energy intensities are reported by a total utility approach, where the total amount of energy consumed, in kilowatt-hours (kWh), is divided by the total volume of water entering the system. Volume of water is total volume for the year 2020 in million gallons. Water entering the system is metered and energy information is from Pacific Gas and Electric (PG&E) billing records. Treated drinking water is gravity conveyed to MCSD Ramey Pump Station from HBMWD. Ramy Pump Station uses energy to distribute water supplies, and place water into

Cochran and Norton storage tanks. Energy is consumed at the Cochran storage location for placing water into the McClusky storage tanks and to distribute water supplies throughout the upper pressure zone, and for tele-communications and alert systems. Blake pressure zone is fed by a hydropneumatic tank that requires energy to place water into storage and for the distribution of water supplies.

A total of 450 MG entered the water system and consumed 232,495 kWh of energy providing an Energy Intensity (kWh/Volume converted to MG) of 516.7.

Submittal Table O1-1B. Energy use reporting table.

Urban Water Supplier:	*Humbold Bay Municipal Water District*		
Water Delivery Product (If delivering more than one type of product use Table O-1C)			
Retail Potable Deliveries			
Table O-1B: Recommended Energy Reporting - Total Utility Approach			
Enter Start Date for Reporting Period	1/1/2020	**Urban Water Supplier Operational Control**	
End Date	12/30/2020		
Is upstream embedded in the values reported?		**Sum of All Water Management Processes**	**Non-Consequential Hydropower**
Water Volume Units Used	*MG*	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (volume unit)		*450*	*0*	*450*
Energy Consumed (kWh)		*232495*	*0*	*232495*
Energy Intensity (kWh/vol. converted to MG)		*516.7*	*0.0*	*516.7*
Quantity of Self-Generated Renewable Energy				
0 kWh				
Data Quality *(Estimate, Metered Data, Combination of Estimates and Metered Data)*				
Metered Data				
Data Quality Narrative:				
Volume of water is total volume for the year 2020 in million gallons. Water entering the system is metered. Energy information is from Pacific Gas and Electric PG&E billing records. Energy consumed includes, metered energy to convey, place into storage , and distribute drinkng water.				
Narrative:				
Treated drinking water is gravity conveyed to MCSD Ramey Pump Station from HBMWD. Ramy Pump Station uses energy to, distribute water supplies, and place water into storage. Energy is consumed at the cochran storage location for placing water into the McClusky storage tanks and to distribute water supplies throughout the distribution system, telecommunications, and alert system. Blake pressure zone is fed by a hydropnuematic tank that reqires energy to place water into storage and for the distribution of water supplies.				

7. WATER SUPPLY RELIABILITY

All water supplied to the region by HBMWD comes from the Mad River watershed and the Ruth Lake impounded by the R.W. Matthews Dam. The total volume of water impounded and diverted by HBMWD represents a small percentage of the natural yield of the Mad River watershed. With respect to diversions, the current withdrawal rate at Essex (where HBMWD pumps water for distribution within the region) is approximately 25 to 30 MGD which is only 3% of the total annual average runoff of the Mad River watershed. The full diversion capacity of 75 MGD (84,000 acre-feet per year) is just 8% of the total annual average runoff of the watershed.

Average annual precipitation in the watershed is approximately 60 inches with up to 75 inches in the high headwaters, primarily falling between October and April. Long duration snow and rainstorms are common during the winter with short duration thunderstorms occurring infrequently during the summer and fall. The highest average precipitation is in the middle of the watershed in the Bug Creek and Boulder Creek watersheds, averaging over 100 inches per year in the mountains. The highest precipitation in the watershed is in the vicinity of Bug Creek Butte, averaging over 120 inches a year (*Mad River Watershed Assessment, 2010*).

HBMWD treats its water and performs annual monitoring and testing, in accordance with the USEPA and the State Board regulations and requirements, to ensure its water is safe to drink. In addition, MCSD performs separate monitoring and testing, in accordance with the USEPA and the State Board regulations and requirements, to ensure that the water quality remains high within the MCSD storage and distribution systems. Additional monitoring performed by MCSD includes laboratory analysis for coliform bacteria, disinfection byproducts and lead/copper. Test results for disinfection byproducts and lead/copper are included in the MCSD test results table within the MCSD 2020 Consumer Confidence Report (CCR) (Appendix C). The MCSD testing for coliform produced zero results. Test results for disinfection byproducts have been below the Maximum Contaminant Level (MCL).

In 2015, HBMWD conducted approximately 470 water quality tests for over 50 contaminants. MCSD also performed approximately 226 water quality tests during 2015. The results from both the HBMWD's and the MCSD's 2015 monitoring and testing programs indicate that the water quality is very high, as has consistently been the case in past years.

7.1. Constraints on Water Sources

The main constraint regarding MCSD's retail water source is the sole transmission line from HBMWD that runs under the Mad River. This transmission line is vulnerable to natural disasters such as, earthquakes and floods. MCSD has taken steps to address this concern by installing a 12-inch emergency intertie between the MCSD and City of Arcata water systems and applying for grants to install a redundant transmission line. This intertie has the capability to supply water to either municipality in the event water from HBMWD is unavailable. HBMWD may also restrict water use for retail customers if Ruth Lake falls to 65% of capacity and the accumulated rainfall in the Ruth area is 70% or less of the historical average (49 inches). An event such as this has not occurred within the Mad River Watershed since 1977. Other possible constraints include contamination or damage to the system from natural disasters such as, earthquakes, floods, or other destruction.

7.2. Reliability by Type of Year

HBMWD has permitted rights to store 48,030 AFY of Mad River water at Ruth Reservoir and divert 84,000 AFY of water at Essex to supply its wholesale and retail customers. The highest projected total water demand for HBMWD's wholesale customers in 2040 is 11,099 AFY, which is approximately 14% of this permitted water supply.

7.2.1. Normal Year

During a normal water year, the Ruth Lake area averages 65.42 inches of rainfall with about 173,000 AF of water flowing into the reservoir via the Mad River watershed. The average runoff for the watershed near the District's diversion facilities at Essex is 959,071 AFY (over the entire record period from 1963 to 2020). The average annual runoff data was provided by USGS at Gage Station 1148100 on the Mad River near Arcata, CA. The Water Year ending in 1989 was considered an average water year because the average runoff for the watershed that year was 985,364 AFY, which is closest to the average annual runoff for the watershed as provided.

Submittal Table 7-2. Normal year supply and demand comparison.

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	949	949	949	949	0
Demand totals *(autofill from Table 4-3)*	669	698	730	762	0
Difference	280	251	219	187	0

7.2.2. Single-Dry Year

The water year ending in 1977 was the driest recorded for the District, far drier than any other. Rainfall in the Ruth area was 29 inches, or 41% of the normal 69.8 inches. Flows into the reservoir were 26,000 AFY, or 15% of the normal 173,000 AFY. The runoff for the watershed measured near the District's diversion facilities was 109,107 AFY, or 11% of the normal 959,071 AFY. The average reservoir volume for the water year was 21,000 AF, which is 44% of capacity (48,030 AF) and 51% of the normal 41,000 AF. The reservoir was drawn down to 13,000 AF, or 27% of its full capacity of 48,030 AF at the end of the water year.

Fall storms arrived in November 1977 and quickly refilled the reservoir. This water year was severely dry throughout the entire state of California and was a very exceptional year in the District's history:

- In 52 years of records, it was the only year in which rainfall was less than 50% of normal (69.8 inches).
- It was also the only year in which the reservoir was not filled to capacity.
- Total flows into the reservoir via the Mad River were half the value of the next driest year (2001).
- Runoff for the watershed and average reservoir volume were each 60% of the next driest year.

Submittal Table 7-3. Retail single dry year supply and demand assessment.

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	949	949	949	949	
Demand totals*	665	698	735	772	
Difference	284	251	214	177	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					

7.2.3. Multiple Dry-Year Period

The five water years between October 1990 and September 1994 represent the driest five multiple years recorded for the regional supplier HBMWD.

- Rainfall for this period averaged 49 inches per year, or 70% of normal.
- Of the five water years, the driest year for rainfall was water year 1991/1992 with 37 inches, or 53% of normal.
- Flows into Ruth Lake via the Mad River averaged 64,000 AFY, or 37% of the normal 173,000 AFY.
- Despite the diminished rainfall and runoff, rainfall was more than sufficient to refill the reservoir each year.
- Reservoir volume during this period averaged 39,062 AF which is 81% of capacity (48,030
- AF) and 95% of the normal 41,000 AF.

The runoff for the watershed above HBMWD's diversion facilities for these five water years as compared to the normal 959,071 AFY was:

- 1990: 571,815 AFY, or 60% of normal
- 1991: 371,300 AFY, or 39% of normal.
- 1992: 282,794 AFY, or 29% of normal (driest water year of the five).
- 1993: 1,175,052 AFY, or 119% of normal.
- 1994: 434,979 AFY, or 44% of normal.

Submittal Table 7-1. Basis of water year data**.**

Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	Available Supplies if Year Type Repeats ☐ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____ ☑ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available *	% of Average Supply
Average Year	1989	1022	100%
Single-Dry Year	1977	1022	100%
Consecutive Dry Years 1st Year	1990	1022	100%
Consecutive Dry Years 2nd Year	1991	1022	100%
Consecutive Dry Years 3rd Year	1992	1022	100%
Consecutive Dry Years 4th Year	1993	1022	100%
Consecutive Dry Years 5th Year	1994	1022	100%
Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			

7.3. Supply and Demand Assessment

A peak flow rate of 2.6 MGD is committed to serve the MCSD from HBMWD. The current average daily demand (ADD) for the MCSD service area is 1.423 MGD (2020) with a maximum daily demand (MDD) of 2.53 MGD.

Submittal Table 7-4. Multiple dry years supply and demand comparison.

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparis on						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	949	949	949	949	
	Demand totals	665	698	735	772	
	Difference	284	251	214	177	0
Second year	Supply totals	949	949	949	949	
	Demand totals	665	698	735	772	
	Difference	284	251	214	177	0
Third year	Supply totals	949	949	949	949	
	Demand totals	665	698	735	772	
	Difference	284	251	214	177	0
Fourth year	Supply totals	949	949	949	949	
	Demand totals	665	698	735	772	
	Difference	284	251	214	177	0
Fifth year	Supply totals	949	949	949	949	
	Demand totals	665	698	735	772	
	Difference	284	251	214	177	0
Sixth year *(optional)*	Supply totals	949	949	949	949	
	Demand totals	665	698	735	772	
	Difference	284	251	214	177	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						

7.4. Regional Supply Reliability

The North Coast is one of the only areas in California with an abundance of water. Droughts, while severe climatically, have not resulted in the level of water supply shortfalls that other areas of California routinely experience. The drought of 1976/1977 was the only declared water emergency on the North Coast. During that event, Ruth Lake storage was 52% of normal average volume and rainfall in the Ruth Lake area was 42% of historical average. The drought came to an end with heavy rains during November 1977.

Submittal Table 7-5. Five-year drought risk assessment.

Submittal Table 7-5: Five-Year Drought Risk Assessment Tabl es to address Water Code Section 10635(b)	
2021	**Tot al**
Total Water Use	452
Total Supplies	949
Surplus/Shortfall w/o WSCP Action	497
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	497
Resulting % Use Reduction from WSCP action	0%

2022	Total
Total Water Use	455
Total Supplies	949
Surplus/Shortfall w/o WSCP Action	494
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	494
Resulting % Use Reduction from WSCP action	0%

2023	Total
Total Water Use	457
Total Supplies	949
Surplus/Shortfall w/o WSCP Action	492
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	492
Resulting % Use Reduction from WSCP action	0%

2024	Total
Total Water Use	460
Total Supplies	949
Surplus/Shortfall w/o WSCP Action	489
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	489
Resulting % Use Reduction from WSCP action	0%

2025	Total
Total Water Use	463
Total Supplies	949
Surplus/Shortfall w/o WSCP Action	486
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	486
Resulting % Use Reduction from WSCP action	0%

8. WATER SHORTAGE CONTINGENCY PLANNING

The McKinleyville Community Services District (MCSD or District) Water Shortage Contingency Plan (WSCP) is a strategic planning document designed to prepare for and respond to water shortages. This Water Shortage Contingency Plan complies with California Water Code (CWC) Section 10632, which requires that every urban water supplier shall prepare and adopt a WSCP as part of its Urban Water Management Plan (UWMP). This level of detailed planning and preparation is intended to help maintain reliable supplies and reduce the impacts of supply interruptions.

The provisions of the WSCP shall take effect upon a declaration of a water shortage made by a resolution of the MCSD Board of Directors (the Board). Recommendation for the implementation of the WSCP shall be brought to the Board of Directors whenever the District General Manager, upon engineering analysis of District water supplies, information received from the wholesale water provider, Humboldt Bay Municipal Water District (HBMWD), or due to regulatory requirements, notices, or orders, finds and determines that a water shortage emergency exists or is imminent within the MCSD water service area. WSCP shall remain in effect for the duration of the water shortage set forth in the resolution, or until rescinded by the Board.

The WSCP establishes water use restrictions and prohibitions to be implemented during times of declared water shortages or declared water shortage emergencies. It establishes six stages of response actions to be implemented in times of shortage, with increasing restrictions on water use in response to worsening drought conditions or decreasing available supplies. The MCSD Board of Directors, upon recommendation by the General Manager, shall determine and declare by resolution the stage of response action necessary. Notice of such determination shall be published in a newspaper of general circulation and shall be effective within five (5) days from the date the declaration is made.

The MCSD WSCP has prescriptive elements, such as: an analysis of water supply reliability, the water shortage response actions for each of the six standard water shortage stages, protocols and procedures to communicate identified actions for any current or predicted water shortage conditions, procedures for an annual water supply and demand assessment; reevaluation and improvement procedures for evaluating the WSCP.

The WSCP also describes MCSD's procedures for conducting an Annual Water Supply and Demand Assessment that is required by CWC Section 10632.1 and is to be submitted to the California Department of Water Resources (DWR) on or before July 1 of each year. MCSD's 2020 WSCP is included as chapter 8 within the 2020 MCSD Urban Water management Plan (UWMP).

8.1. Water Supply Reliability

HBMWD has appropriative water rights permits from the State Water Resources Control Board through the year 2029 for surface water storage and diversion. HBMWD water rights permits allow it to store and divert a combined 75 million gallons a day (MGD) from the Mad River. This totals 84,000 Acre feet per year (AFY), which represents 8.5% of the average annual runoff

(982,600 AFY) of the Mad River Basin for the period from 1963 to 2020 (average annual runoff data provided by USGS at Gage Station 1148100 on the Mad River near Arcata, CA).

The HBMWD operates Ruth Reservoir about 79 miles east of the coastal areas. This reservoir impounds only about 3% of the watershed and fills at a very rapid rate in normal rainfall years. Approximately 11 MGD is delivered to the municipal/district customers and entitlement is limited by actions taken during water shortage emergencies. Of the delivered water, a peak flow rate of 2.6 MGD is committed to serve the MCSD customers.

The MCSD receives the water delivery at the North Bank Pump Station having a bank of three pumps. The District has two 1.5 Million gallons tanks, two 1.0 million-gallon tanks, a 100,000 and 150,000-gallon tank and three booster stations throughout the distribution system. MCSD has plans to construct an additional 4.5 MG water storage tank, expected completion date, 2023.

8.2. Water Supply and Demand Assessment

As an urban water supplier, MCSD must prepare and submit an Annual Water Supply and Demand Assessment. The Annual Assessment is an evaluation of the near-term supplies and demands and how a perceived shortage may relate to WSCP shortage stage response actions in the current calendar year; this determination is based on known circumstances and information available to MCSD at the time of analysis.

Starting in 2022, the **Annual Assessment will be due by July 1** of every year, as indicated by CWC Section 10632.1.

This section describes MCSD's procedures for conducting the Annual Assessment, which include: (1) the written decision-making process MCSD will use each year to determine its water supply reliability; and (2) the key data inputs and assessment methodology used to evaluate MCSD's water supply reliability for the current year and one dry year.

8.2.1. Steps to Approve the Annual Assessment

The Annual Assessment is primarily based on MCSD's monthly monitoring and reporting of water statistics and average and maximum water usages. Each month water supplies and demands are evaluated and reported to the MCSD Board of Directors. These monthly analyses provide key information for MCSD managers to meet a range of estimated demands and adjust to changing conditions throughout the year.

As a retail water supplier, MCSD's water demands are a function of residential and commercial customer usages. Each month billing records are utilized to evaluate and report system demands. The monthly water monitoring reports are compiled annually for State reporting and to evaluate consumptive and replenishment demands for the system. This information is the basis for determining unconstrained demands for the purpose of the Annual Water Shortage Assessment Report requirements.

By July 1, of each year, MCSD staff will complete an Annual Water Shortage Assessment Report. The report will be reviewed and approved by the General Manager. The final approved report will be submitted to the Department of Water Resources.

8.2.2. Current Year Customer Demand

The 2020 Average Daily Demand (ADD) for the entire MCSD water system is 1.42 MG, the Maximum Daily Demand (MDD) is 2.52 MG. The current ADD is not expected to increase much over the next ten years due to McKinleyville getting close to full build out. The weather for McKinleyville is coastal maritime with moderate temperatures, summer temperatures range from the low 50's up to the mid 70's. Currently there are no plans for expansion of the service area, the annexation of additional customers, or plans for substantive industrial development within the service area.

8.2.3. Current Year Available Supply

With respect to diversions, the current withdrawal rate at Essex (where HBMWD pumps water for distribution within the region) is approximately 25 to 30 MGD which is only 3% of the total annual average runoff of the Mad River watershed. The full diversion capacity of 75 MGD (84,000 acre-feet per year) is just 8% of the total annual average runoff of the watershed. The daily allocation for MCSD is 2.6 MGD, the current ADD is 1.42 MG providing MCSD a surplus supply of 1.18 MGD.

HBMWD may restrict water use for retail customers if Ruth Lake falls to 65% of capacity and the accumulated rainfall in the Ruth area is 70% or less of the historical average (49 inches), Humboldt Bay Municipal Water District Water Shortage Contingency Plan Draft 2020, (Appendix D). An event such as this has not occurred within the Mad River Watershed since 1977. Other possible constraints include contamination or damage to the system from natural disasters such as, earthquakes, floods, or other destruction.

8.2.4. Infrastructure Considerations

The main infrastructure consideration regarding MCSD's retail water source is the sole transmission line from HBMWD that runs under the Mad River. This transmission line is vulnerable to natural disasters such as earthquakes and floods. MCSD began addressing this concern by installing a 12-inch emergency intertie between the MCSD and City of Arcata water systems. In addition, MCSD is exploring the feasibility of a redundant transmission line from HBMWD to MCSD.

MCSD is in the process of building a new 4.5-million-gallon water tank within the service area. The project is currently under environmental review and is expected to be completed by 2023. The development of a new 4.5-million-gallon tank would increase the District's storage capacity, enhance fire flows during peak summer usage and provide additional system capacity to meet projected and emergency water supply needs.

8.3. Six Standard Water Shortage Stages

MCSD's Water Shortage Contingency Plan consists of the following stages of rationing and demand reduction goals:

Submittal Table 8-1. Water shortage contingency plan stages.

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** (*Narrative description*)
1	Up to 10%	Water shortage voluntary water consideration is requested of all customers
2	Up to 20%	Water shortage voluntary conservation is in place
3	Up to 30%	Water shortage mandatory conservation
4	Up to 40%	Water shortage emergency
5	Up to 50%	Water shortage emergency mandatory rationing
6	>50%	Critical water shortage emergency rationing

The declaration of a specific stage of water shortage emergency will depend on several variables including:

- Statewide drought conditions.
- Local drought conditions.
- Allocation reductions from HBMWD.
- State regulations, notices, and orders.

Declaration of a Stage 4, 5 or 6 water shortage emergencies may also be triggered by a major catastrophic event that affects the ability of the District to meet anticipated demands. The decision regarding declaration of a specific Stage of water shortage emergency will be based on conditions at the time, therefore the triggers are general to accommodate to a broad range of conditions.

8.4. Shortage Response Actions

The following response actions align with the defined shortage levels and includes supply augmentation actions, demand reduction actions, operational changes, and prohibitions against specific water use practices.

Stage 1 Up to 10% Reduction Water shortage voluntary water consideration is requested of all customers including the specific voluntary measures below:

- Water conservation is requested of all customers.
- Use water efficient indoor devices.

- Installation of low-flow shower heads, low-flush toilets, and faucet aerators.
- Request reduction in outdoor irrigation of ornamental landscapes.

Stage 2 Up to 20% Reduction Water shortage voluntary conservation is in place. Water uses indicated below are nonessential and are requested to be implemented:

- Request the use of hose-end shutoff nozzles on all garden and utility hoses.
- Refrain from washing cars, boats, trailers, or other vehicles except by hose with shutoff nozzle and bucket.
- Promptly repair all leaks in plumbing fixtures, water lines, and sprinkler systems.
- Request reduction in outdoor irrigation of ornamental landscapes.

Stage 3 Up to 30% Reduction Water shortage mandatory conservation. In addition to the restricted water uses in earlier stages, water uses indicated below are nonessential and are prohibited:

- Outdoor irrigation of ornamental landscapes or turf with potable water is only allowed on Sundays, Tuesdays, Thursdays, and Saturdays.
- Application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures.
- Use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculation system.
- The use of a hose that dispenses potable water to wash a motor vehicle or for any other purpose, except where the hose is fitted with a shutoff nozzle or device attached to it that causes it to cease dispensing water immediately when not in use.
- Washing sidewalks, driveways, parking areas, tennis courts, patios or other exterior paved areas except by public agency for the purpose of public safety.

Stage 4 Up to 40% Reduction Emergency water shortage. In addition to the restricted water uses in earlier stages, water uses indicated below are nonessential and are prohibited:

- Watering any portion of a golf course other than the tees and greens except where private well or recycled water supply is used.
- Fire hydrant water unless authorized by the District, except by fire protection agencies for fire suppression purposes, or for other authorized uses including storm drain maintenance, and street sweeping purposes. Water/sewer flushing, and fire flow testing are authorized only if coordinated and performed at the same time.
- Require the repair of leaks in plumbing fixtures, water lines, and sprinkler systems. Excessive leaks that are not repaired may result in water service being discontinued.

Stage 5 Up to 50% Reduction Water shortage emergency mandatory rationing. In addition to the restricted water uses in earlier stages, water uses indicated below are nonessential and are prohibited:

- Outdoor irrigation is prohibited unless the total water use is reduced by 50% from the same billing period from the previous calendar year (prior to declaration of the most recent water shortage emergency).
- Any leaks that are not repaired within 24 hours after discovery will result in water shut-off.
- Operating a hotel, motel, or other commercial lodging establishment without offering patrons the option to forego the daily laundering of towels, sheets, and linens.
- Planting any new landscaping.
- Watering any residential lawn, or any commercial or industrial area lawn maintained for aesthetic purposes, at any time of the day or night during the period of March 1, through September 30, when a stage 5 is in progress.
- Use of water for any outdoor washing purpose including commercial car washing, window washing, and paint preparation.
- Washing of cars, boats, trailers, or other vehicles.
- Automated commercial car washes without a water recycling system.
- Street cleaning and dust control with potable water.
- Filling or top off of any swimming pools, outdoor spas, wading pools, and ornamental water features.
- Use of water from a fire hydrant except for fighting fires and human consumption.

Stage 6 > 50% Reduction Critical water shortage emergency rationing. In addition to the restricted water uses in earlier stages, water uses indicated below are nonessential and are prohibited:

- Agricultural Irrigation.
- Outdoor Irrigation.
- Any leaks that are not repaired immediately will result in water shut-off.

Submittal Table 8-2. Demand reduction actions.

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down*
Add additional rows as needed				
1	Other	10%	•Water conservation is requested of all customers. •Use water efficient indoor devices. •Installation of low-flow shower heads, low-flush toilets, and faucet aerators.	No
2	Other	20%	•Use of hose-end shutoff nozzles on all garden and utility hoses. •Refrain from washing cars, boats, trailers, or other vehicles except by hose with shutoff nozzle and bucket. •Promptly repair all leaks in plumbing fixtures, water lines, and sprinkler systems.	No
3	Other	30%	•Outdoor irrigation of ornamental landscapes or turf with potable water is only allowed on Sundays, Tuesdays, Thursdays, and Saturdays. •Application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures. •Use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculation system. •The use of a hose that dispenses potable water to wash a motor vehicle or for any other purpose, except where the hose is fitted with a shutoff nozzle or device attached to it that causes it to cease dispensing water immediately when not in use. •Washing sidewalks, driveways, parking areas, tennis courts, patios or other exterior paved areas except by public agency for the purpose of public safety.	Yes
4	Other	40%	•Watering any portion of a golf course other than the tees and greens except where private well or recycled water supply is used. •Fire hydrant water unless authorized by the District, except by fire protection agencies for fire suppression purposes, or for other authorized uses including storm drain maintenance, and street sweeping purposes. Water/sewer flushing, and fire flow testing are authorized only if coordinated and performed at the same time. •Promptly repair all leaks in plumbing fixtures, water lines, and sprinkler systems.	Yes
5	Other	50%	•Outdoor irrigation is prohibited unless the total water use is reduced by 50% from the same billing period from the previous calendar year (prior to declaration of the most recent water shortage emergency). •Any leaks that are not repaired within 24 hours after discovery. •Operating a hotel, motel, or other commercial lodging establishment without offering patrons the option to forego the daily laundering of towels, sheets, and linens. •Planting any new landscaping, except for designated drought resistant landscaping approved by the District. •Watering any residential lawn, or any commercial or industrial area lawn maintained for aesthetic purposes, at any time of the day or night during the period of March 1, through September 30, when a stage 5 is in progress. •Use of water for any outdoor washing purpose including commercial car washing, window washing, and paint preparation. •Washing of cars, boats, trailers, or other vehicles. •Automated commercial car washes without a water recycling system. •Street cleaning and dust control with potable water. •Filling or top off of any swimming pools, outdoor spas, wading pools, and ornamental water features. •Use of water from a fire hydrant except for fighting fires and human consumption.	Yes
6	Other	> 50%	•Agricultural Irrigation. •Outdoor Irrigation. •Any leaks that are not repaired immediately. •Bulk water sales. •Use of water from a fire hydrant except for fighting fires and human consumption.	Yes

8.5. Emergency Response Plan

MCSD has developed a Drinking Water Emergency Response Plan pursuant to the requirements of the recently enacted America's Water Infrastructure Act of 2018. MCSD's Emergency Response Plan outlines procedures for response to emergencies caused by natural hazards, malevolent acts, or other unavoidable circumstances. MCSD operates in accordance with the Incident Command System, and the National Incident Management System. The Emergency Response Plan provides guidelines for evaluating an emergency situation, responding to an emergency, and activating the Incident Command Posts and the Emergency Operations Center. They also describe the Emergency Response procedures for public communication, outreach, and notifications. (MCSD Drinking Water Emergency Response Plan 2020) (Appendix E)

8.5.1. Seismic Risk Assessment

Beginning January 2020, CWC Section 10632.5 mandates urban water suppliers to include in their UWMPs 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.

MCSD's water distribution and storage facilities are designed either to withstand a probable seismic event or to minimize the potential repair time in the event of damage. As part of the Drinking Water Emergency Response Plan, MCSD developed earthquake emergency response procedures to prepare for, respond to, and recover from the event and to ensure minimum service levels and to mitigate health risks to the public and staff.

The Humboldt County Operational Area Hazard Mitigation Plan, McKinleyville Community Services District section provides details regarding MCSD's Assets, capabilities, planning initiative, hazard risk rankings, specific vulnerabilities, and action plans. (The Humboldt County Operational Area Hazard Mitigation Plan, McKinleyville Community Services District 2020) (Appendix F).

8.6. Communication Protocols

MCSD shall communicate with the public, and local, regional, and state government agencies during each water shortage stage to communicate the demand reduction actions required.

Stage 1 (10% Reduction) - Voluntary Consideration; MCSD will notify customers through mail stuffers, social media posts, and via the District website.

Stage 2 (20% Reduction) – Voluntary Conservation: MCSD will notify customers through mail stuffers, social media posts, via the District website, and through interactive voice response (IVR) reverse calling system.

Stage 3 (30% Reduction) – Mandatory Conservation; MCSD will notify customers, and local and state agencies through phone calls, email, mail stuffers, social media posts, via the District website, and through interactive voice response (IVR) reverse calling system.

Stage 4 (40% Reduction) – Emergency Water Shortage; MCSD will notify customers, and local and state agencies through phone calls, email, mail stuffers, social media posts, via the District website, interactive voice response (IVR) reverse calling system, and through media and news outlets.

Stage 5 (50% Reduction) – Emergency Mandatory Rationing; MCSD will notify customers, and local and state agencies through phone calls, email, mail stuffers, social media posts, via the District website, interactive voice response (IVR) reverse calling system, and through media and news outlets.

Stage 6 (≥ 50% Reduction)– Critical Water Shortage Emergency Rationing; MCSD will notify customers, and local and state agencies through phone calls, email, mail stuffers, social media posts, via the District website, interactive voice response (IVR) reverse calling system, and through media and news outlets.

8.7. Compliance and Enforcement

Fines, penalties, and enforcement are established in the MCSD Ordinance 2021-06 Water Conservation Establishing Rules and Regulations for Rationing Water During a Water Shortage Emergency and Establishing Penalties for Violations Thereof (Appendix G).

The General Manager and all employees of the McKinleyville Community Services District have the duty and are authorized to enforce the provisions of MCSD Ordinance No. 2021-06 and shall have all the powers and authority contained in California Penal Code Section 836.5, including the power to issue written Notice of Violations and Administrative Citations.

MCSD has a variety of remedies to help ensure compliance. These remedies begin with education regarding the restrictions and information about resources available from MCSD to assist in complying with regulations. The remedies also include an escalating series of actions, including:

1. Notice of Violation.
2. Administrative Citations up to $500
3. Referral to MCSD's Legal Counsel for civil or criminal prosecution.
4. Shut off-of water service.

8.8. Legal Authorities

The California Water Code contains two provisions for California water supplies related to water shortage contingency planning.

California Water Code Section 350-359 provides the authority for a governing body to declare water shortage emergencies. Upon the declaration of a water shortage emergency, the local agency is provided with broad powers to implement and enforce regulations and restrictions for managing water shortage conditions. Priority is given to water needed for domestic, sanitation and fire protection purposes. Discrimination is not allowed between water users using water for the same purpose or purposes.

The Urban Water Management Planning (UWMP) Act requires urban water suppliers to perform an urban water shortage contingency analysis that includes several elements (California Water Code §10632). This Water Shortage Contingency Plan addresses each of the required elements in the urban water shortage contingency analysis.

8.9. Financial Consequences

During the implementation of the various water shortage emergency stages, there will be an impact on revenue and expenses for the District due to the anticipated demand reduction. The table below indicates the net impact on revenue given the various demand reduction scenarios. This is intended to be a general analysis of revenue impact and is based on the 2019-2020 Fiscal Year annual budget.

Table 15. Water Shortage Contingency Plan Fiscal Consequences**.**

FY 2018-2019	FY 2019-2020	20% Volumetric Reduction	30% Volumetric Reduction	40% Volumetric Reduction	50% Volumetric Reduction	≥ 50% Volumetric Reduction
Revenue						
Water Sales	$3,650,743	$2,920,594	$2,555,520	$2,190,446	$1,825,372	$1,825,372
Other Revenue	$140,954	$112,763	$98,668	$84,572	$70,477	$70,477
TOTAL Annual Revenue	**$3,791,697**	**3,033,358**	**2,654,188**	**2,275,018**	**1,895,849**	**1,895,849**

FY 2018-2019	FY 2019-2020	20% Volumetric Reduction	30% Volumetric Reduction	40% Volumetric Reduction	50% Volumetric Reduction
Expenses					
Fixed Expenses (T&D, Admin)	1,017,081	1,017,081	1,017,081	1,017,081	1,017,081
Cost of Water	1,093,102	874,482	765,171	655,861	546,551
Other Expenses	439,401	351,521	307,581	263,641	219,701
CIP Reserve	750,000	750,000	750,000	750,000	750,000
TOTAL Annual Expense	**3,299,584**	**2,993,083**	**2,839,833**	**2,686,583**	**2,533,333**

Reserves	$492,113	20% Volumetric Reduction	30% Volumetric Reduction	40% Volumetric Reduction	50% Volumetric Reduction
Anticipated Short Fall 12-Months		98,423	147,634	196,845	246,057
Anticipated Short Fall 6-Months		49,211	73,817	98,423	123,028
Anticipated Short Fall 3-Months		24,606	36,908	49,211	61,514

The net impact on revenue depends on the stage of water shortage emergency and the duration of the water shortage event. Stages 3 through 6 have an automatic increase in water base rates to recoup some of the predicted revenue losses. The worst-case scenario that is presented above is a 50% reduction in volumetric sales for a 12-month duration resulting in a $246,057 shortfall. The more likely scenario is a 20% demand reduction for a three-to-six-month duration resulting in a net reduction in revenue between $24,606 and $49,211.

The District has several options it can consider for handling the anticipated revenue impact including:

- Reduce funds allocated for Capital Improvements Plan (CIP), thereby reducing the CIP reserve fund and delaying implementation of CIP projects;
- During the next rate study develop a water revised shortage surcharge (rate structure) that automatically goes into effect upon declaration of a specific stage of water shortage emergency; or

- During the next rate study include the establishment of a water shortage emergency fund that will be available in the event of a water shortage emergency.

8.10. Monitoring and Reporting

During a declared water shortage emergency, water production volumes and enforcement metrics will be reviewed and reported to the State monthly, including a calculation of Gallons Per Capita per Day (GPCD), and comparison to the same month of the year just prior to the declaration of a water shortage emergency.

8.11. Refinement Procedures

MCSD will re-evaluate the WSCP and its effectiveness monthly during a water shortage emergency. The results from the monthly monitoring and reporting will guide any revisions to the demand reduction actions. MCSD will evaluate any procedural refinements or new actions that are identified by staff or are suggested by customers for their effectiveness, whether to incorporate them into the WSCP, and implement them quickly at the appropriate water shortage stage.

8.12. Special Water Feature Distinction

MCSD does not supply any retail drinking water or recycled water to any water features (ponds, lakes, waterfalls, or fountains) within the service area. Due to the geographic location of McKinleyville, swimming pool and spa features are very limited.

8.13. Plan Adoption Submittal and Availability

The MCSD WSCP is reviewed, updated, and Board approved every 5-years during the UWMP review process. If any amendments are required outside the UWMP review process, notices will be sent to affected cities, counties, and public informing them of the review process, changes made, the public comment period, and the MCSD Board adoption process.

MCSD shall make available the Water Shortage Contingency Plan to its customers, and any city or county to which it provides water supplies, no later than 30-days after adoption of the WSCP.

9. DEMAND MANAGEMENT MEASURES

The area served by MCSD is one of the few regions of California with a local abundance of water. This has meant that droughts, while just as severe climatically, have not led to the same level of supply shortfall as in many other regions. This does not mean that the District or its residents are unaware or unconcerned about the importance of water conservation.

Because supplies are sufficient to meet current and projected demand and per capita use is low, implementing additional Demand Management Measures (DMMs) beyond those that are required of MCSD as a retail water supplier is not economic for the District.

DWR requires retail water suppliers to address the following DMM's:

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

9.1. Metering

All water received and distributed throughout the MCSD service area is metered. HBMWD meters all water delivered to MCSD and bills the District monthly. In addition to the HBMWD meter, MCSD meters all water pumped through the North Bank Pump Station before entering the MCSD distribution system. This dual metering allows both MCSD and HBMWD to compare usages and detect any metering inaccuracies.

All customer sectors within the service area are metered and billed monthly. In 2017 MCSD completed the 5-year replacement of all residential, commercial, and institutional/government meters with radio read meters.

9.2. Conservation Pricing

MCSD has a tiered rate structure that meets the UWMP requirements for conservation pricing. MCSD uses a two-tiered billing system with a variable cost of $1.78 per CCF up to 800 cubic feet. Over 800 cubic feet is charged at $4.45 per CCF (2020).

9.3. Water Waste Prevention Ordinances

Fines, penalties, and enforcement are established in the MCSD Ordinance No. 2021-06 and Article VII: Water Conservation of MCSD's Rules & Regulations. (Appendix G).

9.4. Public Education and Outreach

MCSD has provided public outreach and education for service area customers in the following formats and media outlets.

- MCSD provides information regarding MCSD drought rules for home and business water uses that are declared to be non-essential, State operated rebate programs, turf replacement rebates, and high efficiency toilet replacement program.
- MCSD Newsletter Articles were published informing customers of California/MCSD drought rules, rebate programs, and ways they can conserve water at home.

9.5. Programs to Assess and Manage Distribution System Loss

MCSD performs annual AWWA Water Loss Audits to assess real loss from the distribution system. Loss rates are very low for the District. Non-revenue water is only 5.6% of the volume of water supplied and is only 2% of the cost of operating the water system. Real loss is managed by addressing any water leak as soon as they are identified.

9.6. Water Conservation Program Coordination and Staffing Support

MCSD employs 27 total full-time personnel and does not have the capability of holding a position solely for a water conservation coordinator. Currently the General Manager is the point of contact for water conservation with staff support.

9.7. Implementation of Demand Measurement Measures Over the Past Five Years

MCSD conducts monthly monitoring of water use and reports the residential gallons per capita per day (R-GPCD) to the Board at each monthly Board meeting. MCSD conducts meter testing on large meters to ensure accuracy. Meters that are inaccurate are repaired or replaced. In 2017 MCSD finished replacing all meters within the service area with radio read meters providing real time and historical trend data. MCSD also continues to conduct public education through our newsletter regarding water conservation.

9.8. Planned Implementation to Achieve Water Use Targets

MCSD is meeting their water use targets by a significant margin. MCSD will continue their program to assess and manage distribution system real loss and will continue public education and outreach activities further meeting future water use targets. MCSD will monitor their GPCD annually while performing their annual AWWA water loss audits. If the MCSD GPCD begins to increase, further conservation programs may be implemented.

10. PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

The MCSD 2020 UWMP and WSCP have been prepared in accordance with the CWC and the 2020 Urban Water Management Plan Guidebook for Urban Water Suppliers. MCSD has included water use and planning data for the entire year 2020.

10.1. Notice of Public Hearing

MCSD shall hold a public hearing prior to adopting the UWMP (Public Hearing Notice Appendix H). MCSD provided written notice of their UWMP review and updating at least 60 days prior to the public hearing to the water wholesaler HBMWD, Humboldt County, City of Arcata, City of Eureka, City of Blue Lake, Fieldbrook-Glendale CSD, and Manila CSD. A copy of the 60-day notice letter is included as Appendix I.

Submittal Table 10-1. Notifications to cities and counties.

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
City of Arcata	Yes	Yes
City of Eureka	Yes	Yes
City of Blue Lake	Yes	Yes
Humboldt CSD	Yes	Yes
Manila CSD	Yes	Yes
Fieldbrook-Glendale CSD	Yes	Yes
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Humboldt County	Yes	Yes

The public hearing provides an opportunity for the public and cities and counties to provide input to the plan before it is adopted. The notice will include the time and place of the public hearing and where the 2020 UWMP can be viewed with contact information of the preparer. The public hearing notices will be published at least 15 days in advance in the local newspaper, and on the MCSD board agenda that is posted throughout the community.

10.2. Public Hearing and Adoption

The public hearing will be held during a regularly scheduled MCSD Board meeting, the first Wednesday of the month, the month prior to plan adoption. During the public hearing MCSD staff will provide information regarding baseline values, water-use targets, and implementation plan to achieve targets and goals.

The MCSD's 2020 UWMP, was adopted by the MCSD Board of Directors on August 4, 2021, Resolution 2021-19, and was submitted to the DWR on August 6, 2021.

MCSD shall submit their 2020 UWMP to the following agencies and locations:

- California Department of Water Resources: The MCSD 2020 UWMP shall be submitted to DWR within 30 days of adoption.
- Electronic Data Submittal: MCSD shall submit a copy of the adopted 2020 UWMP to the DWR online submittal tool, WUEdata. All data from the standardized tables shall be uploaded to through the online tool as well.
- California State Library: No later than 30 days, MCSD shall submit a CD or hardcopy of the adopted 2020 UWMP to the California State Library.
    - California State Library
      Government Publications Section
      P.O. Box 942837 Sacramento, CA 94237
      Attn: Coordinator, Urban Water Management Plans

10.3. Public Availability

MCSD shall make available a copy of the 2020 UWMP for public review. The UWMP will be available in digital format on the MCSD website, and a hard copy will be made available for public review at the MCSD office.

McKinleyville Community Services District
1656 Sutter Rd.
McKinleyville, CA 95519

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References

Environmental Protection Agency Climate Resilience Evaluation and Awareness Tool (CREAT) Risk Assessment application for Water Utilities 2020.

Humboldt County General Plan2017. Prepared by Humboldt County Staff. October 2017. https://humboldtgov.org/DocumentCenter/View/61984/Humboldt-County-General-Plan-complete-document-PDF

Humboldt County Area Hazard Mitigation Plan 2019. https://humboldtgov.org/DocumentCenter/View/82770/HumboldtCountyHMP_Vol1_Final_2020-01-28

Mad River Watershed Assessment. Prepared by Stillwater Sciences for Redwood Community Action Agency, June 2010. http://www.stillwatersci.com/resources/2010madriverwatershedassessment.pdf

McKinleyville Community Plan, Humboldt County General Plan Volume II, Prepared by Humboldt County Staff, 2002. http://www.humboldtgov.org/205/Plans

MCSD Wastewater Facilities Plan Administrative Draft. SHN Consulting Engineers and Geologists, Inc. January 2012 http://mckinleyvillecsd.com/document-library/20%20Year%20Facilities%20Plan

MCSD Water Model Technical Report. Prepared by MCSD Staff reviewed by SHN Consulting Engineers and Geologists, Inc. July 2012. http://mckinleyvillecsd.com/sites/mckinleyvillecsd.com/files/documents/Water%20Distribution%20Model%20Executive%20Summary.pdf

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RESOLUTION 2021-19

A RESOLUTION OF THE MCKINLEYVILLE COMMUNITY SERVICES DISTRICT BOARD OF DIRECTORS ADOPTING THE DISTRICT'S 2020 URBAN WATER MANAGEMENT PLAN

WHEREAS, the Urban Water Management Planning Act of 1983, as amended (California Water Code Division 6, Part 2.6) requires the preparation and submission to the California Department of Water Resources of an Urban Water Management Plan by all water suppliers that qualify as urban water suppliers as defined by the act; and

WHEREAS, the McKinleyville Community Services District qualifies as an urban water supplier as defined by the Urban Water Management Planning Act; and

WHEREAS, the Urban Water Management Planning Act requires the submission of Urban Water Management Plans every five years; and

WHEREAS, the McKinleyville Community Services District last prepared and submitted an Urban Water Management Plan in 2016; and

WHEREAS, the 2020 Urban Water Management Plan must be adopted after public review and hearing, and filed with the Department of Water Resources within thirty days of adoption; and

WHEREAS, the McKinleyville Community Services District has therefore prepared and made available for public review a draft of the Urban Water Management Plan, and a properly noticed public meeting regarding the Plan was held by the Board of Directors on August 4, 2021.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the McKinleyville Community Services District does hereby adopt the 2020 Urban Water Management Plan and authorizes its submission to the California Department of Water Resources.

ADOPTED, SIGNED AND APPROVED at a duly called meeting of the Board of Directors of the McKinleyville Community Services District on August 4, 2021 by the following polled vote:

AYES: Binder, Couch, Orsini, and Mayo
NOES:
ABSENT: Clark-Peterson
ABSTAIN:

Attest:

April Sousa, MMC, Board Secretary

Dennis Mayo, Board President

Appendix A

AWWA Water Loss Worksheet 2015-2019

AWWA Free Water Audit Software:
Reporting Worksheet

? Click to access definition
+ Click to add a comment

Water Audit Report for: McKinleyville Community Services District (CA1210016)
Reporting Year: 2015 (1/2015 - 12/2015)

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

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

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

<---------- Enter grading in column 'E' and 'J' ---------->

WATER SUPPLIED

					Master Meter and Supply Error Adjustments		
					Pcnt:	Value:	
Volume from own sources:	n/a	0.000	MG/Yr				MG/Yr
Water imported:	10	455.879	MG/Yr	4		3.600	MG/Yr
Water exported:	n/a	0.000	MG/Yr				MG/Yr

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

WATER SUPPLIED: 452.279 MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	8	425.466	MG/Yr			
Billed unmetered:	8	1.596	MG/Yr			
Unbilled metered:	8	15	MG/Yr			
Unbilled unmetered:		5.653	MG/Yr	1.25%		MG/Yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: 448.164 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

4.115 MG/Yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		1.131	MG/Yr	0.25%		MG/Yr

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

Customer metering inaccuracies:	8	0.000	MG/Yr			MG/Yr
Systematic data handling errors:		1.064	MG/Yr	0.25%		MG/Yr

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

Apparent Losses: 2.194 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 1.920 MG/Yr

WATER LOSSES: 4.115 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 25.216 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	10	87.3	miles
Number of active AND inactive service connections:	10	5,600	
Service connection density:		64	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line:

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

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

Average operating pressure:	10	65.0	psi

COST DATA

Total annual cost of operating water system:	8	$2,471,429	$/Year	
Customer retail unit cost (applied to Apparent Losses):	9	$6.58	$/1000 gallons (US)	
Variable production cost (applied to Real Losses):	7	$1,537.00	$/Million gallons	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 85 out of 100 ***

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

PRIORITY AREAS FOR ATTENTION:

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

1: Unauthorized consumption
2: Systematic data handling errors
3: Variable production cost (applied to Real Losses)

AWWA Free Water Audit Software:
Reporting Worksheet

? Click to access definition
+ Click to add a comment

Water Audit Report for: Mckinleyville Community Services District (1210016)
Reporting Year: 2016 | 1/2010 - 12/2016

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

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

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

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED				Pcnt:	Value:	
Volume from own sources:	n/a		MG/Yr			MG/Yr
Water imported:	3	458.504	MG/Yr	8		MG/Yr
Water exported:	n/a		MG/Yr			MG/Yr
WATER SUPPLIED:		**458.504**	MG/Yr			

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

AUTHORIZED CONSUMPTION				Pcnt:	Value:	
Billed metered:	7	412.958	MG/Yr			
Billed unmetered:	10	1.403	MG/Yr			
Unbilled metered:	n/a		MG/Yr			
Unbilled unmetered:	5	1.146	MG/Yr		1.146	MG/Yr
AUTHORIZED CONSUMPTION:		**415.507**	MG/Yr			

Click here: ? for help using option buttons below

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption)				Pcnt:	Value:	
		42.997	MG/Yr			
Apparent Losses						
Unauthorized consumption:		1.146	MG/Yr	0.25%		MG/Yr

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

Customer metering inaccuracies:	4	1.035	MG/Yr	0.25%		MG/Yr
Systematic data handling errors:		1.032	MG/Yr	0.25%		MG/Yr
Apparent Losses:		**3.214**	MG/Yr			

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

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:		**39.783**	MG/Yr
WATER LOSSES:		**42.997**	MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER:		**44.143**	MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	8	87.5	miles
Number of active AND inactive service connections:	8	6,195	
Service connection density:		71	conn./mile main
Are customer meters typically located at the curbstop or property line?		Yes	
Average length of customer service line:			

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

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

Average operating pressure:	2	65.0	psi

COST DATA

Total annual cost of operating water system:	10	$2,546,330	$/Year	
Customer retail unit cost (applied to Apparent Losses):	6	$3.10	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	4	$2,025.99	$/Million gallons	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 53 out of 100 ***

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

PRIORITY AREAS FOR ATTENTION:

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

1: Water imported
2: Customer metering inaccuracies
3: Variable production cost (applied to Real Losses)

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
+ Click to add a comment

Water Audit Report for: McKinleyville Community Services District (1210016)
Reporting Year: 2017 (1/2017 - 12/2017)

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

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

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

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

							Pcnt:	Value:	
Volume from own sources:				MG/Yr					MG/Yr
Water imported:	3	466.894	MG/Yr		9	-7.64%			MG/Yr
Water exported:	3	7.948	MG/Yr						MG/Yr

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

WATER SUPPLIED: 497.567 MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	8	415.548	MG/Yr			
Billed unmetered:	10	0.469	MG/Yr			
Unbilled metered:	7	26.674	MG/Yr			
Unbilled unmetered:		6.220	MG/Yr	1.25%		MG/Yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: 448.911 MG/Yr

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption) 48.657 MG/Yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		1.244	MG/Yr	0.25%		MG/Yr
Customer metering inaccuracies:	5	1.108	MG/Yr	0.25%		MG/Yr
Systematic data handling errors:		1.039	MG/Yr	0.25%		MG/Yr

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

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

Apparent Losses: 3.391 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 45.266 MG/Yr

WATER LOSSES: 48.657 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 81.550 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	8	88.0	miles
Number of active AND inactive service connections:	8	6,313	
Service connection density:		72	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

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

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

Average operating pressure: 3 — 65.0 psi

COST DATA

Total annual cost of operating water system:	10	$2,129,533	$/Year	
Customer retail unit cost (applied to Apparent Losses):	7	$3.12	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	5	$2,014.71	$/Million gallons	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 58 out of 100 ***

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

PRIORITY AREAS FOR ATTENTION:

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

1: Water imported
2: Customer metering inaccuracies
3: Variable production cost (applied to Real Losses)

AWWA Free Water Audit Software:
Reporting Worksheet

? Click to access definition
+ Click to add a comment

Water Audit Report for: McKinleyville Community Services District (1210016)
Reporting Year: 2018 | 1/2018 - 12/2018

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

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

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

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

					Pcnt:	Value:	
Volume from own sources:			MG/Yr				MG/Yr
Water imported:	3	507.927	MG/Yr	4		21.832	MG/Yr
Water exported:	3	6.940	MG/Yr				MG/Yr

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

WATER SUPPLIED: 479.155 MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

			Pcnt:	Value:	
Billed metered:	8	402.551 MG/Yr			
Billed unmetered:	10	2.008 MG/Yr			
Unbilled metered:	7	16.150 MG/Yr			
Unbilled unmetered:		5.989 MG/Yr	1.25%		MG/Yr

Use buttons to select percentage of water supplied **OR** value

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: 426.698 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption) 52.457 MG/Yr

Apparent Losses

			Pcnt:	Value:	
Unauthorized consumption:		1.198 MG/Yr	0.25%		MG/Yr
Customer metering inaccuracies:	5	1.049 MG/Yr	0.25%		MG/Yr
Systematic data handling errors:		1.006 MG/Yr	0.25%		MG/Yr

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

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

Apparent Losses: 3.254 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 49.203 MG/Yr

WATER LOSSES: 52.457 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 74.596 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	8	88.0	miles
Number of active AND inactive service connections:	8	6,393	
Service connection density:		73	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

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

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

Average operating pressure: 3 | 65.0 psi

COST DATA

Total annual cost of operating water system:	10	$2,825,974	$/Year	
Customer retail unit cost (applied to Apparent Losses):	8	$3.93	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	5	$2,500.11	$/Million gallons	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 57 out of 100 ***

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

PRIORITY AREAS FOR ATTENTION:

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

1: Water imported
2: Customer metering inaccuracies
3: Variable production cost (applied to Real Losses)

AWWA Free Water Audit Software:
Reporting Worksheet

? Click to access definition
+ Click to add a comment

Water Audit Report for: McKinleyville Community Services District (1210016)
Reporting Year: 2019 | 1/2019 - 12/2019

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

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

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

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

					Pcnt:	Value:	
Volume from own sources:			MG/Yr				MG/Yr
Water imported:	3	491.435	MG/Yr				MG/Yr
Water exported:	5	7.395	MG/Yr				MG/Yr

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

WATER SUPPLIED: 484.040 MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

			Pcnt:	Value:	
Billed metered:	8	420.090 MG/Yr			
Billed unmetered:	10	1.874 MG/Yr			
Unbilled metered:	7	20.102 MG/Yr			
Unbilled unmetered:		6.051 MG/Yr	1.25%		MG/Yr

Use buttons to select percentage of water supplied **OR** value

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: 448.117 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption) 35.924 MG/Yr

Apparent Losses

			Pcnt:	Value:	
Unauthorized consumption:		1.210 MG/Yr	0.25%		MG/Yr
Customer metering inaccuracies:	5	1.103 MG/Yr	0.25%		MG/Yr
Systematic data handling errors:		1.050 MG/Yr	0.25%		MG/Yr

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

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

Apparent Losses: 3.364 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 32.560 MG/Yr

WATER LOSSES: 35.924 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 62.076 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	8	89.0	miles
Number of active AND inactive service connections:	8	6,419	
Service connection density:		72	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

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

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

Average operating pressure: 3 | 65.0 psi

COST DATA

Total annual cost of operating water system:	10	$3,032,102	$/Year
Customer retail unit cost (applied to Apparent Losses):	10	$4.20	$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	8	$2,597.51	$/Million gallons

☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 61 out of 100 *****

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

PRIORITY AREAS FOR ATTENTION:

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

1: Water imported
2: Customer metering inaccuracies
3: Unauthorized consumption

Appendix B

EPA Climate Resilience Evaluation and Awareness Report

Risk Assessment Summary Report for McKinleyville Community Services District

Report Date: May 25, 2021

Risk and Resilience Assessment Summary

Purpose

This risk and resilience assessment of McKinleyville Community Services District was performed on May 25, 2021 using the U.S. Environmental Protection Agency's (EPA) Vulnerability Self-Assessment Tool (VSAT) Web Version 2.0. EPA developed and maintains VSAT Web to serve as an all-hazards risk and resilience assessment tool for water and wastewater utilities of all sizes. Specifically, EPA designed Version 2.0 of VSAT Web to assist community water systems with meeting the requirements for risk and resilience assessments in America's Water Infrastructure Act of 2018 (AWIA).

VSAT Web 2.0 can help water sector owners and operators with identifying the threats that present the highest risks to their facilities and with evaluating the costs and benefits of countermeasures to reduce those risks.

Methodology

VSAT Web 2.0 addresses malevolent acts, natural hazards, and dependency/proximity threats to water sector operations and analyzes the cost-effectiveness of countermeasures to reduce risk. The methodology in VSAT Web 2.0 is based on assessing the risk to a water system asset from a specific threat or hazard (i.e., an Asset-Threat Pair), where risk is defined as follows:

Risk (R) = Threat (T) X Vulnerability (V) X Consequences (C)

- T = Likelihood that the threat will be perpetrated or occur against the asset;
- V = Likelihood that the threat will damage the asset, considering the effectiveness of countermeasures; and
- C = Economic (cost to the utility and region) and public health (injuries and deaths) impacts resulting from damage to the asset.

A monetary value of statistical illness and value of statistical life are assigned to injuries and deaths, respectively, so that risk can be determined as a single monetized value.

AWIA requires community water systems to assess the risks to and resilience of specified assets from both malevolent acts and natural hazards. Accordingly, VSAT Web 2.0 begins with a characterization of water system resilience using the Utility Resilience Index, as described below. The analyst then conducts a qualitative assessment of risks from malevolent acts and natural hazards to all the assets required in AWIA. These steps can ensure that the assessment may be certified as compliant with AWIA.

Following these steps, the analyst determines which assets and threats will undergo a quantitative risk assessment, involving estimates of threat, vulnerability, and consequences. The quantitative risk assessment may include a broad spectrum of assets encompassing the entire water system, or be limited to those assets at highest risk. For threat selection, VSAT Web 2.0 includes all the malevolent acts, natural hazards, and dependency/proximity threats listed in the AWWA J100-10 Standard, along with source water (accidental and intentional) and finished water (accidental) contamination. Analysts may also designate a custom threat.

After completing a quantitative risk assessment under the current (baseline) conditions for the water system, the analyst may choose to conduct an optional assessment of additional (potential) countermeasures (an improvement analysis). VSAT Web 2.0 provides the analyst with a suite of countermeasures from which to select, or the analyst may designate a custom countermeasure. This analysis results in a profile of existing risk and a benefit/cost analysis of potential countermeasures to reduce risk.

Utility Overview

Utility Type and Information	
Utility Type	Drinking Water
Utility Name	McKinleyville Community Services District
State/Territory	California
Zip Code	95519
Population Served	17,190
Ownership	Public
Average Daily Water Service (MGD)	1.35
Average Rate ($/1000 gallons)	$4.00
Comments	

To edit utility type or information, return to the Utility Overview section in the tool.

Utility Resilience Index

The Utility Resiliency Index (URI) is a risk management tool that can assess a utility's capability to respond to and recover from an incident that impacts critical operations.[1] The URI is a valuable complement to the risk assessment performed in VSAT Web 2.0. A utility can use the URI together with the risk assessments results when developing an overall risk management plan.

The URI uses 12 indicators to calculate the index. Responses to the indicators are assigned values and weights, which are aggregated to provide a characterization of a utility's resilience on a scale from 0% to 100%. A low URI score indicates a low capability of the utility to respond to and recover from an incident, while a high URI score indicates a greater capability to do so. If multiple statements under one indicator apply to the utility, select the statement at the highest resilience level. Statements are arranged from lowest to highest resilience level under each indicator.

The URI for McKinleyville Community Services District is: 47%

[1]Adapted from Morley, K. M. (2012). *Evaluating resilience in the water sector: Application of the Utility Resilience Index (URI).* (http://www.worldcat.org/oclc/801849602) and used with permission.

1. **Emergency Response Plan (ERP)**
   An ERP provides a tactical level plan for immediate response to incidents of all types. Select the statement below that best describes the utility's ERP.

   An ERP has been developed

2. **National Incident Management System (NIMS) Compliance**
   NIMS establishes a common framework for defining roles and responsibilities to enhance incident response. NIMS applies the Incident Command System (ICS) to provide the support structure for response activities. Select the statement below that best describes the utility's NIMS compliance.

   Utility certified as NIMS compliant

3. **Mutual Aid and Assistance (MAA)**
   MAA agreements between other utilities and jurisdictions help to provide rapid response to incidents. Participation in such agreements is traditionally at no cost and does not obligate signatories to respond. An example is the Water/Wastewater Agency Response Network (WARN). Select the statement below that best describes the utility's MAA agreements.

   Intra-municipal (within own city/town agencies)

4. **Emergency Power for Critical Operations (EPCO)**
   EPCO is a minimum benchmark of 72 hours for backup power for critical operations and assets. Select the statement below that best describes the utility's EPCO.

   Greater than or equal to 73 hours of backup power

5. **Minimum Daily Demand/Treatment (MDDT)**
   MDDT is the ability to meet minimum daily demand or treatment when the production or treatment plant is non-functional. For example, a drinking water utility typically has some level of in-system storage that can provide minimum daily flows for a time even though a treatment plant may be non-functional. Select the statement below that best describes the utility's MDDT.

   49 hours to 72 hours

6. **Critical Parts and Equipment (CPA)**
   CPA is the lead time for repair, replacement, or recovery of operationally critical parts or equipment. Critical parts are defined as components of the system that upon failure may have the potential to impair the ability to produce, distribute, or treat drinking water or wastewater, including both physical and cyber/process control systems. Select the statement below that best describes the utility's CPA.

   3-4 weeks or greater, or lead time is unknown

7. **Critical Staff Resilience (CSR)**
   CSR is the percentage of response-capable staff who are cross-trained in critical operations and maintenance positions and available as staff backup. This indicator is primarily related to pandemic flu planning. Select the statement below that best describes the utility's CSR.

   Greater than 25 to 50%

8. **Business Continuity Plan (BCP)**
   A BCP provides an overall indicator of a utility's commitment to integrating risk management principles into the management culture that supports their operations. These plans address the potential financial effects of a crisis, as well as the utility's flexibility to adapt human resource policies to meet the changing needs of employees. Select the statement below that best describes the utility's BCP.

   No BCP or unknown

9. **Utility Bond Rating (UBR)**
   UBRs are assigned by Moody's and indicate a utility's ability and willingness to satisfy financial obligations. The rating includes five primary factors related to municipal finance, which include market position, financial position, debt levels, governance, and covenants. Some utilities may not have a bond rating since they do not seek additional investment capital from the market. Select the statement below that best describes the utility's UBR.

   AA

10. **Government Accounting Standards Board (GASB) Assessment**
    A GASB Assessment determines how much infrastructure has been evaluated to provide an indication of the utility's overall commitment to proper asset management. The assessment coverage is calculated as: 100 x total number of critical assets categorized into condition categories divided by the total number of critical assets as determined in the asset characterization step of the J100 standard. Select the statement below that best describes the utility's GASB Assessment.

    Greater than 81% assessed

11. **Unemployment***
    Unemployment is a general socioeconomic indicator of a community's economic health. The Bureau of Labor Statistics (BLS) maintains a database of state and local rates (see http://www.bls.gov/lau/tables.htm) which provides a consistent source for determining this indicator. The value for this indicator is based on the unemployment level in the community served by the utility. Select the statement below that best describes the unemployment rate in the service area.

    >= 5% National Average

12. **Median Household Income (MHI)***
    MHI is a socioeconomic indicator of the wealth of the community served by the utility. This indicator provides insight on the fragility of a community to withstand a significant incident that could threaten the financial stability of the utility. The U.S. Census Bureau maintains a database for each state and county (see https://www.census.gov/quickfacts/fact/table/US/PST045218). Select the statement below that best describes the MHI in the service area.

    10% or more below State Median

To adjust any of the responses above, return to the tool and revise the selections in the Utility Resilience Index section.

Qualitative Risk Assessment

Results from the Qualitative Risk Assessment for the utility are shown below

Asset Category	Threat Type: Malevolent Act	Threat Type: Natural Hazard	Reason for not selecting threat type
Physical Barriers	X		
Source Water		X	
Pipes and Constructed Conveyances, Water Collection, and Intake		X	
Pretreatment and Treatment			MCSD does not treat or pre-treat drinking water.
Storage and Distribution Facilities		X	
Electronic, Computer, or other Automated Systems (including the security of such systems)	X		
Monitoring Practices			MCSD does not process, treat, or monitor raw water

Asset Category	Threat Type: Malevolent Act	Threat Type: Natural Hazard	Reason for not selecting threat type
Financial Infrastructure	X		
The Use, Storage, or Handling of Chemicals			MCSD does not store or handle chemicals for the treatment of drinking water
The Operation and Maintenance of the Utility			Equipment, supplies, and key personnel are all backed up and agreements are secured.

To adjust any of the responses above, return to the tool and revise the answers in the Qualitative Risk Assessment section.

Quantitative Risk Assessment

Below is a list of the assets and threats the analyst selected for the utility's quantitative risk assessment. To edit any of the asset/threat pairs below, return to the Quantitative Risk Assessment section of the tool and make the changes.

Identified Assets	Assigned Threats		
	Unauthorized entry through fences	**EQ4 - Earthquake - PGA 0.8 - 1.1 - Earthquake breaking transmission line**	**EQ4 - Earthquake - PGA 0.8 - 1.1 - Earthquake causing damage to distribution system.**
Perimeter Fence	X		
Main Transmission Line from HBMWD		X	
Distribution System Pipe Network			X
Storage Tanks			
SCADA and Communicating Systems			
Financial Infrastructure			

Identified Assets	Assigned Threats		
	EQ4 - Earthquake - PGA 0.8 - 1.1 - Earthquake compromising storage tanks	**Cyber attack on SCADA system**	**Cyber attack on server or billing**
Perimeter Fence			
Main Transmission Line from HBMWD			
Distribution System Pipe Network			
Storage Tanks	X		
SCADA and Communicating Systems		X	
Financial Infrastructure			X

Countermeasure Risk Assessment

Countermeasures comprise any infrastructure, equipment, systems, or procedures that reduce risk (threat, vulnerability, or consequences). The table below shows both the existing

countermeasures identified for the utility and the potential countermeasures selected for analysis to reduce risk. To edit any of the existing countermeasures, return to the Countermeasure Risk Assessment section of the tool and make changes there.

Selected Countermeasures	Identified Assets		
	Perimeter Fence	**Main Transmission Line from HBMWD**	**Distribution System Pipe Network**
Existing Countermeasures			
Site lighting	X		
Perimeter fencing	X		
Redundant water source(s)		X	
Potential Countermeasures			
Intrusion sensors	X		
Security cameras	X		
Guard(s)	X		

Selected Countermeasures	Identified Assets		
	Storage Tanks	**SCADA and Communicating Systems**	**Financial Infrastructure**
Existing Countermeasures			
Site lighting			
Perimeter fencing			
Redundant water source(s)			
Potential Countermeasures			
Intrusion sensors			
Security cameras			
Guard(s)			

Assessment Summary

The table below shows the monetized risk summary for each asset/threat pair. Baseline results reflect existing countermeasures and improvement results reflect enhanced mitigation with the selected potential countermeasures in place. To edit any of the information shown in the table(s) below, return to either the Quantitative Risk Assessment or Countermeasure Risk Assessment section of the tool and make changes there.

Asset/Threat Pair: Perimeter Fence/Unauthorized entry through fences - Monetized Risk Summary

Existing Countermeasures: Site lighting, Perimeter fencing; **Potential Countermeasures:** Intrusion sensors, Security cameras, Guard(s).

Risk Metrics	Baseline	Improvement
Monetized Risk	$120	$15
Utility Financial Impact	$20,000	$10,000
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	12%	3%
Annual Threat Likelihood	0.05	0.05

Asset/Threat Pair: Main Transmission Line from HBMWD/EQ4 - Earthquake - PGA 0.8 - 1.1 - Earthquake breaking transmission line Monetized Risk Summary

Existing Countermeasures: Redundant water source(s); **Potential Countermeasures:**

Risk Metrics	Baseline	Improvement
Monetized Risk	$1,458	$0
Utility Financial Impact	$2,500,000	$0
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	53%	
Annual Threat Likelihood	0.0011	0

Asset/Threat Pair: Distribution System Pipe Network/EQ4 - Earthquake - PGA 0.8 - 1.1 - Earthquake causing damage to distribution system. Monetized Risk Summary

Existing Countermeasures: Potential Countermeasures:

Risk Metrics	Baseline	Improvement
Monetized Risk	$40	$0
Utility Financial Impact	$1,200,000	$0
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	3%	
Annual Threat Likelihood	0.0011	0

Asset/Threat Pair: Storage Tanks/EQ4 - Earthquake - PGA 0.8 - 1.1 - Earthquake compromising storage tanks Monetized Risk Summary

Existing Countermeasures: Potential Countermeasures:

Risk Metrics	Baseline	Improvement
Monetized Risk	$2,046	$0
Utility Financial Impact	$3,000,000	$0
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	62%	
Annual Threat Likelihood	0.0011	0

Asset/Threat Pair: SCADA and Communicating Systems/Cyber attack on SCADA system - Monetized Risk Summary

Existing Countermeasures: Potential Countermeasures:

Risk Metrics	Baseline	Improvement
Monetized Risk	$1,200	$0
Utility Financial Impact	$100,000	$0
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	12%	
Annual Threat Likelihood	0.1	0

Asset/Threat Pair: Financial Infrastructure/Cyber attack on server or billing - Monetized Risk Summary

Existing Countermeasures: Potential Countermeasures:

Risk Metrics	Baseline	Improvement
Monetized Risk	$1,800	$0
Utility Financial Impact	$100,000	$0
Regional Economic Impact	$0	$0
Fatalities	0	0
Injuries	0	0
Vulnerability Likelihood	6%	
Annual Threat Likelihood	0.3	0

Countermeasure Costs and Packages

The table below shows the cost analyses for the selected potential countermeasures. If the analyst provided both the capital and the operations and maintenance (O&M) costs for the potential countermeasures, VSAT Web 2.0 calculated an annualized cost using a 4% finance rate over 10 years. To edit any information shown below, return to the Countermeasure Costs section of the tool and make changes there.

Potential Countermeasure	Capital Cost	O&M Cost	Annualized Cost
Intrusion sensors	$0.00	$0.00	$0.00
Security cameras	$0.00	$0.00	$0.00
Guard(s)	$0.00	$0.00	$0.00

To add information in this section, return to the Countermeasure Costs and Countermeasure Packages sections of the tool and complete the analysis there.

Appendix C

MCSD 2020 Consumer Confidence Report

2020 Consumer Confidence Report

Water System Name:	**McKinleyville Community Services District (MCSD)**	Report Date:	5/5/2021

The District tests drinking water quality for many constituents as required by state and federal regulations. This report shows the results of our monitoring for the period of January 1 to December 31, 2020 and may include earlier monitoring data. Last year, as in years past, your tap water met all United State Environmental Protection Agency (USEPA) and State drinking water health standards. MCSD vigilantly safeguards its water infrastructure and once again, we are proud to report that our system did not violate a maximum contaminant level or any other water quality standard in 2020.

Este informe contiene información muy importante sobre su agua para beber. Favor de comunicarse McKinleyville Community Services District a 1656 Sutter Road McKinleyville, Ca. 95519 (707) 839-3251 para asistirlo en español.

Type of water source(s) in use:	Drinking water delivered by the McKinleyville Community Services District (MCSD) is supplied by the Humboldt Bay Municipal Water District (HBMWD). The District's source water has been classified by the State Water Resources Control Board (SWRCB) as groundwater <u>not</u> under the direct influence of surface water. The classification is important with respect to the regulations that a water system must follow to ensure water quality.
Name & general location of source(s):	The Humboldt Bay Municipal Water District is a regional water wholesaler that supplies the drinking water to MCSD. Drinking water delivered to the District is drawn from wells below the bed of the Mad River northeast of Arcata. This water-bearing ground below the river is called an aquifer. These wells, called Ranney Wells, draw water from the sands and gravel of the aquifer at depths of 60 to 90 feet, thereby providing a natural filtration process. During the summer, this naturally filtered water is disinfected via chlorination and delivered to the District. During the winter, it is further treated at a regional Turbidity Reduction Facility which reduces the occasional turbidity (cloudiness) in the District's source water. While turbidity itself is not a health concern, SWRCB is concerned that at elevated levels, turbidity could potentially interfere with the disinfection process.

Drinking Water Source Assessment information:	HBMWD performed a Drinking Water Source Assessment that was conducted by the Department of Health Services in August 2002. A copy of this assessment can be obtained at their District office at 828 7th Street Eureka, CA. This assessment found that the source water of the Ranney Wells may be vulnerable to activities that contribute to the release of aluminum and barium. Aluminum is associated with some surface water treatment processes and erosion of natural deposits. Barium is associated with the discharges of oil drilling waste or metal refineries and erosion of natural deposits. HBMWD treats its water and performs annual monitoring and testing, in accordance with SWRCB regulations and requirements, to ensure its water is safe to drink. MCSD performs separate monitoring and testing, in accordance with the USEPA and the State Board regulations and requirements, to ensure that the water quality remains high within the MCSD storage and distribution systems. The results from both the HBMWD's and the MCSD's 2020 monitoring and testing programs indicate that our water quality is very high, as has consistently been the case in past years. The tables below list the drinking water contaminants detected during 2020. A detected contaminant is any contaminant detected at or above its Detection Limit for Purposes of Reporting (DLR) (limit is established by SWRCB) or for unregulated contaminants, the Minimum Reporting Level (MRL). The tables show the level of detected contaminants. Contaminants that are not detected, or are detected below the DLR or MRL, are not required to be reported. The tables also show the maximum contaminant levels (MCL) and public health goals (PHG). Definitions for terms used in this report are listed on the next page.

Time and place of regularly scheduled board meetings for public participation:	First Wednesday of each month at 7:00 p.m. at Azalea Hall, 1620 Pickett Road, McKinleyville, Ca. 95519. Due to COVID and social distancing requirements, Board meeting will be held via Zoom meetings during the regular scheduled meeting time until this requirement is lifted.

For more information, contact:	Patrick Kaspari, General Manager	Phone:	(707) 839-3251

Definitions of Terms Used in This Report:

You will find many terms and abbreviations in the table below. To help you understand these terms, the following definitions are provided:

- **Public Health Goal (PHG):** The level of a contaminant in drinking water, below 9 which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
- **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.
- **Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs cover the aesthetic quality of the water such as odor, taste and appearance.
- **Primary Drinking Water Standard (PDWS):** MCLs for contaminants that affect health along with monitoring, reporting requirements and water treatment requirements.
- **Maximum Residual Disinfectant Level (MRDL)**: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **Maximum Residual Disinfectant Level Goal (MRDLG)**: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **Regulatory Action Level (RAL):** The concentration of a contaminant which, when exceeded, triggers treatment or other requirements that a water system must follow.
- **Treatment Technique (TT):** A Required process intended to reduce the level of a contaminant in drinking water.
- **Variances and Exemptions:** State Board permission to exceed an MCL or not comply with a treatment technique under certain conditions.
- **n/a:** not applicable
- **ND:** not detectable at testing limit
- **ppb:** parts per billion or micrograms per liter **(µg/L)**
- **ppm:** parts per million or milligrams per liter **(mg/L)**
- **ppt:** parts per trillion or nanograms per liter (ng/L)
- **pCi/l:** picocuries per liter **(a measure of radiation)**
- **mgCaCO3/L:** milligrams of calcium carbonate per liter **(a measure of hardness)**
- **microseimens/ cm :** a measure of specific conductance **(µS/cm)**
- **NTU:** Nephelometric Turbidity Units
- **Detection Limit for Purposes of Reporting (DLR):** The DLR is a parameter that is set by state regulation for each reportable contaminant. The presence of these contaminants in the drinking water at its DLR does not necessarily indicate that the water poses a health risk and can be below its MCL.
- **Minimum Reporting Level (MRL):** The MRL is defined by the USGS National Water Quality Laboratory as the smallest measured concentration of a substance that can be reliably measured by using a given analytical method.
- **Secondary Drinking Water Standards (SDWS):** MCLs for contaminans that affect taste, odor or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity. Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic contaminants such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Radioactive contaminants that can be naturally-occurring or be the result of oil and gas production and mining activities.
- Organic chemical contaminants including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agriculture application, and septic systems.

Water Quality Testing Results

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency and the State Water Resources Control Board (State Board) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. State Board regulations also established limits for contaminants in bottled water that provide the same protection for public health. The MCSD testing for Fecal Coliform produced zero results. Test results for disinfection byproducts have been below the Maximum Contaminant Level (MCL).

The tables enclosed in the newsletter list all the drinking water contaminants that were monitored during 2020. Additionally, the State requires that both Districts monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Therefore, results from prior years are included if such a contaminant was detected. There are very few entries in the tables because very few contaminants were detected in prior years. It is once again important to note that the presence of these contaminants does not necessarily indicate that the water poses a health risk.

Additional General Information on Drinking Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking WATER hotline (1-800-426-4791)

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, persons with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA and the Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the USEPA's Safe Drinking Water Hotline (1-800-426-4791)

HBMWD consistently and frequently monitors for the presence of giardia and cryptosporidium in its drinking water. Since the mid-1990s, when the EPA approved the testing technique for these contaminants, HBMWD has never had a confirmed detection of either contaminant.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. MCSD is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at (http://www.epa.gov/lead).

Appendix D

Humboldt Bay Municipal Water District Water Shortage Contingency Plan Draft 2020

1 Water Shortage Contingency Planning

1.1 Plan Overview and Coordination

1.1.1 Overview

HBMWD is a regional water wholesaler and is capable of delivering both potable water (through its Domestic Water System) and untreated surface water (through its Industrial Water System).

The District delivers potable water to seven municipalities via its Domestic Water System, who in turn serve the residents, businesses, and industries in the greater Humboldt Bay region. The seven municipalities include the City of Arcata, City of Blue Lake, City of Eureka, Fieldbrook-Glendale CSD, Humboldt CSD, Manila CSD, and McKinleyville CSD. Retail water service is provided to less than 200 customers who are generally located closer to the District‘s transmission system than to any other municipal water service. The District‘s Domestic Water System is capable of supplying approximately 20 million gallons per day (MGD) of treated drinking water. Current production of treated drinking water for municipal purposes averages approximately 10 MGD. This municipal use includes residential, commercial, industrial, and agricultural uses of the water. Per capita water use rates in this region are low and likely benefit greatly from the moderate climate and abundant rainfall, as needs for agriculture and landscaping are often met with rainfall rather than municipal water.

The District‘s Industrial Water System is separate and distinct from its Domestic Water System and has been used for supplying untreated surface water to industrial customers. This Industrial Water System is capable of supplying 60 MGD of untreated water. The District has delivered untreated water to two large industrial customers (pulp mills) for the majority of the time since the 1960s. However, one of the pulp mills closed in the 1990s, and the remaining pulp mill ceased operation in 2009. With no existing industrial customers, the District has the capability of supporting future water supply needs, which they are currently exploring.

Wholesale water is provided to the District‘s customers under long-term contracts. These contracts specifically assert the District‘s right, in accordance with the California Water Code, to suspend the water delivery requirements of the contracts if the District‘s Board declares that an actual or potential water shortage exists, or if all wholesale customers and the District mutually agree to implement the Water Shortage Contingency Plan (plan). During the 1976-77 drought, which was the only declared water emergency in the history of the District, it was the policy and practice of the District to set maximum use targets for its wholesale municipal customers, allowing them to choose how to meet those targets. Since the wholesale industrial customers could not operate effectively at significantly reduced water consumption levels, they were required to repair leaks and increase the efficiency of their water use. A reservoir capacity was set at which all deliveries to the industrial customers would cease. Fortunately, capacity did not fall to that level. The current plan operates on these principles. The municipalities retain responsibility for control of allotments provided under the provisions of the plan. Any potential wholesale industrial customers will face the reductions outlined in each action stage, and the District‘s approximately 200 retail customers will be treated in accordance with the action stages of the plan.

The water that HBMWD provides to its customers, both domestic and industrial, ultimately comes from the Ruth Lake Reservoir and the Mad River watershed located below R.W. Matthews Dam at Ruth. The reservoir was design for a safe yield of 75 MGD per year, using the 1923-24 drought of record. A copy of the

applicable sections of the original Bechtel design report is included as Appendix A. To calculate the safe yield of the reservoir, the Bechtel Study used the "Mad River runoff during the period October 1922 to September 1954…using available short term flow records at the Forest Glen and Arcata gaging stations, supplemented by the long term records for the Eel River at the Scotia gaging Station." After the 1976-77 drought, which was the only declared water emergency in the history of the District, the safe yield value of 75 MGD came into question and Winzler & Kelly re-evaluated the safe yield of the reservoir based on the '76-'77 drought data. That study came up with a safe yield of 67 MGD of the reservoir. That study was also hampered by the lack of accurate inflow data from above Ruth Lake. A copy of this study is included as Appendix B. The recent drought (2012-2016) caused the District to revisit this safe yield value as further detailed in Section **Error! Reference source not found.**.

1.1.2 Coordination

Coordination in implementing this Water Shortage Contingency Plan is assured through the activation of the Water Task Force. The first task force was formed in 1977. This task force would be convened as necessary to address drought conditions or other significant events which could result in a supply shortfall. It is composed of representatives of the District and each of its wholesale customers. The committee's responsibilities include:

1. Review the status of the water supply and forecasts.
2. Recommend specific actions in accordance with this plan and each entity's own water shortage plan.
3. Assure that priority of allocations meets legal requirements of consistency and non-discrimination.
4. Coordinate media releases and public announcements.
5. Coordinate interaction with regulatory agencies such as the California Department of Water Resources, Fish and Wildlife, and California Department of Public Health.
6. Review and make recommendations about requests for waivers from, or exceptions to, actions taken pursuant to this plan.

1.2 Safe Reservoir Yield During a Drought

A Rippl mass diagram can be used to plot the cumulative inflow to the reservoir against time for the drought of record to assist in determining safe yield from the reservoir during an extended drought. The inflow and resulting cumulative storage volume can then be compared to the cumulative storage required for various draft (demand) rates to establish a maximum, constant draft rate that could be achieved over the course of the drought planning period (in this case, five consecutive years of drought).

The development of a Rippl mass diagram for this analysis incorporates the following assumptions:

- The reservoir begins full with 48,030 acre-ft of water on May 17 (based on the drought of record, the time period from May 1976 to November 1977);
- Inflow to the reservoir during the drought of record can be repeated multiple times to extend the 1-year drought to a 5-year planning period;
- The total inflow to the reservoir can be estimated by scaling the inflow at the Zenia Bridge gage station by a factor equal to the ratio of watershed area contributing to the gage station site to the watershed area contributing to the reservoir spillway (1.2 or 121 mi^2/93.8 mi^2);
- Evaporative losses can be estimated based on reservoir levels during the drought of record;

- Demand is taken directly from the reservoir (i.e. there are no contributing flows downstream of the reservoir).

The drought of record storage was determined using Equation 1.

$$S_i = S_{i-1} + I \quad \text{(EQ-1)}$$

where:

S_i = Storage (MG)

i_{1-730} = Time Step (day)

I = Net Inflow (MG)

$$where: I = \left(I_{zenia} * \left(\frac{121mi^2}{93.8mi^2}\right) - Evap\right)$$

Cumulative storage required for draft rates were determined using Equation 2.

$$S_i = S_{i-1} + D \quad \text{(EQ-2)}$$

where:

S_i = Storage (MG)

i_{1-730} = Time Step (day)

D = Demand (MG)

A maximum allowable constant draft rate of 35.5 MGD over the five-year planning period was calculated based on the drought of record inflow (see Figure 1).

The Rippl diagram shows that a maximum constant draft rate of 35.5 MGD could be achieved (reservoir would never be empty) based on the mass budget during the drought of record. This was determined based on the assumption that the inflow to the reservoir and evaporation volumes from the drought of record could be repeated to achieve a 5-year planning cycle. Inflow for the second through fifth years may overestimate the actual inflow that would occur in this period of the drought. Inflow during the second year of drought may be lower than the first year due to decreased runoff/increased soil uptake over the course of the previous year, and the case could be similar for the subsequent years of the drought. However, this overestimation is likely more than offset by the very conservative assumption that the demand is taken directly from the reservoir with no contribution from the watershed below Ruth Lake.

The maximum constant cumulative draft volume comes within approximately 278 MG of cumulative storage volume in February of the fifth drought year. At this point, approximately 8 days of storage remains at the maximum constant draft rate. This storage volume likely falls below the desired planning volume, and in actuality, conservation measures likely would have been implemented to reduce the constant draft and increase storage.

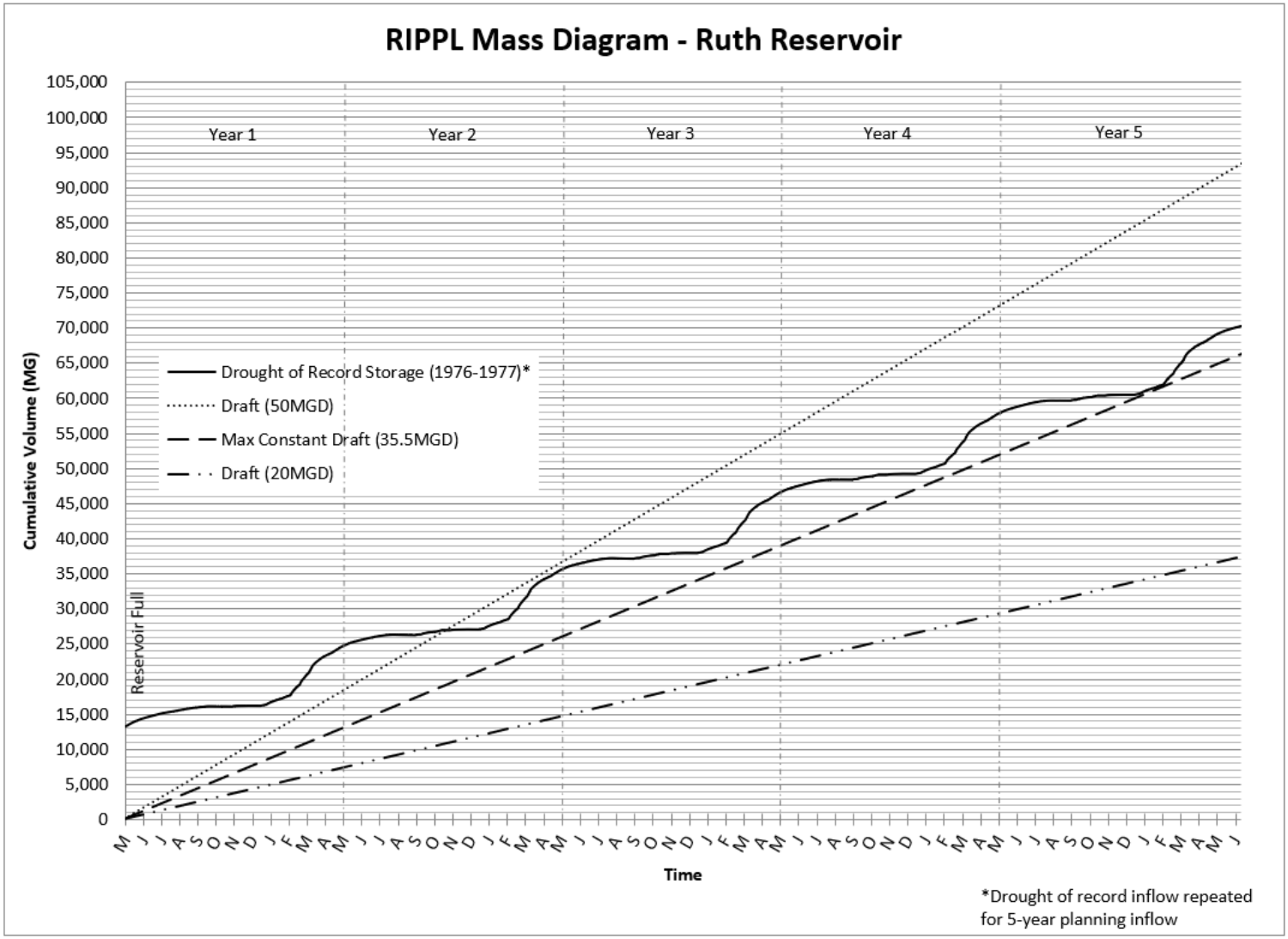

Figure 1. Rippl Mass Diagram

1.3 Stages of Action

There are five defined drought action stages (see Table 2). These stages correspond to standardized water shortage levels (up to 10, 20, 30, 40, and 50 percent shortages, and greater than 50 percent shortage). The cross-reference relating the five drought action stages and standardized shortage levels is depicted graphically in Figure 2 – Figure 5. The stages and corresponding reservoir shortage levels vary on a seasonal basis as a result of water use and supply also typically varying on a seasonal basis. These stages may be implemented with or without a formal declaration of a water emergency by the District's Board of Directors. In the event circumstances merit or require a declaration of a water shortage emergency, it is the intent of the District to rely on this plan to provide the primary framework to deal with such an emergency. The triggers attached to each stage are not intended to be absolute. Circumstances not currently foreseeable may dictate moving to a higher action stage before the trigger levels for that stage are reached. Conversely, action stage implementation may be postponed or suspended if there is sufficient natural flow in the river to meet downstream needs. Action stages will be terminated, in consultation with the Water Task Force, as rain, runoff, and lake levels permit.

1.3.1 Stages and Conditions

An analysis was performed to develop reservoir operating curves and establish "action stages" or "trigger levels" that prompt various responses, dependent upon reservoir levels at various times of the year. The analysis established five drought action stages and associated maximum draft rates in the form of an Operating Curve (Figure 2 – Figure 5). This Operating Curve outlines the specific water supply conditions that are applicable to each stage. Stage implementation will occur as a result of the reservoir level at a given time of year, as shown in Figure 2 – Figure 5. For example, if the reservoir storage level was at 25,000 acre-feet in November (up to 50% reservoir shortage), Stage 2 would be implemented.

Portions of water demand that need to be included when considering draft from the reservoir include domestic use, industrial use, and instream flow dedications. The municipalities that HBMWD serves currently use an average of approximately 10 MGD of District water. There are currently no industrial customers; however, there is potential for industrial customers in the future. There is also a minimum of 5 cfs that is to be released from the dam for fish flows. The District's Habitat Conservation Plan and Water Rights permit also establish fish flows that must always be present in the river (see Table 1).

Table 1: Mad River Flow Requirements for Fish

Period	Flow at Hwy 299 Bridge (cfs)
October 1 – October 15	30
October 16 – October 31	50
November 1 – June 30	75
July 1 – July 31	50
August 1 – August 31	40
September 1 – September 30	30

The flow values given in Table 1 are the flows that need to be measured at the Highway 299 bridge near the District's operation facilities at Essex, and they do not necessarily reflect flows that need to be released from the reservoir, as there are contributing flows to the Mad River below the reservoir. Furthermore, flows at the Highway 299 bridge are permitted to be as low as the "natural flow" calculation if that value is lower than those given in Table 1. The District will always maintain the minimum of 5 cfs as required, and has historically endeavored to meet the minimum flows as established in Table 1 to support healthy fish life. However, it is likely that in the event of a longer-term drought and during periods of the higher conservation Stages being enacted, the District may resort to the natural flow requirement and reduce discharges accordingly.

For the purpose of determining trigger responses, the following assumptions were made:

- The District is operating both its domestic and industrial systems.
- A domestic water delivery of 10 MGD and an industrial water delivery of 40 MGD were used. Although the industrial water system is not currently in use, this assumption accounts for the potential for future industrial water demand. It should also be noted, however, that the Operating Curve is based on total flow released from the reservoir (e.g. in Stage 2, 50 MGD can be released), and this flow can be apportioned based on domestic and industrial water consumption at that point in time.
- Because instream flow dedication requirements vary throughout the year, and can vary depending upon natural flow conditions, these flows were not included. However, flows released from the dam during the various action stages are generally above the flows that are required per Table 1.

Table 2: Drought Triggers Action Table

Stage	Domestic Reduction	Industrial Reduction	Total Percent Supply Reduction	Delivered Water (Municipal, MGD)	Delivered Water (Industrial, MGD)	Total Delivered (MGD)	Maximum Draft (MGD)
1	0%	0%	0%	10	40	50	75
2	5%	5%	5%	9.5	38	47.5	50
3	10%	50%	42%	9	20	29	30
4	20%	70%	60%	8	12	20	20
5	30%	95%	82%	7	2	9	10

The operating curves that were established (Figure 2 – Figure 5) give maximum draft rates for each of the five different drought action stages. The conservation action boundaries were developed based on these maximum draft rates, the amount of storage remaining over time at a given draft rate, drought of record (1976-1977) inflow, typical evaporation losses, and common reservoir level trends during the period of record (1969-2020). Throughout the period of record, reservoir levels have generally been lowest from October to January, and highest from March to May. The trigger levels have been established to account for these seasonal variations (e.g. a storage level of 30,000 AF, up to 40% reservoir shortage, would be in Stage 1 in November, but it would be in Stage 3 in May).

To give a context of historical trends of Ruth Lake storage levels, the reservoir levels during the 1976-1977 drought are also shown on Figure 2. The storage during the drought follows the general pattern of the operating curves that have been generated. During the drought, reservoir storage never dropped below 10,800 AF.

Reservoir levels during the 2012-2016 drought are shown on Figure 3 – Figure 5. While the 2012-2016 drought was significant for the State of California, it should be noted that the Ruth Reservoir filled every year during this most recent drought. The reservoir level remained in the Stage 1 action level (maximum draft of 75 MGD) for most of the 2012-2016 drought. There were a few occasions when the reservoir level triggered Stage 2 action, and one occasion when the reservoir level triggered Stage 3 action. The highest drought trigger stage that was reached from 2012-2016 was Stage 3 (maximum draft of 30 MGD, which is well below the District's current average draft rate of 10 MGD). This occurred for a brief period during January-February of 2014, and the reservoir was filled by the end of February 2014.

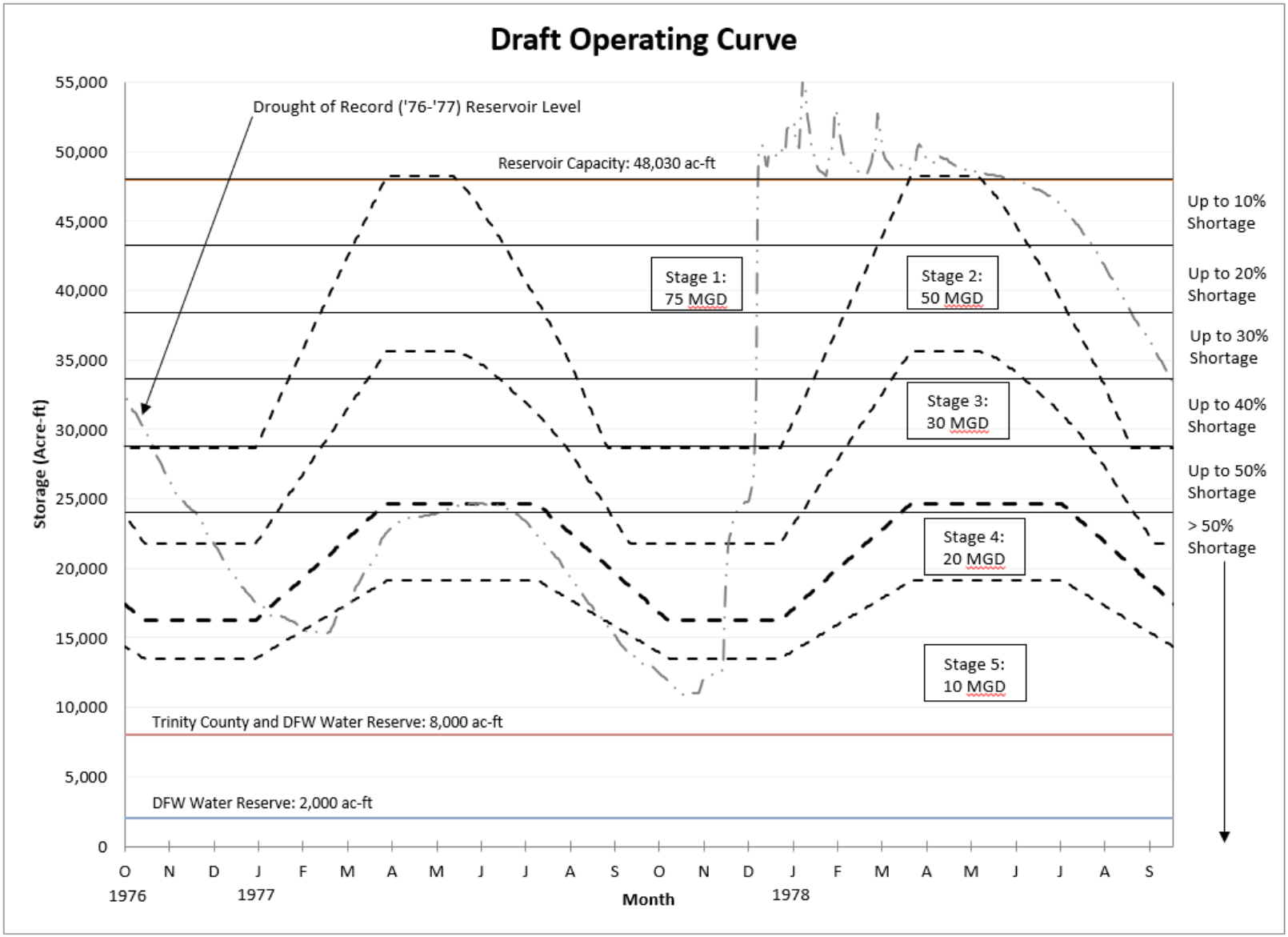

Figure 2: Ruth Lake operating curves with 1976-1977 Drought Reservoir Levels

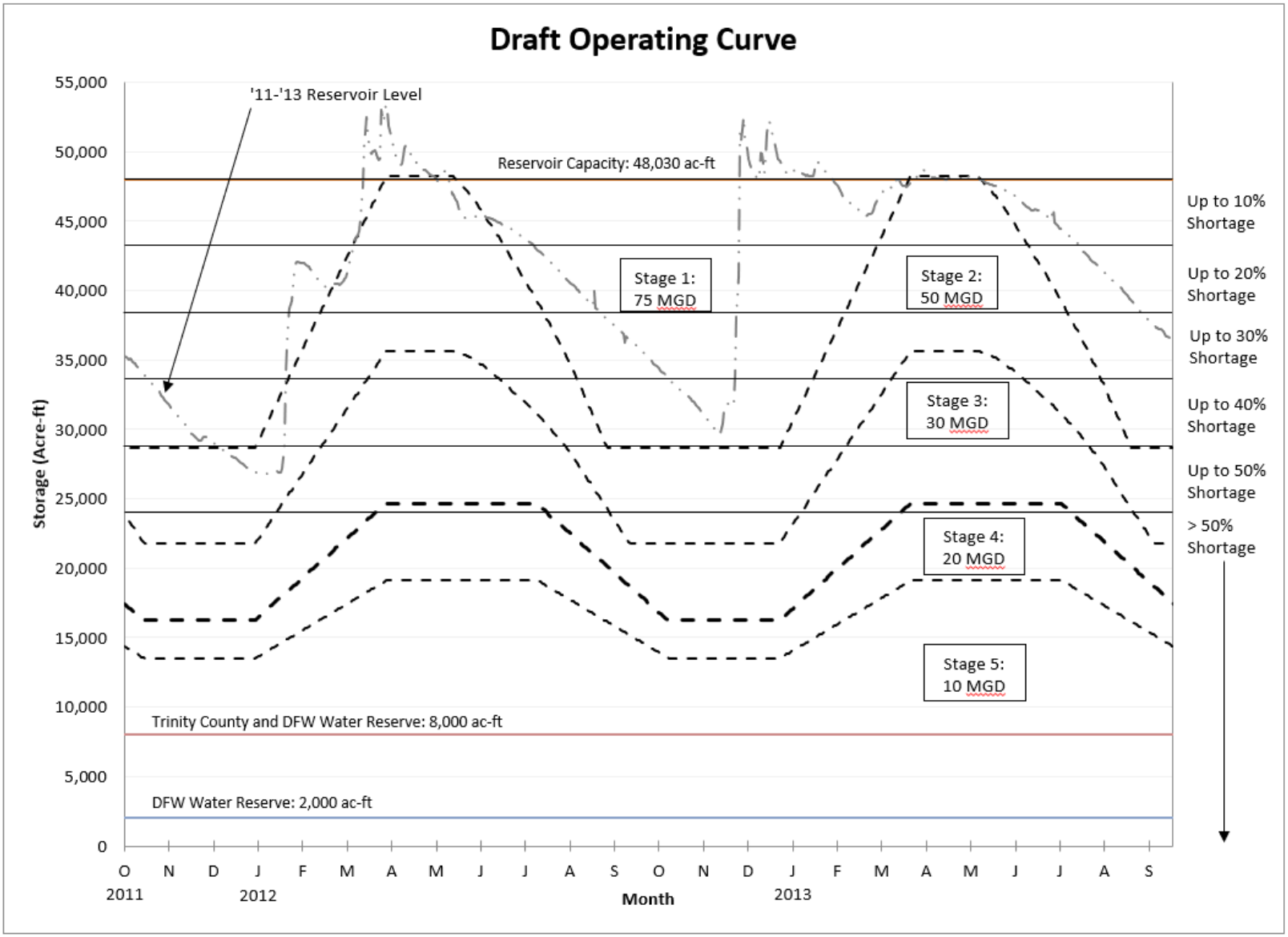

Figure 3: Ruth Lake operating curves with 2011-2013 Reservoir Levels

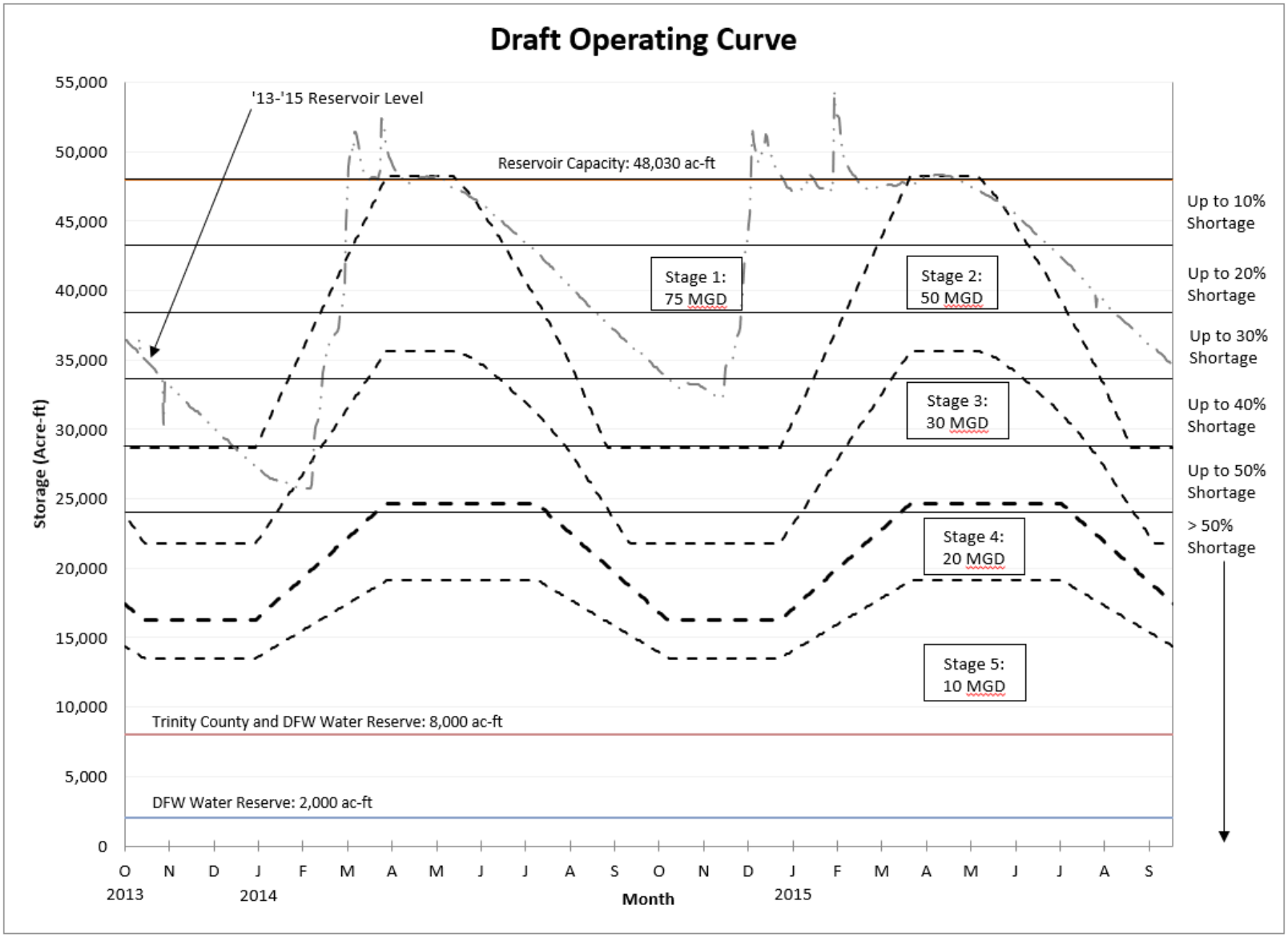

Figure 4: Ruth Lake operating curves with 2013-2015 Reservoir Levels

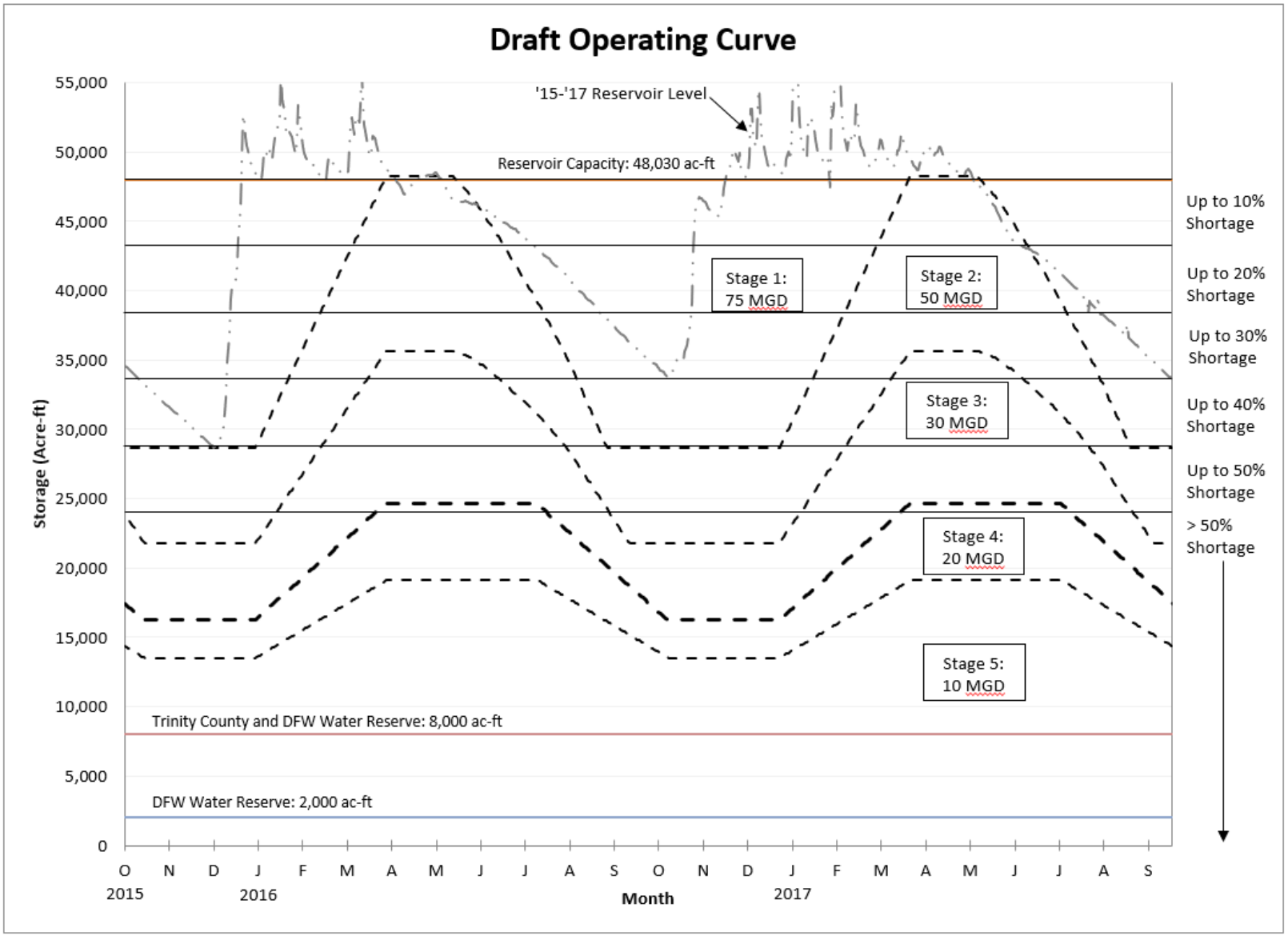

Figure 5: Ruth Lake operating curves with 2015-2017 Reservoir Levels

As the District, through its Water Resource Planning efforts, plans to service wholesale industrial water users in the future, the action stages and conditions are given with the assumption that the District is still operating at normal levels prior to loss of its wholesale industrial customers (i.e. 40 MGD is being supplied to industrial customers, and 10 MGD is being supplied to domestic customers). Without wholesale industrial customers, triggering of these stages would not occur as quickly and may not occur at all. Following is a narrative describing the stages given in Table 2 in further detail.

Stage 1 – Controlled Release from Storage

If the reservoir level is within the Stage 1 boundaries, only the amount of water needed for instream flow dedication and water supply purposes will be released from the reservoir.

Stage 2 – Optimizing Available Supply

Consideration to implement Stage 2 (50 MGD maximum draft rate) will be triggered when the storage in Ruth Lake falls below the 75 MGD operating curve. Other triggers to be considered for entering into the Stage 2 requirements include are damage to the system by flood, earthquake, or other system failures; and accidental or intentional toxic spills in the supply. The Water Task Force will review the trigger data and make recommendations regarding actual implementation of Stage 2.

In this stage, the draft rate will be limited to 50 MGD or less. Given current water consumption rates, reductions in water delivery may not need to be made to achieve this; however, entering Stage 2 means that awareness needs to be raised and customers need to begin public outreach and education, and potentially voluntary conservation measures. Customers will be notified of potential future reductions, and public education efforts encouraging water conservation should take place. If required, industrial and domestic deliveries will each be reduced by 5% (down to 38 MGD and 9.5 MGD, respectively). Shutting down hydro-electric production should also be considered, as hydro-electric production is incidental to water supply needs and not justification for releases.

Stage 3 – General Reduction

Consideration to implement Stage 3 will be triggered when the storage in Ruth Lake falls below the 50 MGD operating curve. The Water Task Force will review the trigger data and make recommendations regarding actual implementation of Stage 3.

If the reservoir storage level is within the Stage 3 boundaries, the draft rate will be limited to a maximum draft rate of 30 MGD. Based on current demand, domestic use will be reduced by 10% (down to 9 MGD), and delivery to industrial customers will be reduced by 50% (down to 20 MGD). Changes to the specific reduction will be determined on a biweekly basis based on rate of supply reduction, weather, and other relevant factors.

Stage 4 – Usage Allocations

Consideration to implement Stage 4 will be triggered when the storage in Ruth Lake falls below the 30 MGD operating curve. The Water Task Force will review the trigger data and provide input regarding actual implementation of Stage 4.

If the reservoir storage level drops into Stage 4, all of the District's wholesale and retail customers will be required to reduce usage by the amount necessary to limit consumption to 20 MGD. Domestic use will be reduced by 20% (down to 8 MGD), and industrial deliveries will be reduced by 70% (down to 12 MGD). Furthermore, each wholesale industrial customer will provide certification that water use is being optimized

and that wasteful use of water is not occurring. Changes to the specific reduction will be determined on a biweekly basis based on rate of supply reduction, weather, and other relevant factors.

Stage 5 – Rationing

Consideration to implement Stage 5 will be triggered when the storage in Ruth Lake falls below the 20 MGD operating curve. The Water Task Force will review the trigger data and provide input regarding the actual implementation of Stage 5.

If the reservoir storage level reaches Stage 5, the District's wholesale and retail customers will be limited to a total usage of 10 MGD. Wholesale industrial water usage will be limited to the amounts required for human consumption, sanitation, and fire protection. No water will likely be available for industrial processes. Domestic reduction will be approximately 30%. Municipal and retail customer usage will be reassessed on a bi-weekly basis and may be adjusted as determined by the rate of use of available supply and weather conditions.

1.4 Prohibitions on End Uses

The District does not have the ability to impose use restriction or other requirements directly on end users of the municipal customers' water. Each wholesale customer is responsible for adopting plans to implement the reductions in water use called for by the action stages outlined above. Effectiveness of this plan will be monitored on a daily basis using continuously metered data from Ruth Lake and the metered connections to all wholesale municipal and industrial customers.

1.5 Penalties, Charges, Other Enforcement of Prohibitions

As noted earlier in this plan, each wholesale customer is responsible for adopting plans to implement the reductions in water use called for by the action stages outlined above. Effectiveness of this plan will be monitored on a daily basis using continuously metered data from Ruth Lake and the metered connections to all wholesale municipal and industrial customers.

Table 3 shows examples of prohibitions and the stage when those prohibitions become mandatory. These prohibitions assume that the District is operating at normal levels prior to loss of its industrial customers.

Table 3: Water Shortage Contingency – Mandatory Prohibitions

Examples of Prohibitions	Stage when Prohibition Becomes Mandatory
Domestic use limited to 9 MGD, and industrial use limited to 20 MGD	3
Domestic use limited to 8 MGD, and industrial use limited to 12 MGD	4
Domestic use limited to 7 MGD, and industrial use limited to only the amounts required for human consumption, sanitation, and fire protection	5

1.6 Consumption Reduction Methods

As previously mentioned, the District does not have the ability to impose use restriction or other requirements directly on end users of the municipal customers' water. Each wholesale customer is responsible for adopting plans to implement the reductions in water use called for by the action stages outlined above. The District will also perform general voluntary water conservation measures in conjunction with its wholesale customers, as well as perform public education efforts to encourage water conservation. As storage levels in the reservoir drop, the District will work closely with its wholesale customers to attempt to minimize water consumption in the area, as well as minimize their own internal use. However, their internal usage is minimal, but items such as line flushing will be discontinued or kept to a bare minimum as required.

While the District does not have the ability to limit the amount of water delivered to its municipal customers, the District does have the ability to limit water delivered to potential industrial customers. Should a drought situation arise where action is required, delivery to industrial customers will be reduced as outlined in Section 1.1. Table 4 gives a summary of the consumption reduction methods and the stages when the method will take effect.

Table 4: Consumption Reduction Methods

Consumption Reduction Methods	Stage when Method Takes Effect
Release from storage only amount of water needed for in-stream and water supply purposes	1
General voluntary water conservation measures with wholesale customers	2
Public education efforts encouraging water conservation	2
Encourage all wholesale and retail customers to reduce usage. Require industrial customers to reduce usage.	3
Encourage all wholesale and retail customers to reduce usage further. Require industrial customers to further reduce usage.	4
No water for industrial processes and reduce wholesale and retail customer usage up to 50%	5

1.7 Determining Water Shortage Reductions

The District has water meters in place at all of the connections to the systems of each of its seven wholesale municipal customers. There are also meters at every residential connection, and a meter will be installed at any future industrial customer connection. To determine the actual reductions in use of water during a water shortage, the District will use its Supervisory Control and Data Acquisition (SCADA) system to monitor distribution to its customers on a daily basis. In the event of a power outage, the District has two auxiliary

power generators as standby power sources. The first generator is a 35 kW (kilowatt) generator and the second is a 2 MW (megawatt) generator. Therefore, the SCADA system will continue operating during power outages and continue monitoring distribution. Water shortage reductions will be determined by subtracting post-drought consumption rates from pre-drought consumption rates.

1.8 Revenue and Expenditure Impacts

Each wholesale customer must gage the revenue and expenditure impact of the action stages. The expenditure and revenue impacts on the District are negligible since the wholesale rates are designed to cover costs incurred by the District in producing and distributing the water. With less water to produce, there would be less expense incurred by the District. Therefore, expenditures and revenues for costs directly related to the amount of water produced (e.g. costs for power for pumping) will both decrease as deliveries of water are curtailed. If the shortage were to continue for a prolonged period, the District could reduce staff in order to cut costs as the District would not be producing and distributing water at normal levels. The District also has a reserve account to act as a buffer to cover fixed costs for a short period of time if the District were to need it.

1.9 Resolution or Ordinance

A copy of the District's draft Water Shortage Contingency Resolution for declaring a water shortage emergency and implementing the District's Water Shortage Contingency Plan is attached as Appendix D.

1.10 Catastrophic Supply Interruption

The District's Emergency Operations Plan (EOP) provides the overall response procedures for catastrophic supply interruptions. The EOP further provides specific procedures for power outages and for security incidents. The District's Emergency Action Plan (EAP) provides response procedures for catastrophic supply interruptions involving the R.W. Matthews Dam and Reservoir (Ruth Lake), such as an earthquake. The District's Operations Plan (OP) provides procedures for system failures. Hazardous materials incidents are covered by numerous response plans depending on the nature of the incident. Table 5 summarizes possible catastrophe events and the actions that would be taken or plans that would be implemented for each scenario.

Table 5: Preparation Actions for a Catastrophe

Possible Catastrophe	Summary of Actions/Plans
Regional Power Outage	Emergency Operations Plan-Power Outage Procedures
System Failure	Operations Plan for Water Supply, Treatment, and Distribution System
Earthquake	Emergency Operations Plan/ Emergency Action Plan (R.W. Matthews Dam at Ruth)
Hazardous Material Spill	Hazardous Materials Response Plans

Acts of Terrorism	Emergency Operations Plan-Security Procedures/ Emergency Action Plan (R.W. Matthews Dam at Ruth)

1.11 Minimum Supply Next Three Years

The three water years between October 1989 and September 1992 represent the driest three-year period recorded for the District:

- Rainfall for this period averaged 42 inches per year (60% of normal).
- Of the three water years, the driest year for rainfall was water year 1990/1991 with 37 inches (53% of normal).
- Flows into Ruth Lake above Zenia averaged 69,000 AFY, or 40% of normal (173,000 AFY).
- The runoff for the watershed above the District's diversion facilities was 371,300 AFY, or 37% of normal (982,600 AFY).
- Despite the diminished rainfall and runoff, rainfall was more than sufficient to refill the reservoir each year.
- Reservoir volume during this period averaged 37,000 AF which is 77% of capacity (48,030 AF) and 90% of normal (41,000 AF).

A plot of reservoir levels over the course of each respective water year from October 1989 through September 1992 is given as Figure 6. This figure shows that even in the three driest consecutive years of record, the reservoir still reached maximum capacity for each of the respective years and generally remained full for months each year. Furthermore, the District was still supplying industrial water during this time, whereas the District is currently only supplying domestic water. Given this, in the event that the next three years are hydrologically the same as the driest three consecutive years of record, the minimum available supply would be greater than the full reservoir level of 48,030 acre-feet for each year, as shown in Table 6.

Table 6: Minimum Supply Next Three Years

	2016	**2017**	**2018**
Available Water Supply	> 48,030 AF	> 48,030 AF	> 48,030 AF

A Rippl mass diagram was generated (Figure 7) using the same assumptions as given in Section **Error! Reference source not found.** to plot the cumulative inflow to the reservoir (less evaporation) and various cumulative draft rates. As seen in the figure, a constant draft rate of 38.5 MGD could be achieved if the hydrologic conditions of the drought of record (1976-77) were to be synthetically repeated for a three-year planning period. Current usage is approximately 10 MGD. Therefore, even if the single-year drought of record were repeated for three years, the District would still have a more than adequate water supply to serve its current customers' needs.

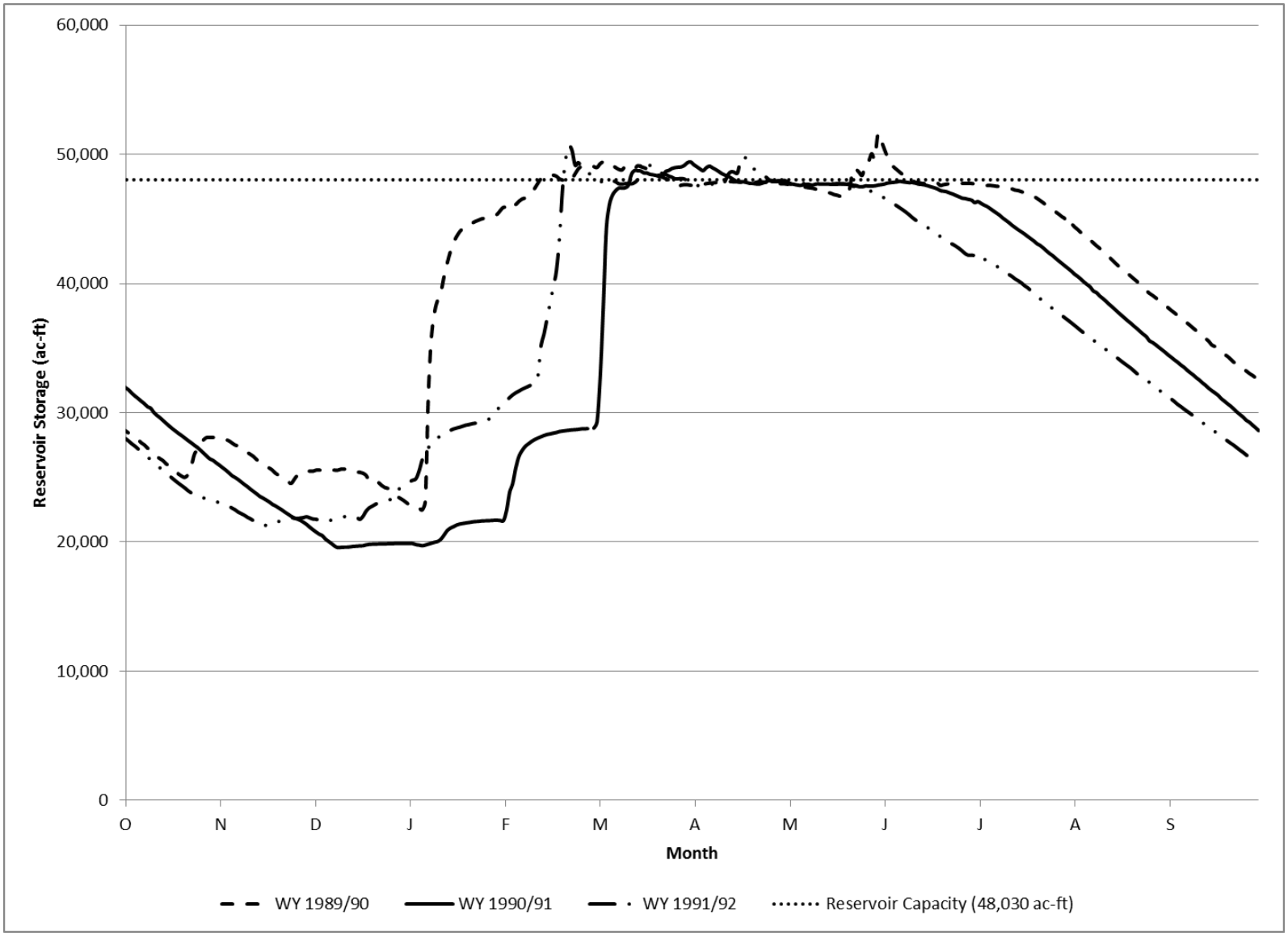

Figure 6: Ruth reservoir water storage levels for the driest three consecutive years of record

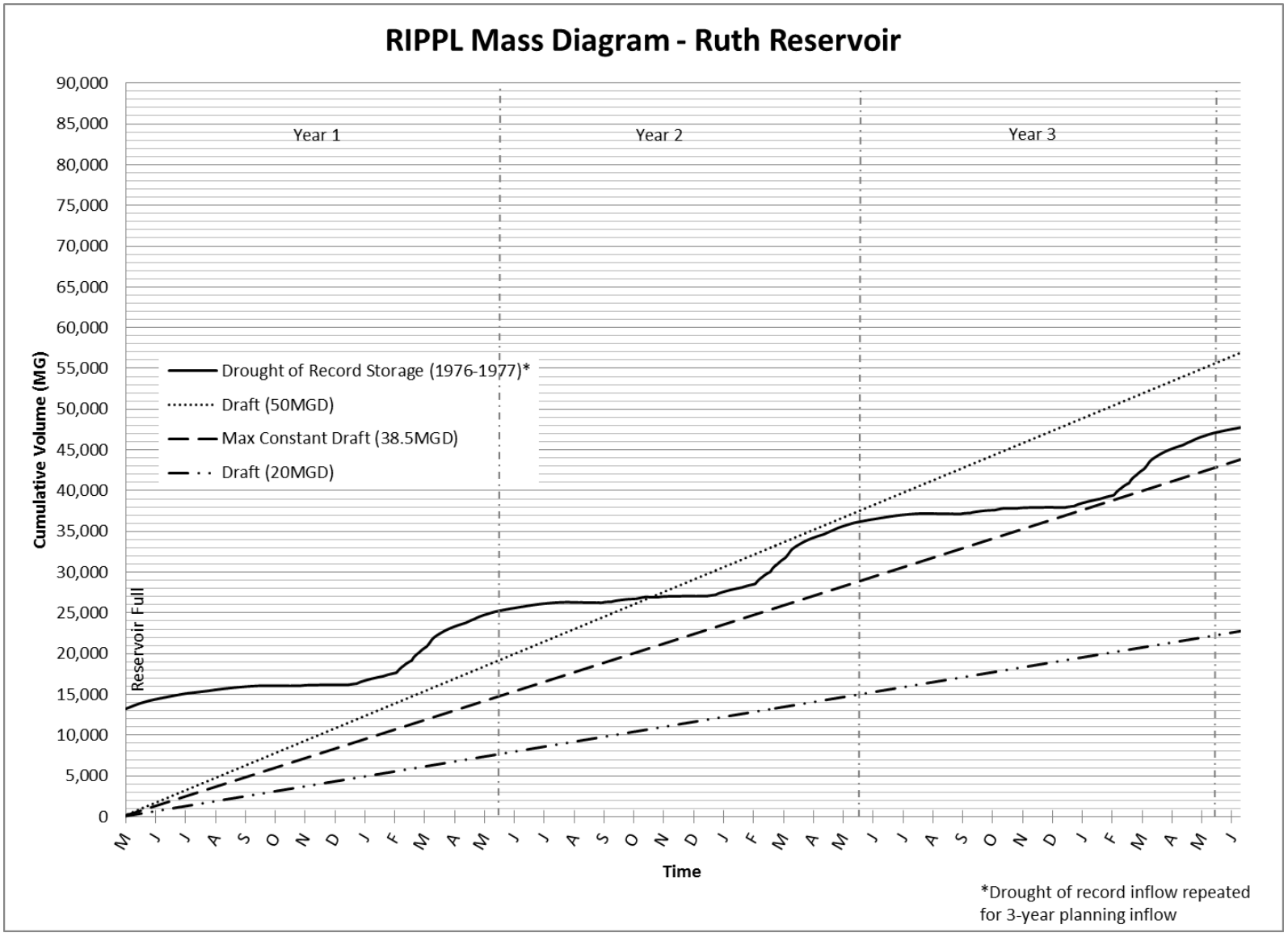

Figure 7: Rippl Mass Diagram with '76-'77 drought hydrologic information repeated for a three-year planning period

HUMBOLDT BAY MUNICIPAL WATER DISTRICT

Overview of Water Shortage Contingency Plan

Action Stage	Reservoir Capacity	Accumulated Rainfall	Actions	Estimated Savings
I	Not specified	Not specified	Release from storage only those volumes needed for instream and diversion purposes. Hydro production is incidental to water supply needs and not justification for releases.	
II	65% of Capacity (31,200 AF)	70% or less of historical average	▪ Voluntary domestic conservation ▪ Public education ▪ Reduce industrial peaking, if any	
III	40% of Capacity (19,200 AF)	60% or less of historical average	▪ 10% to 15% reduction by munis ▪ 10% to 15% reduction by industrial customer(s), if any	
IV	30% of Capacity (14,400 AF)	50% or less of historical average	▪ 16% to 30% reductions my munis ▪ 20% reduction by industrial customer(s), if any	
V	25% of Capacity (12,000 AF)	50% or less of historical average	▪ 30% to 50% reduction by munis ▪ Industrial deliveries limited to volumes required for fire protection. 100% curtailment of water for industrial use, if any	

Appendix E

MCSD Drinking Water Emergency Response Plan 2020

Table of Contents

1. INTRODUCTION

The purpose of this Drinking Water Emergency Response Plan (DWERP) is to continue minimum service levels and mitigate the public health risks from a drinking water outage or contamination that may occur during a disaster or other emergency. The following DWERP outlines how MCSD will respond to drinking water emergencies and/or disasters that are likely to affect its operation.

Disasters or emergencies that are likely to occur in the MCSD service area that are addressed are, earthquake, localized flooding, source water contamination, distribution system water contamination, and cyber-attacks.

1.1. Utility Information

McKinleyville is a small northern California coastal community located 280 miles north of San Francisco and is part of unincorporated Humboldt County CA. McKinleyville Community Services District (MCSD or District) is a retail drinking water supplier that purchases wholesale treated drinking water form Humboldt Bay Municipal Water District (HBMWD) and has 5,730 connections. The District boundary encompasses 12,616 acres ranging from North Bank Road on the south to Patrick's Creek Dr. on the north. The McKinleyville water system has four pressure zones, six storage tanks (5.25MG), two booster stations and 87.86 miles of distribution mains.

MCSD service area has a mix of residential, and commercial water use customers with a small institutional/governmental sector. McKinleyville has mostly residential dwellings served by a small commercial urban area. There is a U.S. Coast Guard Air Station, Federal Courthouse, and a Regional Airport within the service area. There are no industrial zoned parcels or accounts.

Utility System Name and Address: McKinleyville Community Services District
1656 Sutter Rd. McKinleyville, CA 95519

Utility System Number: 1210016

Population 2020: 17,190

Number of Connections 2020: 5,730

2. DESIGNATED RESPONSIBLE PERSONNEL

The Operations Director is responsible for maintaining, implementing, and submitting the Drinking Water Emergency Response Plan (DWERP).

Operations Director: James Henry

1656 Sutter Rd. McKinleyville, CA

Ph: 707 839-3251

A copy of the MCSD Drinking Water Emergency Response Plan shall be kept in the Operations Field Office and is available for review by request.

The following is a list of MCSD emergency response team members their roles and contact information.

Table 1. MCSD emergency response team responsibility and contact list.

Name	Responsibility	Contact
Patrick Kaspari	General Manager	707-599-5123
James Henry	Operations Director, Chief Plant Operator	707-496-2295
Erik Jones	Lead Person	707-496-8818
Chris Jones	Water/Wastewater Operator	707-502-8286
Kyle Stone	Water/Wastewater Operator	707-496-9208
Drew Small	Water/Wastewater Operator	707-362-1800
Seth Meynell	Water/Wastewater Operator	707-499-5910
Jordan Johnson	Water/Wastewater Operator	707-845-7815
Chris Reed	Equipment and Site Maintenance	707-599-5947
Duty Cell	Emergency Cell	707-601-9241

2.1. Incident Command System (ICS) Roles

MCSD employees are trained in the ICS process, roles, and structure. In the event of an emergency or disaster the following ICS roles have been assigned to the following employees:

- Public Information Officer – General Manager, Patrick Kaspari
- Incident Commander- Operations Director, James Henry
- Operations Section Chief – Operations Lead Person, Erik Jones
- Logistics Section Chief – Chris Jones

The MCSD field office will be the designated Emergency Operations Center (EOC). Local fire, police, and public works will be integrated into the response structure and vice versa.

3. OTHER AGENCY COORDINATION

MCSD shall coordinate with local, state, and federal agencies, to provide information regarding the extent of the damage/emergency and to seek guidance on appropriate protective actions following the incident.

The following is a list of emergency responders, partners, and local and state agencies with their contact information.

Table 2. External Response Partner Communication

Name or Agency	Role	Contact
Arcata Fire Department	Initial response to hazardous material spill or release, assist with community coordination.	9-1-1 or 707-839-2432
Humboldt County Sheriff's Office	Initial response to hazardous material spill or release, assist with community coordination.	9-1-1 or 707-445-7251
State Office of Emergency Services	In the event of a chemical release will determine level of response and whether to activate ICS	1-800-825-7550
Humboldt County Division of Environmental Health	Assist with spill/release response and community coordination	707-445- 6215
Emergency Medical Facility	Mad River Hospital 3800 Janes Rd. Arcata, CA	707-826-8264
Valley Pacific Petroleum Services	Fuel services 1100 West 14th St. Eureka, CA	1-800-266-3782 707-443-1645
Pacific Gas and Electric PG&E	PG&E 24hour service: 1-800-743-5000 PG&E info on outages: 1-800-743-5002 PG&E Office (Danna Cooper): Office: 209-848-6510 Cell: 209-879-3021	
Cal-WARN		

4. PUBLIC NOTIFICATION PROCEDURES

MCSD shall use the following methods and procedures to communicate to the public information regarding the emergency/disaster, the extent of the damage, estimated time for water service restoration, water quality information, and general safety.

All public notifications (Boil Water Notice, Unsafe Water Act) should be coordinated with California Department of Public Health (CDPH) District Engineer, Humboldt County

Environmental Health Department, and the County health officer prior to issuing a public notice. However, any one of the three agencies can act in an emergency to immediately issue a Boil Water Notice (BWN) or Unsafe Water Alert (UWA) if delays would jeopardize public health and safety. The CDPH District Engineer or MCSD must notify the county health department, and the county health officer prior to or immediately after issuing a public notice. Notice must be given directly to a person, a message left on an answering machine or voicemail is NOT sufficient to meet this requirement.

MCSD has a Water Quality Notification Plan on file with California State Water Resources Control Board for use during an emergency (Appendix B).

Critical customers shall be given priority notification due to their reliance on the water supply and significance to the community. The following customers have been identified as critical.

Table 3. Critical Customer List

Name	Address	Contact
Fresenius Dialysis	1550 Heartwood Dr	1-800-881-5101
Timber Ridge Nursing Home	1400 Nursery Way	707 839-9100
McKinleyville High School	1300 Murray Rd	707 839-6400
McKinleyville Middle School	Central Ave	707 839-1508
Dows Prairie Elementary	3940 Dows Prairie	707 839-1558
Morris Elementary	2395 McKinleyville Ave	707 839-1529
Humboldt County Airport	3561 Boeing Ave	707 839-5401
U.S. Coast Guard Air Station	1001 Lycoming Ave	707 839-6160
Holiday Inn Hotel	3107 Concord Dr.	707 840-9305

4.1. Public Communication and Media Outreach

MCSD shall use the following methods to communicate to the public information regarding the emergency/disaster, the extent of the damage, estimated time for water service restoration, water quality information, and general safety.

Door Hangers: Door hangers will be provided to all customers affected by the emergency or disaster when there is sufficient time to prepare, and the emergency/disaster does not require immediate notification. Door hangers will include type of emergency/disaster, water outage times, estimated return service time, drinking water instructions (boil, conserve, etc.), and District contact information.

Website: The MCSD website **(**MCSD.com**)** shall be utilized to share information with the public when there is sufficient time to prepare, and the emergency/disaster does not require immediate notification. Notifications will include information regarding the type of emergency/disaster, water outage times, estimated return service time, drinking water instructions (boil, conserve, etc.), District contact information, and links to local resources and emergency services.

Interactive Voice Response (IVR): When there is little time to notify customers and the public of a disaster/emergency that would affect the delivery or quality of drinking water, the

interactive voice response (IVR) system will be utilized. Notifications will include information regarding the type of emergency/disaster, water outage times, estimated return service time, drinking water instructions (boil, conserve, etc.), and District contact information.

News Media: When there is little time to notify customers and the public of a disaster/emergency that would affect the delivery or quality of drinking water, a public service announcement will be made on the local TV news channels. Notifications will include information regarding the type of emergency/disaster, water outage times, estimated return service time, drinking water instructions (boil, conserve, etc.), and District contact information. Only the General Manager can speak with the news media.

4.2. Boil Water Notice

MCSD shall issue a Boil Water Notice (BWN) when minimum bacteriological water quality standards cannot be reasonably assured. To assure public health protection a BWN shall be issued as soon as it is concluded by the designated personnel/agency that the water supply is or may be biologically unsafe (Appendix A).

Examples of these situations include:

1. Biological contamination of water supply system, including but not limited to:
    a. Positive total or fecal coliform bacterial samples.
    b. Prolonged water outages in areas of ruptured sewer and/or water mains.
    c. Failed septic tank systems and sewer mains in close proximity to ruptured water mains.
    d. Ruptured water treatment, storage, and/or distribution facilities in areas of know sewer spills.
    e. Known biological contamination.
    f. Cross-connection contamination problems.
    g. Illness attributed to water supply.
2. Unusual system characteristics, included but not limited to:
    a. Prolonged loss of pressure.
    b. Sudden loss of chlorine residual.
    c. Severe discoloration and odor.
    d. Inability to implement emergency chlorine.
3. Implemented due to treatment inadequacies.

4.3. Unsafe Water Alert “Do Not Drink”

In the event a known or suspected contamination event to a water system, where the contaminant may be chemical, biological, or radiological, an Unsafe Water Alert (UWA) or “Do Not Use” or “Do Not Drink” should be issued. Water should NOT be used for drinking, cooking, or sanitation purposes (Appendix A).

Examples of these situations include:

1. Known or suspected widespread chemical or hazardous contamination in water supply distribution, including but not limited to:
    a. Terrorist contamination event.

4.4. Cancellation of Public Notification

Once the BWN or UWA is issued, the only agency that can rescind the public notice is the drinking water primacy agency, California Department of Public Health (CDPH) and/or Humboldt County Department of Public Health. The ban will not be lifted for a microbial contaminant until two rounds, collected one day apart, for the coliform bacteria samples have been analyzed and the results are negative. The two samples' results shall be sent to the CDPH for final approval before rescinding the UWA.

5. ALTERNATIVE WATER SOURCES

MCSD is a retail water supplier that receives wholesale water from Humboldt Bay Municipal Water District via a sole transmission line. If an emergency/disaster causes the loss of that transmission line and MCSD cannot receive water, the MCSD/Arcata intertie can supply water between the two systems.

In the event the source water is contaminated emergency government support (Federal Emergency Management Agency FEMA) would be required to provide temporary drinking water stations or bottle water supplies throughout the community.

6. EMERGENCY RESPONSE PROCEDURES

This section of the MCSD DWERP contains plans, procedures, and equipment to be used in the event of a malevolent act or natural hazard that threatens the ability of MCSD to deliver safe drinking water.

MCSD staff will as quickly as possible, determine the status of other employees, assess damage to water system facilities, provide logistics for emergency repairs, monitor progress of repairs and restoration efforts, communicate with health officials and water users according to the MCSD "Water Quality Emergency Notification Plan" (Appendix A) on file with the regulatory agency.

Disasters/emergencies that are likely to occur in the water system's service area that are addressed are:

- Earthquake
- Localized Flooding
- Source Water Contamination
- Distribution System Contamination
- Cyber-Attack

Each disaster/emergency response procedure assessed is broken into four categories:

- Personnel: Identifies water system emergency/disaster personnel and responsibilities.
- Coordination: Coordination with partners, contractors, and governmental agencies.
- Notifications: Public notices and notification procedures.
- Assessment and Action Items: Assessment steps and action items to be taken.
- Documentation and Reporting: Document all damage assessments, mutual aid requests, emergency repair work, equipment used, purchases made, staff hours worked, and contractors used during the response.
- Follow-up Actions: Review and identify follow up actions.

In any event, the following general safety tips must be followed:

1. Analyze the type and severity of the emergency.
2. Take immediate action to save lives.
3. Take action to reduce injuries and system damage.
4. Make repairs based on priority demand.
5. Return the system to normal operation.

6.1. Earthquake Emergency Response Procedures

Earthquakes create many cascading and secondary impacts that may include, but not limited to:

- Structural damage to facility infrastructure and equipment.
- Water tank damage or collapse.
- Water source transmission line realignment or damage.
- Damage to distribution lines due to shifting ground and soil liquefaction, resulting in potential water loss, water service interruptions, low pressure, contamination, and sinkholes and/or large pools of water throughout the service area.
- Loss of power and communication infrastructure.
- Restricted access to facilities due to debris and damage to roadways.

In the event an earthquake occurs the following procedures are to be followed to prepare for, respond to, and recover from the event and to ensure minimum service levels and to mitigate health risks to the public and staff.

Personnel

1. Account for all personnel and provide emergency care if needed. Caution personnel about known hazards resulting from earthquakes.
2. Deploy emergency operations and clean-up crews. Identify key access points and route for employees to enter utilities and critical infrastructures.
3. Coordinate the need for debris clearing with local emergency management authorities.
4. Ensure there is no threat of tsunami or aftershocks.

Coordination

1. Notify the local Emergency Management Authority (EMA) and State regulatory primacy agency of system status.
2. If needed, request or, offer assistance, through mutual aid networks.
3. Assign Operations Director to the Incident Commander post within MCSD's National Incident management System (NIMS).

Notifications

1. Notify customers of any water advisories. Consider utilizing the local media to distribute information. If emergency water is being supplied, provide information on the distribution location.
2. Have the General Manager communicate with customers concerning a timeline for recovery and any other pertinent information.

Assessment and Action Items

1. Conduct damage assessments of the utility to prioritize repairs and other actions.
2. Check that back-up equipment and facilities, such as controls and pumps, are in working order, and ensure that chemical containers and feeders are intact.

3. Inspect the utility and service area for damage. Identify facility infrastructure, (storage tanks, valves, hydrants, mains), that have been buried, are inaccessible, or have been damaged or destroyed.
4. Ensure pressure is maintained throughout the system and isolate those sections where it is not.
5. Isolate and control leaks in Water transmission and distribution lines.
6. Turn off Water meters at destroyed homes and buildings.
7. Monitor water quality, develop a sampling plan, and notify accordingly.
8. Notify regulatory/primacy agency if operations and/or water quality or quantity are affected.
9. Utilize pre-established emergency connections or setup temporary connections to nearby communities, as needed. Alternatively, implement plans to draw emergency water from pre-determined tanks or hydrants.
10. Use back-up generators, as needed, to supply power to system components.

Documentation and Reporting

1. Document all damage assessments, mutual aid requests, emergency repair work, equipment used, purchases made, staff hours worked, and contractors used during the response, to assist in requesting reimbursement and applying for federal disaster funds. When possible, take photographs of damage at each worksite (with time and date stamp). Proper documentation is critical to requesting reimbursement.

Follow-up Actions

1. Complete permanent repairs, replace depleted supplies and return to normal service.
2. Identify mitigation and long-term adaptation measures that can prevent damage and increase utility resilience. Consider impacts related to earthquakes when planning for system upgrades.

6.2. Localized Flooding Emergency Response Procedures

Flooding is common throughout much of the United States and can be caused by heavy precipitation events, storm surge, levee or dam failures or inadequate drainage. These events often occur with little or no notice and can cause extensive damage to drinking water and wastewater infrastructure. Flooding impacts to utilities often include, but are not limited to:

- Infrastructure damage, possibly resulting in service interruptions.
- Pipe breaks due to washouts, which could result in sewage spills or low water pressure throughout the service area.
- Debris blockage at an intake or unearthed water and wastewater lines due to falling trees.
- Loss of power and communication lines.
- Combined sewer overflows (CSOs).
- Water quality changes to source waters and treated effluents, including increased turbidity, increased nutrients and other potential contaminants.
- Restricted access to the facility due to debris, flood waters and damage to roadways from washouts and sinkholes.
- Loss of water quality testing capability due to restricted facility and laboratory access and damage to utility equipment

In the event localized flooding occurs the following procedures are to be followed to prepare for, respond to, and recover from the event and to ensure minimum service levels and to mitigate health risks to the public and staff.

Personnel

1. Account for all personnel and provide emergency care if needed. Caution personnel about known hazards resulting from flooding.
2. Deploy emergency operations and clean-up crews. Identify key access points and route for employees to enter utilities and critical infrastructures.
3. Coordinate the need for debris clearing with local emergency management authorities.

Coordination

1. Notify the local Emergency Management Authority (EMA) and State regulatory primacy agency of system status.
2. If needed, request or, offer assistance, through mutual aid networks.
3. Assign Operations Director to the Incident Commander post within MCSD's National Incident management System (NIMS).

Notifications

1. Notify customers of any water advisories. Consider utilizing the local media to distribute information. If emergency water is being supplied, provide information on the distribution location.

2. Have the General Manager communicate with customers concerning a timeline for recovery and any other pertinent information.

Assessment and Action Items

1. Conduct damage assessments of the utility to prioritize repairs and other actions.
2. Check that back-up equipment and facilities, such as controls and pumps, are in working order, and ensure that chemical containers and feeders are intact.
3. If necessary and possible, turn off all utilities (electric, gas) associated with your facility to prevent further damage and minimize electrical and explosive hazards.
4. Inspect the utility and service area for damage due to downed trees and flood waters. Identify facility infrastructure, (storage tanks, valves, hydrants, mains), that have been buried, are inaccessible, or have been damaged or destroyed.
5. Ensure pressure is maintained throughout the system and isolate those sections where it is not.
6. Isolate and control leaks in water transmission and distribution lines.
7. Turn off Water meters at destroyed homes and buildings.
8. Monitor water quality, develop a sampling plan, and notify accordingly.
9. Notify regulatory/primacy agency if operations and/or water quality or quantity are affected.
10. Utilize pre-established emergency connections or setup temporary connections to nearby communities, as needed. Alternatively, implement plans to draw emergency water from pre-determined tanks or hydrants.
11. Use back-up generators, as needed, to supply power to system components.

Documentation and Reporting

1. Document all damage assessments, mutual aid requests, emergency repair work, equipment used, purchases made, staff hours worked, and contractors used during the response, to assist in requesting reimbursement and applying for federal disaster funds. When possible, take photographs of damage at each worksite (with time and date stamp). Proper documentation is critical to requesting reimbursement.

Follow-up Actions

1. Complete permanent repairs, replace depleted supplies and return to normal service.
2. Identify mitigation and long-term adaptation measures that can prevent damage and increase utility resilience. Consider impacts related to earthquakes when planning for system upgrades.

6.3. Source Water Contamination Emergency Response Procedures

Drinking water contamination can result in several adverse consequences to the public and the distribution system. Preparing a response procedure for such an occurrence enables a utility to effectively manage the incident to limit these consequences, providing a decision-making framework for implementing activities that, ultimately, returns the system to normal operations.

MCSD is retail water supplier and does not manage or draw source water. Humboldt Bay Municipal Water District HBMWD is the regional water supplier and is responsible for source water testing and quality.

In the event MCSD is notified by HBMWD, or Department of Public Health, that the source water is contaminated, the following procedures are to be followed to ensure minimum service levels and to mitigate health risks to the public and staff.

In the event the MCSD water system is contaminated, by a known or unknown source, the following procedures are to be followed to prepare for, respond to, and recover from the event and to ensure minimum service levels and to mitigate health risks to the public and staff.

Personnel

1. Account for all personnel and provide emergency care if needed. Caution personnel about contaminated drinking water and known hazards.

Coordination

1. Notify the local Emergency Management Authority (EMA) and State regulatory primacy agency of system status.
2. If needed, request or, offer assistance, through mutual aid networks.
3. Remain in communication with HBMWD to receive updates regarding the emergency.
4. Assign Operations Director to the Incident Commander post within MCSD's National Incident management System (NIMS).

Notifications

1. Notify customers of any water advisories or shut offs. Consider utilizing the local media to distribute information. If emergency water is being supplied, provide information on the distribution location.
2. Have the General Manager communicate with customers concerning a timeline for recovery and any other pertinent information.
3. Contact the primacy agency to determine public notification requirements as soon as practical, but not later than 24 hours after learning of the situation.
4. Issue notifications of use restrictions.

a. Types of use restrictions include instructions to “do not use,” “do not drink,” or “boil water.” Depending on the restriction, this notification should be closely coordinated with the provision of alternate sources of drinking water.

Assessment and Action Items

1. Establish isolation and flushing priorities and scheduling. Coordinate with HBMWD & Dept. of Public Health.
2. Coordinate a water sampling plan with HBMWD & Dept. of Public Health.
3. Continue sampling and monitoring to verify removal of the contamination.
4. Establish clean water stations for the public.
5. Assist HBMWD and Dept. of Public Health in the investigation of the source of contamination and remediation efforts.

Documentation and Reporting

1. Document all damage assessments, mutual aid requests, emergency repair work, equipment used, purchases made, staff hours worked, and contractors used during the response, to assist in requesting reimbursement and applying for federal disaster funds. When possible, take photographs of damage at each worksite (with time and date stamp). Proper documentation is critical to requesting reimbursement.
2. Document all samples taken, include, date, time, location and who the sample was taken by.

Follow-up Actions

1. Complete permanent sampling, repairs, replace depleted supplies and return to normal service.
2. Identify mitigation and long-term adaptation measures that can prevent damage and increase utility resilience. Consider impacts related to earthquakes when planning for system upgrades.

6.4. Distribution System Water Contamination Emergency Response Procedures

Drinking water contamination can result in several adverse consequences to the public and the distribution system. Preparing a response procedure for such an occurrence enables a utility to effectively manage the incident to limit these consequences, providing a decision-making framework for implementing activities that, ultimately, returns the system to normal operations.

In the event the MCSD water system is contaminated, by a known or unknown source, the following procedures are to be followed to prepare for, respond to, and recover from the event and to ensure minimum service levels and to mitigate health risks to the public and staff.

Personnel

1. Account for all personnel and provide emergency care if needed. Caution personnel about contaminated drinking water and known hazards.

Coordination

1. Notify the local Emergency Management Authority (EMA) and State regulatory primacy agency of system status.
2. Notify Humboldt County Department of Public Health (HCDPH) of contamination.
3. If needed, request or, offer assistance, through mutual aid networks.
4. Remain in communication with EMA & HCDPH to receive updates regarding the emergency.
5. Assign Operations Director to the Incident Commander post within MCSD's National Incident management System (NIMS).

Notifications

1. Notify customers of any water advisories or shut offs. Consider utilizing the local media to distribute information. If emergency water is being supplied, provide information on the distribution location.
2. Have the General Manager communicate with customers concerning a timeline for recovery and any other pertinent information.
3. Contact the primacy agency to determine public notification requirements as soon as practical, but not later than 24 hours after learning of the situation.
4. Issue notifications of use restrictions.
    a. Types of use restrictions include instructions to "do not use," "do not drink," or "boil water." Depending on the restriction, this notification should be closely coordinated with the provision of alternate sources of drinking water.

Assessment and Action Items

1. Establish isolation and flushing priorities and scheduling. Coordinate with HBMWD & Dept. of Public Health.
2. Coordinate a water sampling plan with Dept. of Public Health.
3. Continue sampling and monitoring to verify removal of the contamination.
4. Establish clean water stations for the public.
5. Assist the Dept. of Public Health in the investigation of the source of contamination and remediation efforts.

Documentation and Reporting

1. Document all damage assessments, mutual aid requests, emergency repair work, equipment used, purchases made, staff hours worked, and contractors used during the response, to assist in requesting reimbursement and applying for federal disaster funds. When possible, take photographs of damage at each worksite (with time and date stamp). Proper documentation is critical to requesting reimbursement.
2. Document all samples taken, include, date, time, location and who the sample was taken by.

Follow-up Actions

1. Complete permanent sampling, repairs, replace depleted supplies and return to normal service.
2. Identify mitigation and long-term adaptation measures that can prevent damage and increase utility resilience. Consider impacts related to earthquakes when planning for system upgrades.

6.5. Drinking Water System Cyber Attack Emergency Response Procedures

Cyberspace and its underlying infrastructure are vulnerable to a wide range of hazards from both physical attacks as well as cyberthreats. Sophisticated cyber actors and nation-states exploit vulnerabilities to steal information and money and are developing capabilities to disrupt, destroy or threaten the delivery of essential services such as drinking water and wastewater.

Potential cyber-attack impacts to drinking water and wastewater utility may include but are not limited to:

- Interruption of treatment, distribution, or conveyance processes from opening and closing valves, overriding alarms or disabling pumps or other equipment.
- Theft of customers personal data such as credit card information and social security numbers stored in on-line billing systems.
- Defacement of the utilities website or compromise of the email system.
- Damage to system components.
- Loss of use of industrial control systems, such as SCADA, for remote monitoring of automated treatment and distribution processes.

MCSD currently contracts with Infinite Consulting for Information Technology (IT) systems services.

Infinite Consulting Services 1690 Sutter Rd. McKinleyville, CA 95519

Contact: Ezequiel Sandoval **Ph:** 707 830-4427

In the event MCSD is compromised by a cyber-attack, the following procedures are to be followed to prepare for, respond to, and recover from a cyber-attack and maintain minimum service levels and to mitigate health risks to the public and staff.

Personnel

1. Account for all personnel and provide emergency care if needed. Caution personnel about cyber-attacks and known hazards.
2. MCSD General Manager will coordinate with the IT system manager/contractor and oversee all cyber-related duties and provide guidance on moving forward.
3. Train personnel to perform critical functions manually during a cyber incident that disables business enterprise, process controls and communication systems.

Coordination

1. Report the incident immediately to the General Manager
2. Report the incident immediately to Infinite Consulting Services.
3. Report the cyber incident as required to law enforcement and regulatory agencies.

Notifications

1. Notify the IT vendor (Infinite Consulting) of the incident and the need for emergency response assistance.
2. Notify Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency (CISA) they can assist with IT system response and recovery.
    a. Ph: 1-888-282-0870.
3. Notify any external entities that may have remote connections to the affected network.

Assessment and Action Items

1. If possible, disconnect compromised computers from the network to isolate breached components and prevent further damage, such as the spreading of malware. DO NOT turn off or re-reboot computer systems, this preserves evidence and allows for an assessment to be performed.
2. Assess any damage to utility systems and equipment along with disruptions to utility operations.
3. Review system and network logs and use virus and malware scans to identify affected equipment, systems, accounts, and networks.
4. Document which user accounts were or are logged on, which programs and processes were or are running, any remote connections to the affected IT systems or network(s) and all open ports and their associated applications.
5. If possible, take a "forensic image" of the affected IT systems to preserve evidence. Tools to take forensic images include Forensic Tool Kit (FTK) and EnCase.
6. If possible, identify any malware used in the incident, any remote servers to which data may have been sent during the incident, and the origin of the incident. DHS CISA can assist with the forensic analysis (www.cisa.gov/reportingcyber-incidents).
7. Research and identify if any employee or customer personally identifiable information (PII) was compromised.
8. Remove any malware, corrupted files and other changes made to IT systems by the incident.

Documentation and Reporting

1. Document key information on the incident, including any suspicious calls, emails, or messages before or during the incident, damage to utility systems, and steps taken in response to the incident (including dates and times).
2. Document all findings and avoid modifying or deleting any data that might be attributable to the incident.

Follow-up Actions

1. Continue to work with IT staff, vendors and integrators, government partners and others to obtain needed resources and assistance for recovery.
2. Notify affected employees and customers if any PII was compromised.
3. Submit an incident report through WaterISAC (866-H2O-ISAC). Membership is not required to submit a report.
4. Install patches and updates, disable unused services, and perform other countermeasures to harden the system against known vulnerabilities that may have been exploited.
5. Restore IT systems as required (e.g., re-image hard drives, reload software). DHS CISA can assist with the IT system recovery (https:// www.cisa.gov/reporting-cyber-incidents).
6. Restore compromised files from a system back-up that has not been compromised.

7. RETURN TO NORMAL OPERATIONS

After the disaster/emergency has ended MCSD shall resume normal operations and submit all reports, financial requests, sampling data, and system status, to the appropriate agencies in a timely manner.

- Ensure leaks are contained and system integrity is sound.
- Ensure system pressure is restored, increase production, if possible, to provide maximum system output.
- Increase system disinfectant residual and disinfect all repairs per AWWA standards.
- Ensure all water quality tests, and necessary system flushing, and disinfection are complete.
- Coordinate with county and state on system condition and water quality results.
- Coordinate with county and state agencies to rescind all water notices.
- Submit all reports, sampling data, and actions taken, and financial requests to proper agencies.

8. MITIGATION ACTIONS AND DETECTION STRATEGIES

This section of the DWERP includes mitigation actions and detection strategies MCSD has taken to significantly lessen the impact of a malevolent act or natural hazard on the public health safety and supply of drinking water provided.

8.1. Mitigation Actions

The following mitigation actions are in place or are proposed to lessen the impact of a malevolent act or natural hazard.

1. Installation of back up batteries to provide power during outages and events.
2. United States Geological Survey (USGS) seismic sensors are placed throughout the community to assist in earthquake detection.
3. Seismic valves are in place to isolate water in the event an earthquake causes main breaks.
4. Installation of motion sensor lighting to remote stations and facilities.
5. Installation of fire alarms and detection alarm systems managed through a security company.

8.2. Detection Strategies

This section outlines strategies in place to aid in the detection of malevolent acts or natural hazards that threaten the security and resilience of the water system.

8.2.1. Unauthorized Entrant into Utility Facilities

Unauthorized entrants into utility facilities can cause damage to facilities and infrastructure, potentially contaminate the drinking water system, and possibly cause

harm or death to unauthorized entrants. The following detection strategies are in place to provide an effective and timely response to unauthorized entrants into utility facilities.

1. Maintained and tested intrusion detection systems
2. Perimeter fencing with locks.
3. Notifications from law enforcement officers and community watch groups.

8.2.2. Water Contamination

Distribution system contamination can occur under a variety of circumstances, including natural, accidental, and intentional causes. The following detection strategies are in place to provide an effective and timely response to water system contamination.

1. Source water contamination detection is the responsibility of HBMWD, MCSD coordinates with HBMWD daily and shall assist in detection and sampling efforts.
2. Distribution system contamination can be detected through the following:
    a. Systematic tracking of customer complaints.
    b. Public health surveillance.
    c. Physical security monitoring at access point to finished water.
    d. Grab sample analysis.
    e. Online water quality monitoring.

8.2.3. Natural Hazards

Natural hazards such as earthquakes, flooding and extreme weather can cause damage to the water utility and staff. The following detection strategies are in place to provide an effective and timely response to natural hazards.

1. Utilize local, state, and national emergency alert systems regarding earthquakes, flooding, and extreme weather.
2. USGS has seismic monitors placed throughout the system for earthquake detection.
3. Water tanks have seismic valves that will close in the event of an earthquake.

8.2.4. Cyber Attack

Cyber incidents can compromise the ability to provide clean and safe water, erode customer confidence, and result in legal and financial liabilities. The following detection strategies are in place to provide an effective and timely response to a cyber-attack.

1. MCSD contracts with Infinite Consulting to provide IT security and management.
2. All MCSD computers are firewall protected with the latest malware and anti-virus software.

8.2.5. Power Outages

Power outages, planned or unplanned, can impact water system operations, facilities, and treatment processes. The following detection strategies are in place to provide an effective and timely response to power outages.

1. Ensure all power utility contacts are up to date.
2. Ensure PG&E has the current contact information for MCSD.
3. Utilize local, state, and national emergency alert systems regarding power outages.
4. Back-up generators and batteries are installed at each facility.

9. PLAN SUBMITTAL

Each community water system serving more than 3,300 persons must review its risk and resilience assessment at least **once every five years** to determine if it should be revised. Upon completion of such a review, the system must submit to the EPA a certification that it has reviewed its assessment and revised it, if applicable.

Further, each community water system serving more than 3,300 persons must review and, if necessary, revise its emergency response plan at least once every five years after the system completes the required review of its risk and resilience assessment. The emergency response plan must incorporate any revisions to the risk and resilience assessment. Upon completion of such a review, but not later than six months after certifying the review of its risk and resilience assessment, the system must submit to the EPA a certification that it has reviewed its emergency response plan and revised it, if applicable**.**

Step 1 - **Account Registration:** From our America's Water Infrastructure Act Certification page, select the "Certify my community water system's risk and resilience assessment" link.

Begin by registering your community water system. If you do not have an existing U.S. EPA Shared CROMERR Services (SCS) account, select "Register a new account" to sign up, otherwise login with your User ID and password.

Once you register, future risk and resilience assessment or emergency response plan certifications can be completed in a few simple clicks. If you need assistance or have questions about the certification process, please reach out to the U.S. EPA via email at helpdesk@epacdx.net or call 888-890-1995 (Option 2).

Step 2 - **PWSID Number:** Next enter your community water system's PWSID number, including your two-character primacy agency abbreviation, such as your state, territory, or tribal nation abbreviation, followed by the full seven-digit identification number, with no spaces in between, then select "Continue. You'll then see a pop-up to ensure your PWSID number is correct. Recheck your input, then select "Continue" again.

Step 3 - **Terms and Conditions:** Read and accept the terms and conditions, click the box certifying your acceptance, then click "Accept."

Step 4 - Account Details: Now it is time to build your "Account Profile." Enter the required information in the Account Owner section. Required fields are indicated with an asterisk (*). The system does require your First and Last names, as well as your email address. December 06, 2019 2 Create your User ID and password. The password must be at least eight characters long and contain at least one uppercase letter, one lowercase letter, and one number. Confirm your password, then select and complete the three security questions. The answers to these questions will be used to recover your password if it is forgotten. You may click the box on the bottom left-hand side of the screen to Show Passwords and Answers to ensure that you have typed in the correct entries. Note that you may create a PDF of your answers and keep a password protected digital copy or print your responses and keep them in a safe place. Now select "Continue" to move on to the next screen.

Step 5 - Organization or Community Water System Information: On this page you'll encounter one of two scenarios:

Scenario 1: If your community water system is listed below.

- Click on the community water system name.
- Click the "Select1" icon next to your address.
- Click the "Continue" icon at the bottom right-hand side of the screen.
- Click the "Add new address" link. If your address information is incorrect, supply the correct information, then click "Continue."

Scenario 2: If your community water system is not listed below.

- Enter your community water system's name in the search box.
- Click on your community water system's information, then click the "Continue" icon at the bottom right-hand side of the screen.
- If problems persist in identifying your system, select the "Enter a new organization" link, add your information, then click the "Continue" icon. Alternatively, you may want to ensure your PWSID number is correctly entered by clicking the "Program Identification" link in the upper left-hand toolbar of this screen. When applicable, correct your information and continue.

After walking through one of these two scenarios, click "Continue."

Step 6 - Email Validation: After entering your community water system's information, you will receive an automated email from SCS Administrator in your email inbox containing an account validation code. Enter the validation code into the "Code" field under your User ID and select "Create Account." This code is only used for account creation and you do not need to save it.

Your account is now created. You will be directed to your Dashboard where you will see your pending actions. A second email is also sent to your email inbox from SCS Administrator stating that your account has been activated.

Step 7 – Vulnerability Assessments Submitted to U.S. EPA Under the Public Health Security and Bioterrorism Preparedness and Response Act of 2002: Under the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, your community water system likely submitted a vulnerability assessment to U.S. EPA. On this screen you will be asked if you want that vulnerability assessment: 1) permanently disposed of by U.S. EPA; 2) returned to you; or 3) if the scenario is not applicable. Make your choice and click "Submit." After you select "Submit," you will be presented with a pop-up message asking you to certify your risk and resilience assessment either now or later.

You may select "Certify Later," if you want to use your original vulnerability assessment to inform your new risk and resilience assessment or for any other reason. If you do select "Certify Later," you will be able to login into this system with just your User ID and Password to complete the risk and resilience assessment or emergency response plan certification process. Please be advised that it may take up to 60 days for U.S. EPA to return your vulnerability assessment.

Step 8 - Certification Selection Process: The next step is to certify your pending actions. The certification processes for the Risk and Resilience Assessment and Emergency Response Plan are very similar, so for demonstration purposes, we will choose to click on "Certify your Risk and Resilience Assessment." Step 9 - Certification Statements: You will be presented with your standard Risk and Resilience Assessment certification statement, which is based on the language in Section 2013 of America's Water Infrastructure Act. Your name, community water system's name, and population served will be auto-populated into the certification statement. Please review the statement. If you need to, you can edit your community water system's name and its population served. Once you verify your information, select the "Certify Now" icon on the bottom left of your screen.

Prior to certification, you may also print this page as a record for your files and you will receive an acknowledgment of receipt email from U.S. EPA (scs@epacdx.net) when your certification is completed.

If you run into any issues, please click on the "Contact Us" link in the top right of your screen.

Once you have certified your Risk and Resilience Assessment a pop-up message will appear on your screen asking if you want to certify your Emergency Response Plan now or later. You may not be ready to certify your Emergency Response Plan at this time, so you may select "Certify Later;" this selection will return you to the homepage.

If you are ready to certify your Emergency Response Plan, select "Certify Now." This will open a page that prompts you to enter your PWSID number. Use the "Select" button to enter your organization or community water system as you did under the Enter Organization Information process above.

Once you have opened the certification page, as before, you will have the ability to edit your community water system's name and population served before submitting. Prior to certification,

you may also print this page as a record for your files and you will receive an acknowledgment of receipt email from U.S. EPA (scs@epacdx.net) once certification is completed.

Step 10 - Future Logins: Once these steps are completed, you will be able to simply login with your established User ID and password to certify your risk and resilience assessment or emergency response plan in the future.

Appendix F

The Humboldt County Operational Area Hazard Mitigation Plan, McKinleyville Community Services District 2020

12. McKinleyville Community Services District

12.1 Hazard Mitigation Plan Point of Contact

Primary Point of Contact
Gregory Orsini, General Manager
1656 Sutter Road
McKinleyville, CA 95519
Telephone: 707-839-3251
e-mail Address: mcsdgm@mckinleyvillecsd.com

Alternate Point of Contact
James Henry, Operations Director
1656 Sutter Road
McKinleyville, CA 95519
Telephone: 707-839-3251
e-mail Address: jhenry@mckinleyvillecsd.com

12.2 Jurisdiction Profile

12.2.1 Overview

The McKinleyville Community Services District serves McKinleyville, a small community north of the Mad River in Humboldt County. The District was formed on April 14, 1970 when residents voted for water and sewer services. At later dates, drainage, street lights, parks and recreation and library services were added to the District's authorities. The District purchases all drinking water from Humboldt Bay Municipal Water District. Wastewater is collected and treated within the District then discharged to the Mad River in winter. During summer, treated effluent is recycled by pasture irrigation to ranch lands.

Most water and sewer revenues are from monthly service charges. The District receives a small percentage of property tax to fund its park and recreation department. Additionally, area residents have voted to approve Proposition 218 assessment districts for the library, park and recreation, street lights and open space.

The District is governed by a five member publicly elected Board that meets monthly. The Board assumes responsibility for the adoption of this plan; the General Manager will oversee its implementation. The District currently has a staff of 26 full-time benefitted employees and 60 seasonal and part-time employees.

12.2.2 Service Area and Trends

The McKinleyville Community Services District serves an area of about 12,140 acres located between Little River on the north and the Mad River on the south. It is primarily a residential area with light commercial and no heavy industry. The District serves a population of about 17,000 with 5700 water services 4840 sewer services.

Prior to the last hazard mitigation plan, the District had seen approximately a 3% growth rate for sewer and water services over the previous 25 years. Growth during the last 5 years has leveled off, as McKinleyville builds out. The population growth is averaging around 1.8% annually but has been dropping steadily as more seniors and single parents move into the area and has been at 1.43% based on U.S. Census data from 2010 to 2015.

Expansion projects will include a new water reservoir, water and sewer line replacement projects, and upgraded pumping stations for water and sewer to accommodate the expected growth. The District expects growth to slow

over the next 5 year cycle due to infrastructure costs and land availability and will focus on upgrading and replacing existing infrastructure.

12.2.3 Assets

Table 12-1 summarizes the critical assets of the district and their value.

Table 12-1. Special Purpose District Assets

Asset	Value
Property	
356 acres of land	$5,385,225
Equipment	
Street Lights	$534,837
Vehicles	$1,128,372
Tools and Equipment	$1,422,376
Total Equipment:	$3,085,585
Critical Facilities and Infrastructure	
Wastewater Treatment Facility	--
Fischer Lift station – APN 508-038-000	--
Hiller Lift Station	--
B Street Lift Station	--
Letz Lift Station – APN 511-011-008	--
Kelly Ave Lift Station	--
Total Wastewater Infrastructure (including above & 73 miles sewer main)	$3,2654,575
Ramey Pump Station	--
Cochran Pump Station	--
McCluski Reservoirs	--
Norton Road Reservoirs	--
Cochran Reservoirs	--
Blake Road Hydro-pneumatic tank	--
Total Water Infrastructure (including above & 91 miles of pipe)	$1,4663,995
Hiller Park	--
Hiller Sports Complex	--
Pierson Park	--
Larissa Park	--
Hewitt Ranch	--
Park Improvements (including above & Hiller Park Trails, Mid Town Trails, School Road Trail)	$4,289,168
Main Office	--
Field Office	--
Activities Center	--
Azalea Hall	--
McKinleyville Activity and Teen Center	--
McKinleyville Library	--
Law Enforcement Facility	--
Buildings and Improvements (including above)	$5,204,350
Total:	$6,5282,899

12.3 CAPABILITY ASSESSMENT

An assessment of the district's current capabilities was conducted to identify opportunities to expand, initiate or integrate capabilities in order to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The "Analysis of Mitigation Actions" table in Section 12.9 identifies these as community capacity building mitigation actions.

12.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 12-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 12-2. Planning and Regulatory Capability

Plan, Study or Program	Date of Most Recent Update	Comment
Humboldt County Emergency Operations Plan	March 2015	Provides framework for emergency response
MCSD Capital Improvement Plan FY 2019-2028	2018	Details proposed infrastructure improvement projects
MCSD Risk Management Plan	July 2018	District's emergency operations plan
MCSD Process Safety Management Plan	July 2018	Covers accidental release of chlorine and sulfur dioxide used at wastewater treatment plant
Hazard Communication Control Plan	April 2018	Covers control of hazards and hazardous substances in the work
Security Vulnerability Assessment Template		
California Building Code	July 2016	
Humboldt County General Plan	October 2017	Covers zoning & development within the District
McKinleyville Community Plan	Dec. 2002	
MCSD Strategic Plan 2018-22	Origination Date Dec. 2013	5 year update in process, completion projected July 2019

12.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 12-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 12-4.

Table 12-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Federal Grant Programs	Yes

Table 12-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Provided through contract support
Engineers or professionals trained in building or infrastructure construction practices	Yes	Provided through contract support
Planners or engineers with an understanding of natural hazards	Yes	Provided through contract support
Staff with training in benefit/cost analysis	Yes	Provided through contract support
Surveyors	Yes	Provided through contract support
Personnel skilled or trained in GIS applications	Yes	Water/Sewer Department/GIS Analyst
Scientist familiar with natural hazards in local area	Yes	Provided through contract support
Emergency manager	Yes	General Manager/Operations Manager
Grant writers	Yes	Provided through contract support

12.3.3 Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 12-5.

Table 12-5. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe**	Yes Link to County Hazard Mitigation Plan, earthquake map, In Case of Emergency link
Do you use social media for hazard mitigation education and outreach? • **If yes, please briefly describe**	Yes As part of County Plan development
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly specify**	Yes MCSD Board of Directors
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe**	Yes Website, Recreational Department, water/sewer billings, Library and Azalea Hall Postings
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	Not specific; We would depend on the County

12.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 12-6 summarizes the jurisdiction's adaptive capacity for climate change.

Table 12-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts *Comment:*	Medium
Jurisdiction-level monitoring of climate change impacts *Comment:*	Medium
Technical resources to assess proposed strategies for feasibility and externalities *Comment:* Extensive resources in area, studies mainly focus around Humboldt Bay	High
Jurisdiction-level capacity for development of greenhouse gas emissions inventory *Comment:*	Medium
Capital planning and land use decisions informed by potential climate impacts *Comment:*	Medium
Participation in regional groups addressing climate risks *Comment:*	Medium
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes *Comment:*	Medium
Identified strategies for greenhouse gas mitigation efforts *Comment:*	Medium
Identified strategies for adaptation to impacts *Comment:*	Medium
Champions for climate action in local government departments *Comment:*	Medium
Political support for implementing climate change adaptation strategies *Comment:*	Medium
Financial resources devoted to climate change adaptation *Comment:* Solar project being installed at wastewater treatment plant	High
Local authority over sectors likely to be negative impacted *Comment:*	Low
Public Capacity	
Local residents knowledge of and understanding of climate risk *Comment:*	High
Local residents support of adaptation efforts *Comment:*	High/Medium
Local residents' capacity to adapt to climate impacts *Comment:*	Medium
Local economy current capacity to adapt to climate impacts *Comment:*	Low
Local ecosystems capacity to adapt to climate impacts *Comment:*	Medium/Low

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

12.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

For hazard mitigation planning, "integration" means that hazard mitigation information is used in other relevant planning mechanisms, such as capital facilities planning, and that relevant information from those sources is used in hazard mitigation. This section identifies where such integration is already in place, and where there are opportunities for further integration in the future. Resources listed in Section 12.10 were used to provide information on integration. The progress reporting process described in Volume 1 will document the progress of hazard mitigation actions related to integration and identify new opportunities for integration.

12.4.1 Existing Integration

Some level of integration has already been established between local hazard mitigation planning and the following other local plans and programs:

- Humboldt County Hazard Mitigation Plan—District is Planning Partner and supports countywide initiatives
- MCSD Capital Improvement Plan—Applicable projects in CIP are added to Hazard Mitigation Plan and vice versa
- County General Plan—Zoning and development ordinances take into account applicable fire, earthquake, tsunami and other hazards
- County Emergency Operation Plan—Details framework for agency responses to emergencies
- MCSD Process Safety & Risk Control Plans—Detail methods and procedures to prevent and respond to accidents and emergencies
- MCSD Strategic Plan – Includes discussion of infrastructure and other projects that contribute to the emergency response and resiliency of the community

12.4.2 Opportunities for Future Integration

The capability assessment presented in this annex identified the following plans and programs that do not currently integrate hazard mitigation information but provide opportunities to do so in the future:

- MCSD Parks & Recreation Master Plan, 2019—Current plan does not address the use of park or recreational facilities in the event of an emergency or the needs (if any) for the facilities to do so. It also does not address the needs (if any) of additional wildlands buffer interface in the event of wildfires.
- MCSD Emergency Operations Plan, 2015—Specifically defines MCSD and Humboldt County Red Cross' partnership for providing shelter at the MCSD Activity Center

12.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 12-7 lists past occurrences of natural hazards for which specific damage was recorded in the McKinleyville Community Services District. Other hazard events that broadly affected the entire planning area, including McKinleyville are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 12-7. Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
California Severe Winter Storms, Flooding, Mudslides	DR-4308	4/2/2017	Not available
California Severe Winter Storms, Flooding, and Mudslides	DR-4301	2/14/2017	Not available
Flooding	N/A	12/15/2016	Not available
Flooding, severe winter storms, and landslides	DR-1628	12/17/2005	$85,000 ($20,208,206 county wide)
Winter storms, flooding, landslides, mud flows	DR-1044	1/9/1995	$10,000 ($15 million countywide)

12.6 HAZARD RISK RANKING

Table 12-8 presents a local ranking for all hazards of concern for which this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy. Mitigation actions target hazards with high and medium rankings.

Table 12-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	36	High
2	Severe Weather	36	High
3	Landslide	33	High
4	Wildfire	18	Medium
5	Dam Failure	17	Medium
6	Flooding	17	Medium
7	Tsunami	12	Low
8	Drought	4	Low
9	Sea Level Rise	0	None

NOTE: The process used to assign risk ratings and rankings for each hazard is described in Volume 1 of this hazard mitigation NOTE: The process used to assign risk ratings and rankings for each hazard is described in Volume 1 of this hazard mitigation plan.

12.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. The following jurisdiction-specific issues have been identified based on a review of the results of the risk assessment, public involvement strategy, and other available resources:

- The District's main water supply line from Humboldt Bay Municipal Water District is over 40 years old and runs under the Mad River. It is vulnerable to earthquakes and floods.
- The District requires additional potable water storage to meet storage requirements if they lose their source water or the main pump station goes out due to earthquake, flooding, severe weather, wildfire or dam failure.
- The District has three main sewer crossings that pass under Highway 101 and would be very difficult to repair if damaged during an earthquake or due to landslides, severe weather or flooding.
- There is a large wooded area that boarders the eastern edge of the District that is no longer actively managed by the timber company that owns it and could be vulnerable to wildfire.
- The District has several sewer force mains that are nearing the end of their life and are vulnerable to earthquakes, landslides, flooding and severe weather.
- The District has several old redwood water storage tanks at McKluski Hill that are at the end of their life and are vulnerable to earthquakes, landslides, and severe weather.
- The District's SCADA system needs additional redundancy built in to make sure it is not vulnerable to severe weather, earthquakes or flooding.
- The District requires emergency generators at several of their facilities to ensure their continued operation in the event of earthquakes, flooding or severe weather.

Mitigation actions addressing these issues were prioritized for consideration in the action plan presented in Section 12.9.

12.8 STATUS OF PREVIOUS PLAN ACTIONS

Table 12-9 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 12-9. Status of Previous Plan Actions

Action Item from Previous Plan	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Action # in Update
MCSD- #1 Earthquake :Mitigate for loss of water transmission line under the Mad River	X			
Comment: An intertie with the City of Arcata was installed in 2013.				
MCSD -#2 Develop a local well for an alternative to the water supply that is currently vulnerable to damage from multiple hazard events, particularly where the existing water supply main runs under the Mad River			X	13
Comment: District continues to explore options for redundant water supply				
MCSD# 3- Continue to support countywide initiatives identified in Volume 1 of this plan	X			
Comment: Completed during course of 2014 plan				
MCSD# 4- Continue to participate in and support the "emergency intertie" project that will provide redundant water supply transmission piping and availability under emergency circumstances such as water main failure caused by earthquake, flood, tsunami, or severe weather.	X			
Comment: An intertie with the City of Arcata was constructed in 2013				

12.9 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 12-10 lists the actions that make up the hazard mitigation action plan for this jurisdiction. Table 12-11 identifies the priority for each action. Table 12-12 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 12-10. Hazard Mitigation Action Plan Matrix

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline[a]
Action MKCSD1—Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas.						
Hazards Mitigated: Earthquake, flooding, landslide, tsunami, wildfire, sea level rise						
New & existing	3, 4, 10	McKinleyville CSD	County of Humboldt	High	HMGP, PDM, FMA	Short-term
Action MKCSD2—Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.						
Hazards Mitigated: All hazards						
New & Existing	1, 5, 8	McKinleyville CSD	County of Humboldt	Low	Staff Time, General Funds	Short-term
Action MKCSD3—Purchase generators for critical facilities and infrastructure that lack adequate backup power, including District office and Azalea Hall						
Hazards Mitigated: Dam failure, earthquake, flooding, landslide, severe weather, tsunami, wildfire						
New	2, 6, 9	McKinleyville CSD	TBD	Medium	HMGP, PDM, FMA	Long term
Action MKCSD4—Support Countywide initiatives identified in Volume 1 of this hazard mitigation plan.						
Hazards Mitigated: All hazards						
New	All	McKinleyville CSD	TBD	Medium	Staff Time, General Funds	On Going
Action MKCSD5—Work with County on the development of a Regional Debris Management Plan						
Hazards Mitigated: Earthquake, floods, severe weather, wildfire, tsunami, dam failure						
New	1,3, 5, 8, 10, 12	McKinleyville CSD	TBD	Medium	Staff Time, General Funds	Short term
Action MKCSD6—Construct redundant waterline to mitigate for the potential loss of the watermain from HBWMD were it travels under the Mad River						
Hazards Mitigated: Earthquake, floods, severe weather, dam failure						
New & existing	1, 2, 3, 4, 5, 9	McKinleyville CSD	HBMWD	High	HMGP, water rates	Long-term
Action MKCSD7—Construct 5 Million Gallon Water Storage Reservoir to supplement existing potable water storage						
Hazards Mitigated: Earthquake, floods, severe weather, wildfire, dam failure, drought						
New	1, 2, 3, 4, 5, 9	McKinleyville CSD	TBD	High	HMGP, water rates	Long term
Action MKCSD8—Replace three sewer main crossings under Highway 101						
Hazards Mitigated: Earthquake, floods, landslides, severe weather						
New	1, 2, 3, 4, 9	McKinleyville CSD	TBD	High	HMGP, sewer rates	Long term
Action MKCSD9—Purchase Green Diamond land east of the District to establish Community Forest						
Hazards Mitigated: Wildfire, landslides						
New	1, 2, 3, 4, 5, 9, 10	McKinleyville CSD	TBD	Medium	HMGP, general funds	Long term
Action MKCSD10—Assess and replace the sewer force mains from all of the District Sewer Lift Stations.						
Hazards Mitigated: Earthquakes, flooding, landslides, severe weather						
New	1, 2, 3, 4, 5, 9	McKinleyville CSD	TBD	High	HMGP, sewer rates	Long-term
Action MKCSD11—Replace redwood water tanks at McCluski Hill						
Hazards Mitigated: Earthquake, flooding, landslide, severe weather, drought, wildfire						
New	1, 2, 3, 4, 5, 9	McKinleyville CSD	TBD	Medium	HMGP, water rates	Long term
Action MKCSD12—Harden the water and sewer SCADA system and provide additional redundancy						
Hazards Mitigated: All hazards						
New	1, 2, 3, 4, 5, 9	McKinleyville CSD	TBD	Medium	HMG, General Funds	Long term
Action MKCSD13—Develop a local well for an alternative to the water supply that is currently vulnerable to damage from multiple hazard events, particularly where the existing water supply main runs under the Mad River						
Hazards Mitigated: Earthquake, floods, severe weather, dam failure						
	1, 2, 3, 4, 5, 9	McKinleyville CSD	TBD	Medium	HMGP, water rates	Long-term

a. Short-term = Completion within 5 years; Long-term = Completion within 10 years; Ongoing= Continuing program with no end date
See the introduction to this volume for list of acronyms used here.

Table 12-11. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
MKCSD1	3	High	High	Yes	Yes	No	Medium	High
MKCSD2	3	Low	Low	Yes	No	Yes	High	Low
MKCSD3	3	High	Medium	Yes	Yes	No	Medium	High
MKCSD4	12	High	Low	Yes	Yes	No	High	Low
MKCSD5	6	High	Low	Yes	Yes	No	Medium	Medium
MKCSD6	6	High	High	Yes	Yes	No	High	High
MKCSD7	6	High	High	Yes	Yes	No	High	High
MKCSD8	5	High	High	Yes	Yes	No	High	High
MKCSD9	7	Medium	Medium	Yes	Yes	No	Medium	Medium
MKCSD10	6	High	Medium	Yes	Yes	No	High	High
MKCSD11	6	Medium	Medium	Yes	Yes	No	Medium	Medium
MKCSD12	6	High	Medium	Yes	Yes	No	Medium	Medium
MKCSD13	6	High	High	Yes	Yes	Yes	Low	Medium

a. See the introduction to this volume for explanation of priorities.

Table 12-12. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type [a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
High-Risk Hazards								
Earthquake	MKCSD1, 2, 4	MKCSD1, 3, 5, 6, 8, 10, 12	MCSD2		MKCSD3, 5, 6, 7, 11, 12	MKCSD1, 7, 8, 10, 11	MKCSD1	MKCSD2
Severe Weather	MCSD1, 2, 4	MCSD3, 5, 6, 8, 10, 12	MCSD2		MKCSD3, 5, 6, 7, 11, 12	MKCSD7, 8, 10, 11		MKCSD2
Landslide	MKCSD1, 2, 4, 9	MKCSD1, 3, 5, 8, 10, 12	MCSD2, 9	MKCSD9	MKCSD3, 5, 7, 11, 12	MKCSD7, 8, 10, 11	MKCSD1, 9	MKCSD2
Medium-Risk Hazards								
Wildfire	MKCSD1, 2, 4, 9	MKCSD1, 3, 5, 12	MCSD2, 9	MKCSD9	MKCSD3, 5, 7, 11, 12	MKCSD1, 7, 11	MKCSD1, 9	MKCSD2
Dam Failure	MCSD2, 4	MCSD3, 5, 6, 12	MCSD2		MKCSD3, 5, 6, 7, 11, 12	MKCSD7, 11		MKCSD2
Flooding	MKCSD1, 2, 4	MKCSD1, 3, 5, 6, 8, 10, 12	MCSD2		MKCSD3, 5, 6, 7, 11, 12	MKCSD1, 7, 8, 10, 11	MKCSD1	MKCSD2
Low-Risk Hazards								
Tsunami	MKCSD1, 2, 4	MKCSD1, 5, 12	MCSD2		MKCSD5, 12	MKCSD1	MKCSD1	MKCSD2
Drought	MCSD2, 4	MKCSD12	MCSD2		MKCSD7, 11, 12	MKCSD1, 7, 11		MKCSD2
Sea Level Rise	MCSD1, 2, 4	MKCSD12	MCSD2		MKCSD12		MKCSD1	MKCSD2

a. See the introduction to this volume for explanation of mitigation types.

12.10 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

12.10.1 Existing Reports, Plans, Regulatory Tools and Other Resources

The following reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- Sanitary Sewer Main Line Replacement and Rehabilitation Master Plan Phase 2, MCSD, GHD, Feb. 2109 used to confirm sanitary sewer growth and replacement requirements and estimated costs.
- Water Main Line Replacement and Rehabilitation Master Plan Phase 2, MCSD, GHD, Feb. 2019 used to confirm water distribution system growth and replacement requirements and estimated costs.
- McKinleyville Community Services District, Basic Financial Statements and Required Supplementary Information for the year ending June 30, 2017, MCSD used to complete asset list.
- MCSD Enterprise Funds Capital Improvement Project Budget for the Fiscal Years Engine June 30, 2019-2028 used to assess upcoming projects.
- MCSD Water & Wastewater Rate Study, Willdan, Sept. 2018 used for costs for upcoming projects.
- MCSD Budget for Fiscal Year Ending June 30, 2018 used for background information and upcoming projects.
- Strategic Plan 2018-22, MCSD, Dec. 2013 used for upcoming project goals.
- MCSD Parks & Recreation Master Plan 2019, January 2019 used for background and upcoming projects.
- Wastewater Facilities Plan Administrative Draft, MCSD, SHN, Oct. 2011 used to confirm wastewater treatment plant planned growth and estimated costs.

The following outside resources and references were reviewed:

- Hazard Mitigation Plan Annex Development Toolkit—The toolkit was used to support the identification of past hazard events and noted vulnerabilities, the risk ranking, and the development of the mitigation action plan.
- Humboldt County General Plan, McKinleyville Community Plan, Adopted Dec. 2002 used for growth estimates.

12.10.2 Staff and Local Stakeholder Involvement in Annex Development

This annex was developed over the course of several months with input from several district departments including operations and finance. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the station of previously identified actions and participating in action identification and prioritization. An action development meeting was held and was attended by representatives from all department as well at the General Manager. Once actions had been identified and compiled in the annex, a draft was circulated internally for review and comments. Local planners met on 15 APR 2019 to review the risk assessment for this community and to identify appropriate actions to mitigate the risks. Attendees are listed in Table 12-13.

Table 12-13. Participants in Hazard Mitigation Action Plan Development Workshop

Name	Title, Organization
Greg Orsini	General Manager, McKinleyville CSD
James Henry	Operations Director, McKinleyville CSD
Colleen Trask	Finance Director, McKinleyville CSD
Lesley Frisbee	Recreation Director, McKinleyville CSD
Erik Jones	Lead Person, McKinleyville CSD

Appendix G

MCSD Ordinance 2021-06 Water Conservation Establishing Rules and Regulations for Rationing Water During a Water Shortage Emergency and Establishing Penalties for Violations Thereof

ORDINANCE NO. 2021-06
AN ORDINANCE OF THE MCKINLEYVILLE COMMUNITY SERVICES DISTRICT ADDING ARTICLE VII: WATER CONSERVATION ESTABLISHING RULES AND REGULATIONS FOR RATIONING WATER DURING A WATER SHORTAGE EMERGENCY AND ESTABLISHING PENALTIES FOR VIOLATIONS THEREOF

WHEREAS, Article X, Section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for the public welfare; and

WHEREAS, conservation of current water supplies and minimization of the effects of water supply shortages that are the result of drought are essential to the public health, safety and welfare; and

WHEREAS, regulation of the day or time of certain water use, manner of certain water use, design of rates, method of application of water for certain uses, installation and use of water-saving devices, provide an effective and immediately available means of conserving water; and

WHEREAS, California Government Code section 61100, subdivision (a) incorporates Water Code sections 71000 et seq., including section 71640, into the Community Service District Law; and

WHEREAS, California Water Code section 71610.5 authorizes the District to undertake a water conservation program to reduce water use and may require, as a condition of new service, that reasonable water-saving devices and water reclamation devices be installed to reduce water use; and

WHEREAS, pursuant to Water Code section 71640, municipal water districts may restrict the use of district water during a drought emergency or other water shortage condition and may prohibit the wastage of district water or the nonessential use of district water during such periods for any purpose other than household uses or other restricted uses as the District determines to be necessary; and

WHEREAS, pursuant to Water Code section 71641 and Government Code section 6061, the District must publish in a newspaper of general circulation any ordinance setting forth the restrictions, prohibitions, and exclusions determined to be necessary under Water Code section 71640 within 10 days after its adoption, even though the ordinance is effective upon adoption; and

WHEREAS, Water Code section 71644 establishes that, from the publication of an ordinance pursuant to section 71641 until the repeal of the ordinance or end of the emergency, it is a misdemeanor punishable by up to 30 days in county jail and/or a fine

of up to $500 for any person to use or apply water from the District contrary to or in violation of any restriction or prohibition; and

WHEREAS, the adoption and enforcement of a comprehensive water conservation program will allow the District to delay or avoid implementing measures such as water rationing or more restrictive water use regulations pursuant to a declared water shortage emergency as authorized by California Water Code sections 350 et seq.; and

WHEREAS, the District has previously adopted a comprehensive water conservation program in 1977 through Ordinance 10, amended with Ordinance 11 also in 1977, and further amended in 2015 through Resolution 2015-09; and

WHEREAS, the District desires to incorporate and codify this water conservation program within its Rules and Regulations with necessary updates.

NOW THEREFORE, the Board of Directors of the McKinleyville Community Services District does hereby ordain the following:

Section1. ARTICLE VII: WATER CONSERVATION is added to the MCSD Rules and Regulations as attached in Exhibit A.

Section 2. Definitions. For the purpose of this Ordinance the following terms, phrases, words, and their derivations shall have the meaning given herein and if not already within the Rules and Regulations Definitions found in Rule 1 shall be added. The word "shall" is always mandatory and not merely directory.

a) **"District"** is McKinleyville Community Services District.
b) **"Board of Directors"** is the elected Board of Directors of the McKinleyville Community Services District.
c) **"Customer"** is any person using water supplied by the McKinleyville Community Services District.
d) **"Manager"** is the General Manager of the McKinleyville Community Services District.
e) **"Person"** is any person, firm, partnership, association, corporation, company, or organization of any kind.
f) **"Water"** is water from the McKinleyville Community Services District.
g) **"Outdoor surface"** is any patio, porch, veranda, driveway, or sidewalk.

Section 3. Publication. Within ten (10) days of adoption, the District will publish in a newspaper of general circulation this ordinance setting forth the restrictions, prohibitions, and exclusions determined by the District to be necessary.

This Ordinance shall take effect and be in full force and effective thirty (30) days after its passage.

Introduced at a regular meeting of the Board of Directors held on July 7, 2021 and passed and adopted by the Board of Directors on August 4, 2021, upon the motion of Director Binder and seconded by Director Orsini and by the following roll call vote:

AYES: Binder, Couch, Orsini, and Mayo
NOES:
ABSTAIN:
ABSENT: Clark-Peterson

Dennis Mayo, Board President

Attest:

April Sousa, MMC, Board Secretary

Appendix H

Notice of Public Hearing

PUBLIC NOTICE

MCKINLEYVILLE COMMUNITY SERVICES DISTRICT

Notice of Public Hearing

The McKinleyville Community Services District (MCSD) will hold a public hearing on August 4, 2021 at 7:00 PM. In person and Via ZOOM & TELEPHONE: Use ZOOM MEETING ID: 857 1931 4945 or DIAL IN TOLL FREE: 1-888-788-0099 (No Password Required!) The purpose of the hearing is to invite and accept public input on the draft 2020 Urban Water Management Plan which is available for public review at the District Office at 1656 Sutter Road, McKinleyville or available on-line at www.mckinleyvillecsd.com. Please direct comments or questions to Pat Kaspari, General Manager, 1656 Sutter Road, McKinleyville, CA 95519. (707) 839-3251 pkaspari@mckinleyvillecsd.com

PHYSICAL ADDRESS:
1656 SUTTER ROAD
McKINLEYVILLE, CA 95519

MAILING ADDRESS:
P.O. BOX 2037
McKINLEYVILLE, CA 95519

McKINLEYVILLE COMMUNITY SERVICES DISTRICT

mckinleyvillecsd.com

MAIN OFFICE:
PHONE: (707) 839-3251
FAX: (707) 839-8456

PARKS & RECREATION OFFICE:
PHONE: (707) 839-9003
FAX: (707) 839-5964

RELEASE DATE: **JULY 9, 2021**

RUN THROUGH DATE: **JULY 31, 2021**

FROM: **MCKINLEYVILLE COMMUNITY SERVICES DISTRICT**
PAT KASPARI, GENERAL MANAGER
(707) 839-3251

SUBJECT: **NOTICE OF PUBLIC HEARING REGARDING THE 2020 URBAN WATER MANAGEMENT PLAN**

The McKinleyville Community Services District (MCSD) will hold a public hearing on August 4, 2021 at 7:00 PM. In person at Azalea Hall (1620 Pickett Road, McKinleyville) and Via ZOOM & TELEPHONE: Use ZOOM MEETING ID: 859 4543 6653 or DIAL IN TOLL FREE: 1-888-788-0099 (No Password Required!) The purpose of the hearing is to invite and accept public input on the draft 2020 Urban Water Management Plan which is available for public review at the District Office at 1656 Sutter Road, McKinleyville or available on-line at www.mckinleyvillecsd.com. Please direct comments or questions to Pat Kaspari, General Manager, 1656 Sutter Road, McKinleyville, CA 95519. (707) 839-3251 pkaspari@mckinleyvillecsd.com

##########

(End)

Appendix I

60 Day Notice to Cities and Counties

PHYSICAL ADDRESS:

1656 SUTTER ROAD
McKINLEYVILLE, CA 95519

MAILING ADDRESS:

P.O. BOX 2037
McKINLEYVILLE, CA 95519

McKINLEYVILLE COMMUNITY SERVICES DISTRICT

mckinleyvillecsd.com

MAIN OFFICE:

PHONE: (707) 839-3251
FAX: (707) 839-8456

PARKS & RECREATION OFFICE:

PHONE: (707) 839-9003
FAX: (707) 839-5964

Date: March 9, 2021

To: John Friedenbach, Humboldt Bay Municipal Water District
John Ford, Humboldt County Planning Dept.
Rachel Hernandez, City of Arcata

Re: 60-Day Notice Regarding Review of McKinleyville Community Services District's 2020 Urban Water Management Plan

The McKinleyville Community Services District (MCSD) is in the process of preparing and updating the 2020 Urban Water management Plan (UWMP), as required under the Urban Water management Plan Act. The deadline for completing and adopting the final 2020 Urban Water Management Plan is July1, 2021.

California Water Code 10621 (b) requires an urban water supplier preparing an Urban Water Management Plan to notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

This letter is the MCSD notice to your agency that MCSD is in the process of reviewing and updating its UWMP. As with the 2015 UWMP, MCSD is reviewing and updating its 2020 UWMP in collaboration with Humboldt Bay Municipal Water District, the City of Arcata, the City of Eureka, and Humboldt Community Services District

If your agency would like to provide input or be involved in the review process you are encouraged to contact myself or any of the above-named agencies to coordinate your participation.

If you have any questions, please feel free to contact me at (707) 839-3251

Sincerely,

James Henry, Operations Director